ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 131

[EPA-HQ-OW-2015-0174; FRL-9932-03-OW]

RIN 2040-AF56

Revision of Certain Federal Water Quality Criteria Applicable to Washington

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) proposes to revise the current federal Clean Water Act (CWA) human health criteria applicable to waters under the state of Washington's jurisdiction to ensure that the criteria are set at levels that will adequately protect Washington residents, including tribes with treaty-protected rights, from exposure to toxic pollutants. EPA promulgated Washington's existing criteria for the protection of human health in 1992 as part of the National Toxics Rule (NTR), (amended in 1999 for Polychlorinated Biphenyls (PCBs)) using the Agency's recommended criteria values at the time. EPA derived those criteria using a fish consumption rate (FCR) of 6.5 grams per day (g/day) based on national surveys. However, the best available data now demonstrate that fish consumers in Washington, including tribes with treaty-protected rights, consume much more fish than 6.5 g/day. There are also new data and scientific information available to update the toxicity and exposure parameters used to calculate human health criteria. Therefore, EPA proposes to revise the federal human

health criteria applicable to waters under Washington's jurisdiction to take into account the best available science, including local and regional information, as well as applicable EPA policies, guidance, and legal requirements, to protect human health.

DATES: Comments must be received on or before [**INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

ADDRESSES: Submit your comments, identified by Docket ID No. **EPA-HQ-OW-2015-0174**, to the *Federal eRulemaking Portal:* http://www.regulations.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or withdrawn. EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit http://www2.epa.gov/dockets/commenting-epa-dockets.

FOR FURTHER INFORMATION CONTACT: Erica Fleisig, Office of Water, Standards and Health Protection Division (4305T), Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460; telephone number: (202) 566-1057; email address: fleisig.erica@epa.gov.

SUPPLEMENTARY INFORMATION: This proposed rule is organized as follows:

I. General Information

Does This Action Apply to Me?

Entities such as industries, stormwater management districts, or publicly owned treatment works (POTWs) that discharge pollutants to waters of the United States under the state of

Washington's jurisdiction could be indirectly affected by this rulemaking, because federal water quality standards (WQS) promulgated by EPA would be applicable to CWA regulatory programs, such as National Pollutant Discharge Elimination System (NPDES) permitting. Citizens concerned with water quality in Washington could also be interested in this rulemaking. Categories and entities that could potentially be affected include the following:

Category	Examples of potentially affected entities
Industry	Industries discharging pollutants to waters of the United States in Washington.
Municipalities	Publicly owned treatment works or other facilities discharging pollutants to waters of the United States in Washington.
Stormwater Management Districts	Entities responsible for managing stormwater runoff in the state of Washington.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities that could be indirectly affected by this action. Any parties or entities who depend upon or contribute to the water quality of Washington's waters could be affected by this proposed rule. To determine whether your facility or activities could be affected by this action, you should carefully examine this proposed rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the FOR FURTHER INFORMATION CONTACT section.

II. Background

A. Statutory and Regulatory Background

CWA section 101(a)(2) establishes as a national goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water,

wherever attainable." These are commonly referred to as the "fishable/swimmable" goals of the CWA. EPA interprets "fishable" uses to include, at a minimum, designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish.[1]

CWA section 303(c) (33 U.S.C. 1313(c)) directs states to adopt WQS for their waters subject to the CWA. CWA section 303(c)(2)(A) and EPA's implementing regulations at 40 CFR part 131 require, among other things, that a state's WQS specify appropriate designated uses of the waters, and water quality criteria that protect those uses. EPA's regulations at 40 CFR 131.11(a)(1) provide that such criteria "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." In addition, 40 CFR 131.10(b) provides that "[i]n designating uses of a water body and the appropriate criteria for those uses, the state shall take into consideration the water quality standards of downstream waters and ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters."

States are required to review applicable WQS at least once every three years and, if appropriate, revise or adopt new standards (CWA section 303(c)(1)). Any new or revised WQS must be submitted to EPA for review and approval or disapproval (CWA section 303(c)(2)(A) and (c)(3)). CWA section 303(c)(4)(B) authorizes the Administrator to determine, even in the

[1] USEPA. 2000. Memorandum #WQSP-00-03. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/upload/2000_10_31_standards_shellfish.pdf.

absence of a state submission, that a new or revised standard is needed to meet CWA requirements.

Under CWA section 304(a), EPA periodically publishes criteria recommendations for states to consider when adopting water quality criteria for particular pollutants to meet the CWA section 101(a)(2) goals. In 2015, EPA updated its 304(a) recommended criteria for human health for 94 pollutants.[2] Where EPA has published recommended criteria, states should consider adopting water quality criteria based on EPA's CWA section 304(a) criteria, section 304(a) criteria modified to reflect site-specific conditions, or other scientifically defensible methods (40 CFR 131.11(b)(1)). Ultimately, however, criteria must protect the designated use and be based on sound scientific rationale (40 CFR 131.11(a)(1)). CWA section 303(c)(2)(B) requires states to adopt numeric criteria for all toxic pollutants listed pursuant to CWA section 307(a)(1) for which EPA has published 304(a) criteria, as necessary to support the states' designated uses.

In 1992, EPA promulgated the NTR at 40 CFR 131.36, establishing chemical-specific, numeric criteria for 85 priority toxic pollutants for 14 states and territories (states), including Washington, that were not in compliance with the requirements of CWA section 303(c)(2)(B). When states covered by the NTR subsequently adopted their own criteria for toxic pollutants that EPA approved as consistent with the CWA and EPA's implementing regulations, EPA amended the NTR to remove those states. Half of the original 14 states and territories remain covered for one or more criteria in the NTR. Washington has not yet adopted its own criteria for the

[2] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

protection of human health and, therefore, the Federal human health criteria that EPA promulgated in the NTR remain applicable to waters throughout the state.[3]

B. General Recommended Approach for Deriving Human Health Criteria

Human health criteria are designed to minimize the risk of adverse cancer and non-cancer effects occurring from lifetime exposure to pollutants through the ingestion of drinking water and consumption of fish/shellfish obtained from inland and nearshore waters. EPA's practice is to establish a human health 304(a) criterion for both drinking water and consumption of fish/shellfish from inland and nearshore waters combined and a separate human health criterion based on ingestion of fish/shellfish from inland and nearshore waters alone. This latter criterion applies in cases where the designated uses of a waterbody include supporting fish/shellfish for human consumption but not drinking water supply sources (e.g., in non-potable estuarine waters).

The criteria are based on two types of biological endpoints: (1) carcinogenicity and (2) systemic toxicity (i.e., all adverse effects other than cancer). EPA takes an integrated approach and considers both cancer and non-cancer effects when deriving human health criteria. Where sufficient data are available, EPA derives criteria using both carcinogenic and non-carcinogenic toxicity endpoints and recommends the lower value. Human health criteria for carcinogenic effects are calculated using the following input parameters: cancer slope factor, cancer risk level, body weight, drinking water intake rate, fish consumption rate, and a bioaccumulation factor(s).

[3] Washington adopted criteria for the protection of aquatic life from toxic pollutants at WAC 173-201A-240. On January 12, 2015, Washington proposed statewide human health criteria and new and revised implementation provisions. In July 2015, Governor Inslee directed Washington to reconsider its proposed human health criteria and implementation tool revisions. See http://www.ecy.wa.gov/programs/wq/ruledev/wac173201A/1203ov.html.

Human health criteria for non-carcinogenic and nonlinear carcinogenic effects are calculated using a reference dose in place of a cancer slope factor and cancer risk level, as well as a relative source contribution (RSC), which is intended to ensure that an individual's total exposure from all sources does not exceed the criteria. Each of these inputs is discussed in more detail below and in EPA's 2000 Human Health Methodology.[4]

a. Cancer Risk Level

EPA's 304(a) national recommended human health criteria generally assume that carcinogenicity is a "non-threshold phenomenon," which means that there are no "safe" or "no-effect" levels because even extremely small doses are assumed to cause a finite increase in the incidence of cancer. Therefore, EPA calculates 304(a) human health criteria for carcinogenic effects as pollutant concentrations corresponding to lifetime increases in the risk of developing cancer.[5] EPA calculates its 304(a) human health criteria values at a 10^{-6} (one in one million) cancer risk level and recommends cancer risk levels of 10^{-6} or 10^{-5} (one in one hundred thousand) for the general population.[6] EPA notes that states and authorized tribes can also choose a more stringent risk level, such as 10^{-7} (one in ten million), when deriving human health criteria.

[4] USEPA. 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. http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf.

[5] As noted above, EPA recommends the criteria derived for non-carcinogenic effects if it is more protective (lower) than that derived for carcinogenic effects.

[6] EPA's 2000 Human Health Methodology also states:
"Criteria based on a 10^{-5} risk level are acceptable for the general population as long as states and authorized tribes ensure that the risk to more highly exposed subgroups (sport fishers or subsistence fishers) does not exceed the 10^{-4} level." Since EPA is proposing criteria to protect the target general population in Washington (tribes with reserved rights in Washington waters), the applicable EPA-recommended cancer risk levels are those for the general population. See section IV for additional discussion.

If the pollutant is not considered to have the potential for causing cancer in humans (i.e., systemic toxicants), EPA assumes that the pollutant has a threshold below which a physiological mechanism exists within living organisms to avoid or overcome the adverse effects of the pollutant.

b. Cancer Slope Factor and Reference Dose

A dose-response assessment is required to understand the quantitative relationships between the amount of exposure to a pollutant and the onset of human health effects. EPA evaluates dose-response relationships derived from animal toxicity and human epidemiological studies to derive dose-response metrics for regulatory purposes. To evaluate carcinogenic effects, the dose-response metric used to characterize a chemical's human cancer-causing potential is referred to as a cancer slope factor (CSF). For non-carcinogenic effects, EPA uses the reference dose (RfD) to calculate human health criteria. Doses that are below the RfD are less likely to be associated with health risks. EPA's Integrated Risk Information System (IRIS)[7] was the primary source of toxicity values (i.e., RfD and CSF) for EPA's 2015 updated 304(a) human health criteria.[8] For some pollutants, however, more recent peer-reviewed and publicly available toxicological data were available from other EPA program offices (e.g., Office of Pesticide Programs, Office of Water, Office of Solid Waste and Emergency Response), other national and international programs, and state programs.

[7] USEPA. Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C. www.epa.gov/iris.

[8] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

c. Exposure Assumptions

Per EPA's latest 304(a) national human health criteria, EPA uses a default drinking water intake rate of 2.4 liters per day (L/day) and default rate of 22 g/day for consumption of fish and shellfish from inland and nearshore waters, multiplied by pollutant-specific bioaccumulation factors (BAFs) to account for the amount of the pollutant in the edible portions of the ingested species. EPA's methodology for deriving human health criteria emphasizes using, when possible, measured or estimated BAFs, which account for chemical accumulation in aquatic organisms from all potential exposure routes.[9] In the 2015 national 304(a) human health criteria update, EPA primarily used field-measured BAFs and laboratory-measured bioconcentration factors (BCFs) available from peer-reviewed, publicly available databases to develop national BAFs for three trophic levels of fish.[10] If this information was not available, EPA selected octanol-water partition coefficients (K_{ow} values) from peer-reviewed sources for use in calculating national BAFs.

EPA's national default drinking water intake rate of 2.4 L/day represents the per capita estimate of combined direct and indirect community water ingestion at the 90th percentile for adults ages 21 and older.[11] EPA's national FCR of 22 g/day represents the 90th percentile consumption rate of fish and shellfish from inland and nearshore waters for the U.S. adult

[9] USEPA. 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. http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf.

[10] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

[11] USEPA. 2011. EPA Exposure Factors Handbook. 2011 edition (EPA 600/R-090/052F). http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252.

population 21 years of age and older, based on National Health and Nutrient Examination Survey (NHANES) data from 2003 to 2010.[12,13] EPA calculates human health criteria using a default body weight of 80 kilograms (kg), the average weight of a U.S. adult age 21 and older, based on NHANES data from 1999 to 2006.

Although EPA uses these values to calculate national 304(a) recommended criteria, EPA's methodology notes a preference for the use of local data to calculate human health criteria (e.g., locally derived FCRs, drinking water intake rates and body weights, and waterbody-specific bioaccumulation rates) over national default values, to better represent local conditions.[14] EPA also generally recommends, where sufficient data are available, selecting a FCR that reflects consumption that is not suppressed by fish availability or concerns about the safety of available fish.[15] Deriving criteria using an unsuppressed FCR furthers the restoration goals of the CWA, and ensures protection of human health as pollutant levels decrease, fish habitats are restored, and fish availability increases. While EPA encourages doing so in general, where tribal treaty or other reserved fishing rights apply, selecting a FCR that reflects unsuppressed fish consumption could be necessary in order to satisfy such rights. If sufficient

[12] USEPA. 2014. Estimated Fish Consumption Rates for the U.S. Population and Selected Subpopulations (NHANES 2003-2010). United States Environmental Protection Agency, Washington, DC, USA. EPA 820-R-14-002.

[13] EPA's national FCR is based on the total rate of consumption of fish and shellfish from inland and nearshore waters (including fish and shellfish from local, commercial, aquaculture, interstate, and international sources). This is consistent with a principle that each state does its share to protect people who consume fish and shellfish that originate from multiple jurisdictions. USEPA. January 2013. *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*. http://water.epa.gov/scitech/swguidance/standards/criteria/health/methodology/upload/hhfaqs.pdf.

[14] USEPA. 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. http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf.

[15] USEPA. January 2013. *Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*. http://water.epa.gov/scitech/swguidance/standards/criteria/health/methodology/upload/hhfaqs.pdf.

data regarding unsuppressed fish consumption levels are unavailable, consultation with tribes is important in deciding which fish consumption data should be used. See section IV.C.a.

d. Relative Source Contribution

When deriving human health criteria for non-carcinogens and nonlinear carcinogens, EPA recommends including a RSC factor to account for sources of exposure other than drinking water and fish and shellfish from inland and nearshore waters, so that the pollutant effect threshold (i.e., RfD) is not apportioned to drinking water and fish consumption alone. These other exposures include exposure to a particular pollutant from ocean fish consumption (which is not included in EPA's default national FCR), non-fish food consumption (e.g., fruits, vegetables, grains, meats, poultry), dermal exposure, and respiratory exposure. EPA's guidance includes a procedure for determining an appropriate RSC for a given pollutant ranging in value from 0.2 to 0.8.

III. Necessity Determination for Washington

A. Existing Criteria Are Not Protective of Designated Uses of Waters in the State of Washington

In the NTR, 40 CFR 131.36(d)(14), EPA stated that the federal human health criteria applied to all waters assigned to Washington's use classifications identified at WAC 173-201-045, including fish and shellfish, fish, water supply (domestic), and recreation. As currently defined in Washington's WQS (WAC 173-201A-600 and WAC 173-201A-610), the uses subject to federal human health criteria in Washington include the following: Fresh waters – Harvesting (fish harvesting), Domestic Water (domestic water supply), and Recreational Uses; Marine waters – Shellfish Harvesting (shellfish—clam, oyster, and mussel—harvesting), Harvesting

(salmonid and other fish harvesting, and crustacean and other shellfish—crabs, shrimp, scallops, etc.—harvesting), and Recreational Uses.

Per EPA's regulations at §131.11(a), water quality criteria must contain sufficient parameters or constituents to protect the designated use, and for waters with multiple use designations, the criteria must support the most sensitive use. In determining whether WQS comply with the CWA and EPA's regulations, when setting criteria to support the most sensitive use in Washington, it is necessary to consider other applicable laws, including federal treaties.[16] In Washington, many tribes hold reserved rights to take fish for subsistence, ceremonial, religious, and commercial purposes, including treaty-reserved rights to fish at all usual and accustomed fishing grounds and stations in waters under state jurisdiction, which cover the majority of waters in the state. Such rights include not only a right to take those fish, but necessarily include an attendant right to not be exposed to unacceptable health risks by consuming those fish.

In 1992, EPA selected input values based on available national data to derive protective human health criteria in the NTR. To ensure protection of human health in waters where fish and shellfish are caught and consumed, EPA used data available at the time on the average per-capita consumption rate of fish from inland and nearshore waters for the U.S. population. This average rate was 6.5 g/day.

Surveys of local residents in the Pacific Northwest, including tribes and recreational anglers, reflect high consumption levels of fish and shellfish – much higher than the 6.5 g/day

[16] In addition to treaties, executive orders and federal statutes, such as land claim settlement acts, could also apply.

rate that EPA used in 1992 to derive Washington's human health criteria in the NTR. Since that time, data have become available that better represent regional and local fish consumption in Washington, including:

- *A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994).
- *A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region* (Toy et al., 1996).
- *Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservations, Puget Sound Region* (Suquamish Tribe, 2000).
- *Asian and Pacific Islander Seafood Consumption Study* (Sechena et al., 1999).

The average FCRs[17] from these surveys range from 63 to 214 g/day, far in excess of 6.5 g/day. The 90th percentile FCRs from these surveys range from 113 to 489 g/day, also far in excess of EPA's current national FCR of 22 g/day, which represents the 90th percentile national FCR (see section II.B.c). The 6.5 g/day FCR that EPA used to derive the current human health criteria applicable to Washington does not account for these more recent local data, nor suppression in fish consumption (as discussed earlier).[18] In addition, the 6.5 g/day FCR does not

[17] Cited FCRs are based on total fish consumption regardless of source.

[18] Historical or heritage FCRs could be of relevance to establishing unsuppressed FCRs for Washington tribes. Extensively researched historical average FCRs for the Columbia River Basin Tribes range from 401 to 995 g/day (Craig and Hacker (1940) & Hewes (1947); Swindell (1942); Marshall (1977); Walker (1967)). More limited average historic FCRs for Washington Tribes range from 454 to 746 g/day (Hewes 1973). In *United States v. Washington* (1974), the court accepted a heritage FCR of 620 g/day. A number of factors could cause these FCRs to be underestimates (Schalk 1986), including the fact that, with the exception of Craig and Hacker (1940), they only include consumption of salmon. Upper percentile values are not reported in these historical studies but would be

account for EPA's 2000 recommendation to use an upper percentile of fish consumption data for the target general population (as with EPA's current national FCR of 22 g/day) rather than an average. EPA considered the fish consumption data cited above, in conjunction with Washington's current designated uses as informed by tribal reserved rights in Washington (as discussed in section IV.A), and determined that the federal human health criteria in the NTR as applied to Washington no longer protect the relevant designated uses of Washington's waters.

B. CWA 303(c)(4)(B) Determination of Necessity

Because Washington's existing human health criteria, as promulgated by EPA in the NTR, are no longer protective of the applicable designated uses per the CWA and EPA's regulations at 40 CFR 131.11, EPA determines under CWA section 303(c)(4)(B) that new or revised WQS for the protection of human health are necessary to meet the requirements of the CWA for Washington. EPA, therefore, proposes the revised human health criteria for Washington in this rule in accordance with this 303(c)(4)(B) determination. EPA's determination is not itself a final action, nor part of a final action, at this time. After consideration of comments on the proposed rule, EPA will take final agency action on this rulemaking. It is at that time that any change to the water quality standards applicable to Washington would occur.

IV. Derivation of Human Health Criteria for Washington

A. Tribal Reserved Fishing Rights and Washington's Designated Uses

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higher than the reported average values. The highest estimated current FCRs in Washington come from the Suquamish Tribal survey (Suquamish 2000), with a reported FCR as high as 1,600 g/day (Table C5). The 95th percentile Suquamish FCR is 767 g/day (Ecology 2013). Recent publications by Harper and Walker (2015) comprehensively summarize and further support these heritage and contemporary fish consumption rates.

A majority of waters under Washington's jurisdiction are covered by reserved rights, including tribal treaty-reserved rights (see section III.A). Many areas where reserved rights are exercised cannot be directly protected or regulated by the tribal governments and, therefore, the responsibility falls to the state and federal governments to ensure their protection.[19] In order to effectuate and harmonize these reserved rights, including treaty rights, with the CWA, EPA determined that such rights appropriately must be considered when determining which criteria are necessary to adequately protect Washington's fish and shellfish harvesting designated uses (see sections IV.C.a and IV.C.b).

Protecting Washington's fish and shellfish harvesting designated uses, which include consumption of such fish and shellfish, necessitates protecting the population exercising those uses. Where a population exercising such uses has a legal right to do so, the criteria protecting such uses must be consistent with such right. Thus, EPA proposes to consider the tribal population exercising their reserved fishing rights in Washington as the target general population for the purposes of deriving protective criteria that allow the tribes to harvest and consume fish consistent with their reserved rights.

Although treaties do not cover all waters in Washington, they cover the vast majority of the state's waters. Additionally, where treaty and non-treaty reserved rights apply on waters downstream of waters without reserved fishing rights, upstream WQS must provide for the attainment and maintenance of downstream WQS in accordance with EPA's regulations at 40 CFR 131.10(b). For any remaining waters in Washington where reserved rights do not apply

[19] Note that for formal and informal reservation lands, eligible tribes can obtain treatment in a similar manner as a state (TAS) status and set their own WQS under the CWA, including human health criteria.

and that are not upstream of waters with such rights or waters in Oregon (see section IV.C.a), it would be administratively burdensome and difficult to implement separate criteria because it would create a patchwork of protection among these areas leading to potential difficulties in administering the WQS, NPDES permitting, and other programs. In addition, delineating the precise boundaries could itself be complicated. Therefore, EPA proposes to apply these criteria to all waters under Washington's jurisdiction.

B. Scope of EPA's Proposal

In 1992, EPA did not establish human health criteria in the NTR for some priority toxic pollutants for reasons articulated in the preamble to the final rule at 57 FR 60848, December 22, 1992. EPA had no 304(a) recommendations for those pollutants at the time. EPA now has 304(a) recommendations for 99 priority toxic pollutants listed pursuant to CWA section 307(a)(1) (85 for which EPA established criteria in the NTR, plus 14 additional pollutants). Therefore, EPA proposes to derive Washington-specific criteria for all 99 priority toxic pollutants in this rule. For those priority pollutants for which EPA does not have 304(a) national recommended criteria, and are thus not included in this proposed rule, EPA expects that Washington will continue to apply their existing narrative toxics criterion in the state's WQS at WAC 173-201A-260(2)(a).

This rule proposes to change the criteria that EPA promulgated for Washington in the NTR and establish new human health criteria for the 14 additional chemicals for which EPA now has 304(a) recommended criteria: Copper, Selenium, Zinc, 1,2-Dichloropropane, 1,2-Trans-Dichloroethylene, 2-Chlorophenol, 2,4-Dimethylphenol, Acenaphthene, Butylbenzyl Phthalate,

2-Chloronaphthalene, N-Nitrosodi-n-Propylamine, 1,1,1-Trichloroethane, 3-Methyl-4-Chlorophenol, and 1,2,4-Trichlorobenzene. Since 1992, EPA replaced its recommended human health criteria for mercury with a fish tissue-based human health criterion for methylmercury. EPA proposes to replace the criteria for mercury that EPA promulgated for Washington in the NTR with a methylmercury fish tissue criterion, adjusted for the FCR that EPA proposes to use to derive human health criteria in Washington.[20] This proposed rule would not change or supersede any criteria that EPA previously promulgated for other states in the NTR, nor does it change any other elements of the NTR such as EPA's original basis for promulgation. EPA proposes to remove Washington from the NTR at 40 CFR 131.36 and incorporate the Washington-specific criteria proposed in this rule into proposed 40 CFR 131.45 so there is a single comprehensive rule for Washington.

This proposed rule would apply to waters under the state of Washington's jurisdiction, and not to waters within Indian Country[21], unless otherwise specified in federal law. Some waters located within Indian Country already have CWA-effective human health criteria, while others do not.[22] Several tribes are working with EPA to either revise their existing CWA-effective WQS, or obtain treatment in a similar manner as a state (TAS) status in order to adopt their own WQS in the near future. EPA will continue to work closely with tribes in Washington

[20] USEPA. 2001. Water Quality Criterion for the Protection of Human Health: Methylmercury. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA-823-R-01-001. http://water.epa.gov/scitech/swguidance/standards/criteria/health/upload/2009_01_15_criteria_methylmercury_mercury-criterion.pdf.

[21] *See* 18 U.S.C. 1151 for definition of Indian Country.

[22] Indian Country waters with CWA-effective WQS are (a) those Indian Country waters where EPA explicitly found that a tribe has jurisdiction to adopt WQS under the CWA, and where the tribe adopted standards in accordance with EPA regulations, and (b) where EPA promulgated federal WQS.

to ensure that they adopt human health criteria that are scientifically supported and protective of designated uses, in accordance with the CWA and EPA's regulations.

C. Washington-Specific Human Health Criteria Inputs

a. Fish Consumption Rate

EPA proposes to derive human health criteria for Washington using a FCR of 175 g/day as this FCR accounts for local data (consistent with EPA's methodology), reflects input received during consultation with tribes, and appropriately addresses protection of Oregon's downstream WQS, per EPA's regulations at 40 CFR 131.10(b).

EPA considered the input received during consultation with tribes when selecting which fish consumption data would be used to estimate a FCR for calculating human health criteria to protect the designated uses. A FCR of 175 g/day approximates the 95th percentile consumption rate of surveyed tribal members from the CRITFC study.[23] Although EPA's national default FCR only includes consumption of fish from inland and nearshore waters, 175 g/day in this case includes anadromous fish, which is appropriate given that anadromous species reside in Washington's nearshore waters, especially Puget Sound, and accumulate pollutants discharged to these waters.[24] A FCR of 175 g/day, therefore, accounts for local fish consumption data.

[23] *Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994)

[24] O'Neill, S.M., and J.E. West. 2009. Marine distribution, life history traits, and the accumulation of polychlorinated biphenyls in Chinook salmon from Puget Sound, Washington. Transactions of the American Fisheries Society 138: 616-632.
O'Neill, S.M., G.M. Ylitalo, J.E. West, J. Bolton, C.A. Sloan, and M.M. Krahn. 2006. Regional patterns of persistent organic pollutants in five Pacific salmon species (*Oncorhynchus spp*) and their contributions to contaminant levels in northern and southern resident killer whales (*Orcinus orca*). 2006 Southern Resident Killer Whale Symposium, NOAA Fisheries Service Northwest Regional Office April 3-5, 2006. Seattle, WA. Extended Abstract. 5pp.

Additionally, Oregon, much of which is downstream from Washington, used this FCR to derive statewide human health criteria, which EPA approved in 2011. Use of this FCR to derive Washington's criteria should thus help provide for the attainment and maintenance of downstream WQS in Oregon.

After consideration of the full range of available local fish consumption data and after consultation with Washington tribes and Columbia River Basin tribes in Oregon and Idaho, EPA determined that a FCR of 175 g/day very likely does not reflect unsuppressed consumption rates of tribes within the state (see section II.B.c). EPA considered this fact as well as tribal input in selecting a cancer risk level of 10^{-6} to account for this uncertainty and ensure that EPA's proposed criteria protect Washington's fishing uses, including the tribes' reserved fishing rights. See discussion in section IV.C.b.

b. Cancer Risk Level

Based on Washington's longstanding use of a cancer risk level of 10^{-6}, along with EPA's consideration of tribal reserved rights, EPA guidance, and downstream protection, EPA proposes to derive human health criteria for carcinogens in Washington using a 10^{-6} cancer risk level.

To derive final human health criteria for each state in the NTR, EPA selected a cancer risk level based on each state's policy or practice regarding what risk level should be used when regulating carcinogens in surface waters. In its official comments on EPA's proposed NTR, Washington asked EPA to promulgate human health criteria using a cancer risk level of 10^{-6}, stating, "The State of Washington supports adoption of a risk level of one in one million for carcinogens. If EPA decides to promulgate a risk level below one in one million, the rule should

specifically address the issue of multiple contaminants so as to better control overall site risks." (57 FR 60848, December 22, 1992). Accordingly, in the NTR, EPA used a cancer risk level of 10^{-6} (one in one million) to derive human health criteria for Washington. Subsequently, Washington adopted and EPA approved a provision in the state's WQS that reads: "Risk-based criteria for carcinogenic substances shall be selected such that the upper-bound excess cancer risk is less than or equal to one in a million" (WAC 173-201A-240(6)). This provision has been in effect in Washington's WQS since 1993.

In order to effectuate reserved fishing rights, including the rights that federal treaties afford to tribes in Washington, EPA proposes to derive criteria that will protect the tribe's reserved fishing rights in Washington, treating the tribal population exercising those rights as the target general population (see section IV.A). EPA's selection of a 10^{-6} cancer risk level for the tribal target general population is consistent with EPA's 2000 Human Health Methodology, which states that when promulgating water quality criteria for states and tribes, EPA intends to use the 10^{-6} level, which reflects an appropriate risk for the general population.[25] EPA's 2000 Human Health Methodology did not consider how CWA decisions should account for applicable reserved fishing rights, including treaty-reserved rights. As discussed in section IV.C.a, because a FCR of 175 g/day very likely does not reflect unsuppressed consumption, using a cancer risk level of 10^{-6} ensures protection of tribal members' unsuppressed consumption. Independently, the treaties themselves could require higher levels of protection. The treaties themselves could be

[25] EPA 2000 Human Health Methodology, pages 2-6. The Methodology recommends that states set human health criteria cancer risk levels for the target general population at either 10^{-5} or 10^{-6} (pages 2-6) and also notes that states and authorized tribes can always choose a more stringent risk level, such as 10^{-7} (pages 1-12).

interpreted to require a certain level of risk; e.g., a *de minimis* level of risk that would most reasonably approximate conditions at the time the treaties were signed and the fishing rights were reserved. In policy development regarding management of cancer risks, EPA often uses 10^{-6} as a *de minimis* risk level.[26] In this case, EPA considers 10^{-6} to be sufficiently protective, and the tribes have supported this during consultation.

Finally, many of Washington's rivers are in the Columbia River basin, upstream of Oregon's portion of the Columbia River. Oregon's criteria are based on a FCR of 175 g/day and a cancer risk level of 10^{-6}. EPA's proposal to derive human health criteria for Washington using a cancer risk level of 10^{-6} along with a FCR of 175 g/day helps ensure that Washington's criteria will provide for the attainment and maintenance of Oregon's downstream WQS as required by 40 CFR 131.10(b).

c. Relative Source Contribution

EPA recommends using a RSC for non-carcinogens and nonlinear carcinogens to account for sources of exposure other than drinking water and consumption of inland and nearshore fish and shellfish (see section II.B.d). In 2015, after evaluating information on chemical uses, properties, occurrences, releases to the environment and regulatory restrictions, EPA developed chemical-specific RSCs for non-carcinogens and nonlinear carcinogens ranging from 0.2 (20 percent) to 0.8 (80 percent) following the Exposure Decision Tree approach described in EPA's

[26] *See* Castorina, Rosemary and Tracey J. Woodruff. *Assessment of Potential Risk Levels Associated with the U.S. EPA Reference Values*. Environmental Health Perspectives, Vol. 111, No. 10, page 1318. August 2003. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241613/pdf/ehp0111-001318.pdf.

2000 Human Health Methodology.[27,28] EPA proposes to use these same RSCs to derive human health criteria for Washington. Where EPA did not update the nationally recommended criteria for certain pollutants in 2015, EPA proposes to use a RSC of 0.2 to derive human health criteria for those pollutants in Washington to ensure protectiveness. See Table 1, column B2 for a list of EPA's proposed RSCs by pollutant.

d. Body Weight

EPA proposes to calculate human health criteria for Washington using a body weight of 80 kg, which represents the average weight of a U.S. adult. In 2015, EPA updated its national adult body weight to 80 kg based on national survey data (see section II.B.c).[29] Local tribal survey data relevant to Washington are consistent with EPA's national adult body weight of 80 kg.[30]

e. Drinking Water Intake

EPA proposes to calculate human health criteria for Washington using a rate of 2.4 L/day. In 2015, EPA updated its national default drinking water intake rate to 2.4 L/day based on

[27] USEPA. 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. http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf.

[28] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

[29] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

[30] USEPA Region 10. August 2007. Framework for Selecting and Using Tribal Fish and Shellfish Consumption Rates for Risk-Based Decision Making at CERCLA and RCRA Cleanup Sites in Puget Sound and the Strait of Georgia. Appendix B. http://yosemite.epa.gov/r10/CLEANUP.NSF/7780249be8f251538825650f0070bd8b/e12918970debc8e488256da6005c428e/$FILE/Tribal%20Shellfish%20Framework.pdf.

national survey data (see section II.B.c).[31] EPA is not aware of any local data applicable to Washington that suggest a more appropriate rate.

f. Pollutant-Specific Reference Doses and Cancer Slope Factors

As part of EPA's 2015 updates to its 304(a) recommended human health criteria, EPA conducted a systematic search of eight peer-reviewed, publicly available sources to obtain the most current toxicity values for each pollutant (RfDs for non-carcinogenic effects and CSFs for carcinogenic effects).[32] EPA proposes to calculate human health criteria for Washington using the same toxicity values that EPA used in its 2015 304(a) criteria updates, to ensure that the resulting criteria are based on a sound scientific rationale. Where EPA did not update criteria for certain pollutants in 2015, EPA proposes to use the toxicity values that the Agency used the last time it updated its 304(a) criteria for those pollutants as the best available scientific information. See Table 1, columns B1 and B3 for a list of EPA's proposed toxicity factors by pollutant.

g. Pollutant-Specific Bioaccumulation Factors

For the 2015 national 304(a) human health criteria update, EPA estimated chemical-specific BAFs using a framework for deriving national BAFs described in EPA's 2000 Human

[31] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

[32] Final Updated Ambient Water Quality Criteria for the Protection of Human Health, (80 FR 36986, June 29, 2015). See also: USEPA. 2015. Final 2015 Updated National Recommended Human Health Criteria. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhfinal.cfm.

Health Methodology.[33] Because the surveyed population upon which the 175 g/day FCR is based consumed almost exclusively trophic level four fish (i.e., predator fish species), EPA proposes to apply the trophic level four BAF from the 2015 304(a) human health criteria updates in conjunction with the 175 g/day FCR, in order to ensure protectiveness.[34] Where EPA did not update criteria for certain pollutants in 2015, EPA proposes to use the BCFs that the Agency used the last time it updated its 304(a) criteria for those pollutants as the best available scientific information. See Table 1, columns B4 and B5 for a list of EPA's proposed bioaccumulation factors by pollutant.

D. Proposed Human Health Criteria for Washington

EPA proposes 195 human health criteria for 99 different pollutants (97 organism-only criteria and 98 water-plus-organism criteria) to protect the applicable designated uses of Washington's waters (see Table 1). The water-plus-organism criteria in column C1 of Table 1 are the applicable criteria for any waters that include the Domestic Water (domestic water supply) use defined in Washington's WQS (WAC 173-201A-600). The organism-only criteria in column C2 of Table 1 apply to waters that do not include the Domestic Water (domestic water supply) use and that Washington defines at WAC 173-201A-600 and 173-201A-610 as the following: Fresh waters – Harvesting (fish harvesting), and Recreational Uses; Marine waters – Shellfish Harvesting (shellfish—clam, oyster, and mussel—harvesting), Harvesting (salmonid

[33] USEPA. 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. http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf.

[34] *Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994)

and other fish harvesting, and crustacean and other shellfish—crabs, shrimp, scallops, etc.—harvesting), and Recreational Uses.

EPA solicits comment on the criteria, the inputs EPA used to derive these criteria, and specifically solicits additional Washington-specific information such as data from local fish or drinking water consumption rate studies, or bioaccumulation field studies from Washington waters.

Table 1. Proposed Human Health Criteria for Washington									
	A		B					C	
	Chemical	CAS Number	Cancer Slope Factor, CSF (per mg/kg·d) (B1)	Relative Source Contribution, RSC (-) (B2)	Reference Dose, RfD (mg/kg·d) (B3)	Bio-accumulation Factor for Trophic Level 4 (L/kg tissue) (B4)	Bio-concentration Factor (L/kg tissue) (B5)	Water & Organisms (µg/L) (C1)	Organisms Only (µg/L) (C2)
1	1,1,1-Trichloroethane	71556	-	0.20	2	10	-	8,000	20,000
2	1,1,2,2-Tetrachloroethane	79345	0.2	-	-	8.4	-	0.1	0.3
3	1,1,2-Trichloroethane	79005	0.057	-	-	8.9	-	0.35	0.90
4	1,1-Dichloroethylene	75354	-	0.20	0.05	2.6	-	300	2,000
5	1,2,4-Trichlorobenzene	120821	0.029	-	-	430	-	0.036	0.037
6	1,2-Dichlorobenzene	95501	-	0.20	0.3	82	-	300	300
7	1,2-Dichloroethane	107062	0.0033	-	-	1.9	-	8.9	73
8	1,2-Dichloropropane	78875	0.036	-	-	3.9	-	0.72	3.3
9	1,2-Diphenylhydrazine	122667	0.8	-	-	27	-	0.01	0.02
10	1,2-Trans-Dichloroethylene	156605	-	0.20	0.02	4.7	-	100	400
11	1,3-Dichlorobenzene	541731	-	0.20	0.002	190	-	0.9	1
12	1,3-Dichloropropene	542756	0.122	-	-	3.0	-	0.22	1.2
13	1,4-Dichlorobenzene	106467	-	0.20	0.07	84	-	70	80
14	2,3,7,8-TCDD (Dioxin)	1746016	156,000	-	-	-	5,000	5.8E-10	5.9E-10
15	2,4,6-Trichlorophenol	88062	0.011	-	-	150	-	0.25	0.28
16	2,4-Dichlorophenol	120832	-	0.20	0.003	48	-	4	6
17	2,4-Dimethylphenol	105679	-	0.20	0.02	7	-	90	300
18	2,4-Dinitrophenol	51285	-	0.20	0.002	-	4.4	10	40
19	2,4-Dinitrotoluene	121142	0.667	-	-	3.9	-	0.039	0.18
20	2-Chloronaphthalene	91587	-	0.80	0.08	240	-	100	100
21	2-Chlorophenol	95578	-	0.20	0.005	5.4	-	20	80
22	2-Methyl-4,6-Dinitrophenol	534521	-	0.20	0.0003	10	-	1	3
23	3,3'-Dichlorobenzidine	91941	0.45	-	-	69	-	0.012	0.015
24	3-Methyl-4-Chlorophenol	59507	-	0.20	0.1	39	-	200	200
25	4,4'-DDD	72548	0.24	-	-	240,000	-	7.9E-06	7.9E-06
26	4,4'-DDE	72559	0.167	-	-	3,100,000	-	8.8E-07	8.8E-07
27	4,4'-DDT	50293	0.34	-	-	1,100,000	-	1.2E-06	1.2E-06
28	Acenaphthene	83329	-	0.20	0.06	-	510	10	10
29	Acrolein	107028	-	0.20	0.0005	1.0	-	3	50
30	Acrylonitrile	107131	0.54	-	-	1.0	-	0.058	0.85
31	Aldrin	309002	17	-	-	650,000	-	4.1E-08	4.1E-08

32	alpha-BHC	319846	6.3	-	-	1,500	-	4.8E-05	4.8E-05
33	alpha-Endosulfan	959988	-	0.20	0.006	200	-	3	3
34	Anthracene	120127	-	0.20	0.3	-	610	40	40
35	Antimony	7440360	-	0.20	0.0004	-	1	2.5	37
36	Arsenic	7440382	1.75	-	-	-	44	[a]0.0045	[a]0.0059
37	Asbestos	1332214	-	-	-	-	-	[b]7,000,000 (fibers/L)	-
38	Benzene	71432	[c]0.055	-	-	5.0	-	[c]0.44	[c]1.7
39	Benzidine	92875	230	-	-	1.7	-	0.00013	0.0012
40	Benzo(a) Anthracene	56553	0.73	-	-	-	3,900	0.00016	0.00016
41	Benzo(a) Pyrene	50328	7.3	-	-	-	3,900	1.6E-05	1.6E-05
42	Benzo(b) Fluoranthene	205992	0.73	-	-	-	3,900	0.00016	0.00016
43	Benzo(k) Fluoranthene	207089	0.073	-	-	-	3,900	0.0016	0.0016
44	beta-BHC	319857	1.8	-	-	180	-	0.0013	0.0014
45	beta-Endosulfan	33213659	-	0.20	0.006	130	-	4	4
46	Bis(2-Chloroethyl) Ether	111444	1.1	-	-	1.7	-	0.027	0.24
47	*Bis(2-Chloro-1-Methylethyl) Ether	108601	-	0.20	0.04	10	-	200	400
48	Bis(2-Ethylhexyl) Phthalate	117817	0.014	-	-	-	710	0.045	0.046
49	Bromoform	75252	0.0045	-	-	8.5	-	4.6	12
50	Butylbenzyl Phthalate	85687	0.0019	-	-	-	19,000	0.013	0.013
51	Carbon Tetrachloride	56235	0.07	-	-	14	-	0.2	0.5
52	Chlordane	57749	0.35	-	-	60,000	-	2.2E-05	2.2E-05
53	Chlorobenzene	108907	-	0.20	0.02	22	-	50	80
54	Chlorodibromomethane	124481	0.04	-	-	5.3	-	0.60	2.2
55	Chloroform	67663	-	0.20	0.01	3.8	-	50	200
56	Chrysene	218019	0.0073	-	-	-	3,900	0.016	0.016
57	Copper	7440508	-	-	-	-	-	[d]1300	-
58	Cyanide	57125	-	0.20	0.0006	-	1	4	50
59	Dibenzo(a,h) Anthracene	53703	7.3	-	-	-	3,900	1.6E-05	1.6E-05
60	Dichlorobromomethane	75274	0.034	-	-	4.8	-	0.73	2.8
61	Dieldrin	60571	16	-	-	410,000	-	7.0E-08	7.0E-08
62	Diethyl Phthalate	84662	-	0.20	0.8	-	920	80	80
63	Dimethyl Phthalate	131113	-	0.20	10	-	4,000	200	200
64	Di-n-Butyl Phthalate	84742	-	0.20	0.1	-	2,900	3	3
65	Endosulfan Sulfate	1031078	-	0.20	0.006	140	-	4	4
66	Endrin	72208	-	0.80	0.0003	46,000	-	0.002	0.002
67	Endrin Aldehyde	7421934	-	0.80	0.0003	850	-	0.1	0.1
68	Ethylbenzene	100414	-	0.20	0.022	160	-	12	13

69	Fluoranthene	206440	-	0.20	0.04	-	1,500	2	2
70	Fluorene	86737	-	0.20	0.04	710	-	5	5
71	gamma-BHC; Lindane	58899	-	0.50	0.0047	2,500	-	0.43	0.43
72	Heptachlor	76448	4.1	-	-	330,000	-	3.4E-07	3.4E-07
73	Heptachlor Epoxide	1024573	5.5	-	-	35,000	-	2.4E-06	2.4E-06
74	Hexachlorobenzene	118741	1.02	-	-	90,000	-	5.0E-06	5.0E-06
75	Hexachlorobutadiene	87683	0.04	-	-	1,100	-	0.01	0.01
76	Hexachlorocyclopentadiene	77474	-	0.20	0.006	1,300	-	0.4	0.4
77	Hexachloroethane	67721	0.04	-	-	600	-	0.02	0.02
78	Indeno(1,2,3-cd) Pyrene	193395	0.73	-	-	-	3,900	0.00016	0.00016
79	Isophorone	78591	0.00095	-	-	2.4	-	30	200
80	Methyl Bromide	74839	-	0.20	0.02	1.4	-	100	1,000
81	Methylene Chloride	75092	0.002	-	-	1.6	-	10	100
82	Methylmercury	22967926	-	2.7E-05	0.0001	-	-	-	[e]0.033 (mg/kg)
83	Nickel	7440020	-	0.20	0.02	-	47	30	39
84	Nitrobenzene	98953	-	0.20	0.002	3.1	-	10	60
85	N-Nitrosodimethylamine	62759	51	-	-	-	0.026	0.00065	0.34
86	N-Nitrosodi-n-Propylamine	621647	7	-	-	-	1.13	0.0044	0.058
87	N-Nitrosodiphenylamine	86306	0.0049	-	-	-	136	0.62	0.69
88	Pentachlorophenol (PCP)	87865	0.4	-	-	520	-	0.002	0.002
89	Phenol	108952	-	0.20	0.6	1.9	-	4,000	30,000
90	Polychlorinated Biphenyls (PCBs)		2	-	-	-	31,200	[f]7.3E-06	[f]7.3E-06
91	Pyrene	129000	-	0.20	0.03	-	860	3	3
92	Selenium	7782492	-	0.20	0.005	-	4.8	25	95
93	Tetrachloroethylene	127184	0.0021	-	-	76	-	2.4	2.9
94	Thallium	7440280	-	0.20	0.000068	-	116	0.048	0.054
95	Toluene	108883	-	0.20	0.0097	17	-	29	52
96	Toxaphene	8001352	1.1	-	-	6,300	-	6.6E-05	6.6E-05
97	Trichloroethylene	79016	0.05	-	-	13	-	0.3	0.7
98	Vinyl Chloride	75014	1.5	-	-	1.7	-	0.020	0.18
99	Zinc	7440666	-	0.20	0.3	-	47	450	580

[a]	This criterion refers to the inorganic form of arsenic only.
[b]	This criterion is expressed as fibers per liter (fibers/L). The criterion for asbestos is the Maximum Contaminant Level Goal (MCLG) developed under the Safe Drinking Water Act (SDWA) (56 FR 3526, January 30, 1991).
[c]	EPA's national 304(a) recommended criteria for benzene use a CSF range of 0.015 to 0.055 per mg/kg-day. EPA proposes to use the higher end of the CSF range (0.055 per mg/kg-day) to derive the proposed benzene criteria for Washington.
[d]	The criterion for copper is the Maximum Contaminant Level Goal (MCLG) developed under the Safe Drinking Water Act (SDWA) (40 CFR 141.80, June 7, 1991).

[e]	This criterion is expressed as the fish tissue concentration of methylmercury (mg methylmercury/kg fish). See *Water Quality Criterion for the Protection of Human Health: Methylmercury* (EPA-823-R-01-001, January 3, 2001) for how this value is calculated using the criterion equation in EPA's 2000 Human Health Methodology rearranged to solve for a protective concentration in fish tissue rather than in water.
[f]	This criterion applies to total PCBs (e.g., the sum of all congener or isomer or homolog or Aroclor analyses).
[*]	Bis(2-Chloro-1-Methylethyl) Ether was previously listed as Bis(2-Chloroisopropyl) Ether.

E. Applicability of Criteria When Final

The EPA does not propose to revise or replace any existing criteria (related to human health or otherwise) that were already adopted and submitted to EPA by Washington (and for those adopted after May 30, 2000, approved by EPA), such as the state's narrative toxics criteria statement at WAC 173-201A-260(2)(a). Rather, EPA proposes to revise the current federal human health criteria applicable to waters in the state of Washington, as promulgated in the NTR, and establish new criteria for 14 additional priority pollutants. These new and revised human health criteria would apply for CWA purposes in addition to any existing criteria already applicable to Washington's waters.

EPA proposes to replicate in 40 CFR 131.45 the same general rules of applicability for human health criteria as in 40 CFR 131.36(c), with one exception. For waters suitable for the establishment of low flow return frequencies (i.e., streams and rivers), EPA proposes that Washington must not use a low flow value below which numeric standards can be exceeded that is less stringent than the harmonic mean flow (a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows).

Per 65 FR 66444, November 3, 2000, EPA now recommends harmonic mean flow be used to implement human health criteria for both carcinogens and non-carcinogens.[35]

Under the CWA, Congress gave states primary responsibility for developing and adopting WQS for their navigable waters (CWA section 303(a)-(c)). Although EPA proposes human health criteria for Washington to update the existing federally promulgated criteria, Washington continues to have the option to adopt and submit to EPA human health criteria for the state's waters consistent with CWA section 303(c) and EPA's implementing regulations at 40 CFR part 131. EPA encourages Washington to expeditiously adopt protective human health criteria. Consistent with CWA section 303(c)(4), if Washington adopts and submits human health criteria and EPA approves such criteria before finalizing this proposed rule, EPA would not proceed with the final rulemaking for those waters and/or pollutants for which EPA approves Washington's criteria.

If EPA finalizes this proposed rule, and Washington subsequently adopts and submits human health criteria, EPA proposes that once EPA approves Washington's WQS, the pollutant-specific or site-specific EPA-approved criteria in Washington's WQS would become effective for CWA purposes and EPA's promulgated criteria for those pollutants or for that site would no longer apply. EPA would still undertake a rulemaking to withdraw the federal criteria for those pollutants, but any delay in that process would not delay Washington's approved criteria from

[35] See also USEPA. 2014. Water Quality Standards Handbook – Chapter 5: General Policies. U.S. Environmental Protection Agency. Office of Water. Washington, D.C. EPA-820-B-14-004. http://water.epa.gov/scitech/swguidance/standards/handbook/chapter05.cfm#section52.

becoming the sole applicable criteria for CWA purposes. EPA solicits comment on this approach.

F. Alternative Regulatory Approaches and Implementation Mechanisms

Once finalized, Washington will have considerable discretion to implement these revised federal human health criteria through various water quality control programs including the NPDES program, which limits discharges to waters except in compliance with a NPDES permit. EPA's regulations at 40 CFR 131.14, once effective, authorize states and authorized tribes to adopt WQS variances to provide time to achieve the applicable WQS. 40 CFR part 131 defines WQS variances at 131.3(o) as time-limited designated uses and supporting criteria for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable conditions during the term of the WQS variance. WQS variances adopted in accordance with 40 CFR part 131 allow states and authorized tribes to address water quality challenges in a transparent and predictable way. Variances help states and authorized tribes focus on making incremental progress in improving water quality, rather than pursuing a downgrade of the underlying water quality goals through a designated use change, when the current designated use is difficult to attain. EPA's regulations at 40 CFR 122.47 and 40 CFR 131.15, once effective, allow states and authorized tribes to include permit compliance schedules in their NPDES permits if dischargers need additional time to meet their water quality based limits based on the applicable WQS. EPA's updated regulations at 40 CFR part 131 also include provisions authorizing the use of permit compliance schedules to ensure that a decision to allow permit compliance schedules includes public engagement and transparency. (80 FR 51022, August 21, 2015).

40 CFR 131.10 specifies how states and authorized tribes establish, modify or remove designated uses for their waters. 40 CFR 131.11 specifies the requirements for establishing criteria to protect designated uses, including criteria modified to reflect site-specific conditions. In the context of this rulemaking, a site-specific criterion (SSC) is an alternative value to the federal human health criteria that would be applied on a watershed, area-wide, or waterbody-specific basis that meets the regulatory test of protecting the designated use, being scientifically defensible, and ensuring the protection and maintenance of downstream WQS. A SSC may be more or less stringent than the otherwise applicable federal criteria. A SSC may be appropriate when further scientific data and analyses can bring added precision to express the concentration of a particular pollutant that protects the human health-related designated use in a particular waterbody.

EPA does not propose to change any of the flexibilities afforded to Washington by EPA's regulations to modify or remove designated uses, adopt variances, issue compliance schedules or establish site-specific criteria. Washington may continue to use any of these regulatory flexibilities when implementing the revised federal human health criteria.

a. Designating Uses

EPA's proposed human health criteria apply to waters that Washington has designated for the following: Fresh waters – Harvesting (fish harvesting), Domestic Water (domestic water supply), and Recreational Uses; Marine waters – Shellfish Harvesting (shellfish—clam, oyster, and mussel—harvesting), Harvesting (salmonid and other fish harvesting, and crustacean and other shellfish—crabs, shrimp, scallops, etc.—harvesting), and Recreational Uses (see WAC

173-201A-600 and WAC 173-201A-610). If Washington removes the Domestic Water use but retains any of the other above designated uses for any particular waterbody ultimately affected by this rule, and EPA finds that removal to be consistent with CWA section 303(c) and EPA's implementing regulations at 40 CFR part 131, then the federal organism-only criteria would apply in place of the federal water-plus-organism criteria. If Washington removes designated uses such that none of the above uses apply to any particular waterbody ultimately affected by this rule and adopts the highest attainable use, as defined by 40 CFR 131.3(m), consistent with 40 CFR 131.10(g), and EPA finds that removal to be consistent with CWA section 303(c) and EPA's implementing regulations at 40 CFR part 131, then the federal human health criteria would no longer apply to that waterbody. Instead, any criteria associated with the newly designated highest attainable use would apply to that waterbody.

b. Variances and Compliance Schedules

EPA is proposing human health criteria that apply to use designations that Washington has already established. Washington has sufficient authority to use variances when implementing the human health criteria as long as such variances are adopted consistent with 40 CFR 131.14. Washington may use its currently EPA-approved variance procedures with respect to a temporary modification of its uses as it pertains to any federal criteria (see WAC 173-201A-420) when adopting such variances. Similarly, Washington already has an EPA-approved regulation authorizing the use of permit compliance schedules (see WAC 173-201A-510), consistent with 40 CFR 131.15. That state regulation is not affected by this rule, and Washington is authorized to grant compliance schedules, as appropriate, based on the federal criteria.

c. Site-Specific Criteria

As discussed in section IV.E, EPA proposes that once EPA approves human health criteria that Washington adopts and submits after EPA finalizes this proposed rule, the pollutant-specific or site-specific EPA-approved criteria in Washington's WQS would become effective for CWA purposes and EPA's promulgated criteria for those pollutants or for that site would no longer apply.

V. Economic Analysis

These WQS may serve as a basis for development of NPDES permit limits. Washington has NPDES permitting authority, and retains considerable discretion in implementing standards. EPA evaluated the potential costs to NPDES dischargers associated with state implementation of EPA's proposed criteria. This analysis is documented in ''Economic Analysis for the Revision of Certain Federal Water Quality Criteria Applicable to Washington,'' which can be found in the record for this rulemaking.

Any NPDES-permitted facility that discharges pollutants for which the revised human health criteria are more stringent than the applicable aquatic life criteria (or for which human health criteria are the only applicable criteria) could potentially incur compliance costs. The types of affected facilities could include industrial facilities and POTWs discharging wastewater to surface waters (i.e., point sources). Once in compliance with water quality-based effluent limitations (WQBELs) reflective of existing federal human health criteria applicable to Washington (hereafter referred to as "baseline criteria"), EPA expects that dischargers will continue to use the same types of controls to come into compliance with the revised criteria; EPA

did not attribute compliance with WQBELs reflective of baseline criteria to the proposed rule. EPA did not fully evaluate the potential for costs to nonpoint sources, such as agricultural runoff, for this preliminary analysis.

EPA recognizes that the permitting authority may require controls for nonpoint sources (e.g., agricultural runoff). However, it is difficult to model and evaluate the potential cost impacts of this proposed rule to nonpoint sources because they are intermittent, variable, and occur under hydrologic or climatic conditions associated with precipitation events. Also, data on instream and discharge levels of the pollutants of concern after dischargers have implemented controls to meet current WQS, total maximum daily loads (TMDLs) for impaired waters, or other water quality improvement plans, are not available. Therefore, trying to determine which sources would not achieve WQS based on the revised human health criteria after complying with existing regulations and policies may not be possible.

Finally, legacy contamination (e.g., in sediment) may be a source of ongoing loading. Atmospheric deposition may also contribute loadings of the pollutants of concern (e.g., mercury). EPA did not estimate sediment remediation costs, or air pollution controls costs, for this preliminary analysis.

A. Identifying Affected Entities

EPA identified 406 point source facilities that could ultimately be affected by this proposed rule. Of these potentially affected facilities, 73 are major dischargers and 333 are minor dischargers. EPA did not include general permit facilities in its analysis because data for such facilities are limited, and flows are usually negligible. Of the potentially affected facilities, EPA

evaluated a sample of 17 major facilities. Minor facilities are unlikely to incur costs as a result of implementation of the rule. Minor facilities are typically those that discharge less than 1 million gallons per day (mgd) and do not discharge toxics in toxic amounts. Although lower human health criteria could potentially change this categorization, EPA did not have effluent data on toxic pollutants to evaluate minor facilities for this preliminary analysis. Table 2 summarizes these potentially affected facilities by type and category.

Table 2. Potentially Affected Facilities

Category	Minor	Major	All
Municipal	184	48	232
Industrial	149	25	174
Total	**333**	**73**	**406**

B. Method for Estimating Costs

EPA evaluated the 2 major municipal facilities with design flows greater than 100 mgd and the largest industrial facility, to attempt to capture the facilities with the potential for the largest costs. For the remaining major facilities, EPA evaluated a random sample of facilities to represent discharger type and category. For all sample facilities, EPA evaluated existing baseline permit conditions, reasonable potential to exceed human health criteria based on the proposed rule, and potential to exceed projected effluent limitations based on the last three years of effluent monitoring data (if available). In instances of baseline effluent limitations not being reflective of baseline criteria, EPA estimated baseline effluent limitations, compliance actions, and costs. In instances of exceedances of projected effluent limitations under the proposed criteria, EPA determined the likely compliance scenarios and costs. Only compliance actions and

costs that would be needed above the baseline level of controls are attributable to the proposed rule.

EPA assumed that dischargers will pursue the least cost means of compliance with WQBELs. Incremental compliance actions attributable to the proposed rule may include pollution prevention, end-of-pipe treatment, and alternative compliance mechanisms (e.g., variances). EPA annualized capital costs, including study (e.g., variance) and program (e.g., pollution prevention) costs, over 20 years using a 7% discount rate to obtain total annual costs per facility. For the random sample, EPA extrapolated the annualized costs based on the sampling weight for each sample facility. To obtain an estimate of total costs to point sources, EPA added the results for the certainty sample to the extrapolated random sample costs.

C. Results

Based on the results for 17 sample facilities across 8 industrial and municipal categories,[36] EPA estimated a total annual cost of approximately $13.0 million to $13.1 million for all major dischargers in the state. The low end of the range reflects the assumption that the compliance actions will result in compliance with projected effluent limits through pollution prevention programs and end-of-pipe treatment, whereas the high scenario reflects the assumption that these actions will not result in compliance with very low limits and dischargers will also need to apply for variances. All of the incremental costs are attributable to industrial dischargers, primarily for treatment of arsenic. Overall, compliance with revised human health

[36] Seven industrial categories (mining, food and kindred products, paper and allied products, chemicals and allied products, petroleum refining and related industries, primary metal industries, and transportation and public utilities (except POTWs)) and municipal POTWs.

criteria for arsenic accounts for 99% of the costs, while compliance with revised human health criteria for mercury accounts for the remaining 1% of costs.

If the revised criteria result in an incremental increase in impaired waters, resulting in the need for TMDL development, there could also be some costs to nonpoint sources of pollution. Using available ambient monitoring data, EPA compared pollutant concentrations to the baseline and proposed criteria, identifying waterbodies that may be incrementally impaired (i.e., impaired under the proposed criteria but not under the baseline). For the 26 parameters and stations for which EPA had sufficient monitoring data available to evaluate, there were 205 impairments under the baseline criteria and 254 under the proposed criteria, for a total of 49 potential incremental impairments (or a 24% increase relative to the baseline; including for mercury and DDT). This increase indicates the potential for nonpoint sources to bear some compliance costs, although data are not available to estimate the magnitude of these costs. The control of nonpoint sources such as in the context of a TMDL could result in less stringent requirements, and thus lower costs, for point sources.

VI. Statutory and Executive Order Reviews

A. Executive Order 12866 (Regulatory Planning and Review) and Executive Order 13563 (Improving Regulation and Regulatory Review)

It has been determined that this proposed rule is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is, therefore, not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). The proposed rule does not establish any requirements directly applicable to regulated entities or

other sources of toxic pollutants. However, these WQS may serve as a basis for development of NPDES permit limits. Washington has NPDES permitting authority, and retains considerable discretion in implementing standards. In the spirit of Executive Order 12866, EPA evaluated the potential costs to NPDES dischargers associated with state implementation of EPA's proposed criteria. This analysis, *Economic Analysis for the Revision of Certain Federal Water Quality Criteria Applicable to Washington*, is summarized in section V of the preamble and is available in the docket.

B. Paperwork Reduction Act

This action does not impose any direct new information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq*. Actions to implement these WQS could entail additional paperwork burden. Burden is defined at 5 CFR 1320.3(b). This action does not include any information collection, reporting, or record-keeping requirements.

C. Regulatory Flexibility Act

This action will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (RFA). Small entities, such as small businesses or small governmental jurisdictions, are not directly regulated by this rule. This proposed rule will thus not impose any requirements on small entities. We continue to be interested, however, in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This action contains no federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531-1538 for state, local, or tribal governments or the private sector. As these water quality criteria are not self-implementing, EPA's action imposes no enforceable duty on any state, local or tribal governments or the private sector. Therefore, this action is not subject to the requirements of sections 202 or 205 of the UMRA.

This action is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that could significantly or uniquely affect small governments.

E. Executive Order 13132 (Federalism)

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. This rule does not alter Washington's considerable discretion in implementing these WQS, nor would it preclude Washington from adopting WQS that EPA concludes meet the requirements of the CWA, either before or after promulgation of the final rule, which would eliminate the need for federal standards. Thus, Executive Order 13132 does not apply to this action.

In the spirit of Executive Order 13132 and consistent with EPA policy to promote communications between EPA and state and local governments, EPA specifically solicits comments on this proposed action from state and local officials.

F. Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments)

This action has tribal implications. However, it will neither impose substantial direct compliance costs on federally recognized tribal governments, nor preempt tribal

law. In the state of Washington, there are 29 federally recognized Indian tribes. To date, nine of these Indian tribes have been approved for TAS for CWA sections 303 and 401.[37] Of these nine tribes, seven have EPA-approved WQS in their respective jurisdictions.[38] This rule could affect federally recognized Indian tribes in Washington because the numeric criteria for Washington will apply to waters adjacent to (or upstream or downstream of) the tribal waters, and because the proposed Washington criteria are informed by tribal reserved rights. Additionally, there are ten federally recognized Indian tribes in the Columbia River Basin located in the states of Oregon and Idaho that this rule could affect because their waters could affect or be affected by the water quality of Washington's downstream or upstream waters.

EPA consulted with federally recognized tribal officials under EPA's Policy on Consultation and Coordination with Indian tribes early in the process of developing this proposed rule to permit them to have meaningful and timely input into its development. In February and March 2015, EPA held tribes-only technical staff and leadership consultation sessions to hear their views and answer questions of all interested tribes on the proposed rule. Representatives from approximately 23 tribes and four tribal consortia participated in two leadership meetings held in March 2015. EPA and tribes have also met regularly since November 2012 to discuss Washington's human health criteria at

[37] http://water.epa.gov/scitech/swguidance/standards/wqslibrary/approvtable.cfm.
[38] http://yosemite.epa.gov/r10/water.nsf/34090d07b77d50bd88256b79006529e8/dd2a4df00fd7ae1a88256e0500680e86!OpenDocument. Note that this number does not include the Confederated Tribes of the Colville Reservation, which has federally-promulgated WQS from 1989. EPA is currently reviewing the Colville Tribe's application for TAS.

both the tribal leadership level and technical staff level. The tribes have repeatedly asked EPA to promulgate federal human health criteria for Washington if the state did not do so in a timely and protective manner. At these meetings, the tribes consistently emphasized that the human health criteria should be derived using at least a minimum FCR value of 175 g/day, a cancer risk level of 10^{-6}, and the latest scientific information from EPA's 304(a) recommended criteria. EPA considered the input received during consultation with tribes when developing this proposal (see section IV for additional discussion of how EPA considered tribal input).

G. Executive Order 13045 (Protection of Children from Environmental Health and Safety Risks)

This rule is not subject to Executive Order 13045, because it is not economically significant as defined in Executive Order 12866, and because the environmental health or safety risks addressed by this action do not present a disproportionate risk to children.

The public is invited to submit comments or identify peer-reviewed studies and data that assess effects of early life exposure.

H. Executive Order 13211 (Actions that Significantly Affect Energy Supply, Distribution, or Use)

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

I. National Technology Transfer and Advancement Act of 1995

This proposed rulemaking does not involve technical standards.

J. Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)

This action will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations. Conversely, this action identifies and ameliorates disproportionately high and adverse human health effects on minority populations and low-income populations in Washington. EPA developed the human health criteria included in this proposed rule specifically to protect Washington's designated uses, using the most current science, including local and regional information on fish consumption. Applying these criteria to waters in the state of Washington will afford a greater level of protection to both human health and the environment.

List of Subjects in 40 CFR Part 131

Environmental protection, Indians-lands, Intergovernmental relations, Reporting and recordkeeping requirements, Water pollution control.

Dated: August 31, 2015.

Gina McCarthy,

Administrator.

6560-50-P

For the reasons set forth in the preamble, EPA proposes to amend 40 CFR part 131 as follows:

PART 131—WATER QUALITY STANDARDS

1. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1251 *et seq.*

Subpart D—Federally Promulgated Water Quality Standards

§ 131.36 [Amended]

2. In §131.36, remove paragraph (d)(14).

3. Add §131.45 to read as follows:

§131.45 Revision of certain Federal water quality criteria applicable to Washington.

(a) *Scope*. This section promulgates human health criteria for priority toxic pollutants in surface waters in Washington.

(b) *Criteria for priority toxic pollutants in Washington*. The applicable human health criteria are shown in Table 1.

Table 1. Proposed Human Health Criteria for Washington									
	A		B					C	
	Chemical	CAS Number	Cancer Slope Factor, CSF (per mg/kg·d) (B1)	Relative Source Contribution, RSC (-) (B2)	Reference Dose, RfD (mg/kg·d) (B3)	Bio-accumulation Factor for Trophic Level 4 (L/kg tissue) (B4)	Bio-concentration Factor (L/kg tissue) (B5)	Water & Organisms (µg/L) (C1)	Organisms Only (µg/L) (C2)
1	1,1,1-Trichloroethane	71556	-	0.20	2	10	-	8,000	20,000
2	1,1,2,2-Tetrachloroethane	79345	0.2	-	-	8.4	-	0.1	0.3
3	1,1,2-Trichloroethane	79005	0.057	-	-	8.9	-	0.35	0.90
4	1,1-Dichloroethylene	75354	-	0.20	0.05	2.6	-	300	2,000
5	1,2,4-Trichlorobenzene	120821	0.029	-	-	430	-	0.036	0.037
6	1,2-Dichlorobenzene	95501	-	0.20	0.3	82	-	300	300
7	1,2-Dichloroethane	107062	0.0033	-	-	1.9	-	8.9	73
8	1,2-Dichloropropane	78875	0.036	-	-	3.9	-	0.72	3.3
9	1,2-Diphenylhydrazine	122667	0.8	-	-	27	-	0.01	0.02
10	1,2-Trans-Dichloroethylene	156605	-	0.20	0.02	4.7	-	100	400
11	1,3-Dichlorobenzene	541731	-	0.20	0.002	190	-	0.9	1
12	1,3-Dichloropropene	542756	0.122	-	-	3.0	-	0.22	1.2
13	1,4-Dichlorobenzene	106467	-	0.20	0.07	84	-	70	80
14	2,3,7,8-TCDD (Dioxin)	1746016	156,000	-	-	-	5,000	5.8E-10	5.9E-10
15	2,4,6-Trichlorophenol	88062	0.011	-	-	150	-	0.25	0.28
16	2,4-Dichlorophenol	120832	-	0.20	0.003	48	-	4	6
17	2,4-Dimethylphenol	105679	-	0.20	0.02	7	-	90	300
18	2,4-Dinitrophenol	51285	-	0.20	0.002	-	4.4	10	40
19	2,4-Dinitrotoluene	121142	0.667	-	-	3.9	-	0.039	0.18
20	2-Chloronaphthalene	91587	-	0.80	0.08	240	-	100	100
21	2-Chlorophenol	95578	-	0.20	0.005	5.4	-	20	80
22	2-Methyl-4,6-Dinitrophenol	534521	-	0.20	0.0003	10	-	1	3
23	3,3'-Dichlorobenzidine	91941	0.45	-	-	69	-	0.012	0.015
24	3-Methyl-4-Chlorophenol	59507	-	0.20	0.1	39	-	200	200
25	4,4'-DDD	72548	0.24	-	-	240,000	-	7.9E-06	7.9E-06
26	4,4'-DDE	72559	0.167	-	-	3,100,000	-	8.8E-07	8.8E-07
27	4,4'-DDT	50293	0.34	-	-	1,100,000	-	1.2E-06	1.2E-06
28	Acenaphthene	83329	-	0.20	0.06	-	510	10	10
29	Acrolein	107028	-	0.20	0.0005	1.0	-	3	50
30	Acrylonitrile	107131	0.54	-	-	1.0	-	0.058	0.85
31	Aldrin	309002	17	-	-	650,000	-	4.1E-08	4.1E-08
32	alpha-BHC	319846	6.3	-	-	1,500	-	4.8E-05	4.8E-05

33	alpha-Endosulfan	959988	-	0.20	0.006	200	-	3	3
34	Anthracene	120127	-	0.20	0.3	-	610	40	40
35	Antimony	7440360	-	0.20	0.0004	-	1	2.5	37
36	Arsenic	7440382	1.75	-	-	-	44	[a]0.0045	[a]0.0059
37	Asbestos	1332214	-	-	-	-	-	[b]7,000,000 (fibers/L)	-
38	Benzene	71432	[c]0.055	-	-	5.0	-	[c]0.44	[c]1.7
39	Benzidine	92875	230	-	-	1.7	-	0.00013	0.0012
40	Benzo(a) Anthracene	56553	0.73	-	-	-	3,900	0.00016	0.00016
41	Benzo(a) Pyrene	50328	7.3	-	-	-	3,900	1.6E-05	1.6E-05
42	Benzo(b) Fluoranthene	205992	0.73	-	-	-	3,900	0.00016	0.00016
43	Benzo(k) Fluoranthene	207089	0.073	-	-	-	3,900	0.0016	0.0016
44	beta-BHC	319857	1.8	-	-	180	-	0.0013	0.0014
45	beta-Endosulfan	33213659	-	0.20	0.006	130	-	4	4
46	Bis(2-Chloroethyl) Ether	111444	1.1	-	-	1.7	-	0.027	0.24
47	*Bis(2-Chloro-1-Methylethyl) Ether	108601	-	0.20	0.04	10	-	200	400
48	Bis(2-Ethylhexyl) Phthalate	117817	0.014	-	-	-	710	0.045	0.046
49	Bromoform	75252	0.0045	-	-	8.5	-	4.6	12
50	Butylbenzyl Phthalate	85687	0.0019	-	-	-	19,000	0.013	0.013
51	Carbon Tetrachloride	56235	0.07	-	-	14	-	0.2	0.5
52	Chlordane	57749	0.35	-	-	60,000	-	2.2E-05	2.2E-05
53	Chlorobenzene	108907	-	0.20	0.02	22	-	50	80
54	Chlorodibromomethane	124481	0.04	-	-	5.3	-	0.60	2.2
55	Chloroform	67663	-	0.20	0.01	3.8	-	50	200
56	Chrysene	218019	0.0073	-	-	-	3,900	0.016	0.016
57	Copper	7440508	-	-	-	-	-	[d]1300	-
58	Cyanide	57125	-	0.20	0.0006	-	1	4	50
59	Dibenzo(a,h) Anthracene	53703	7.3	-	-	-	3,900	1.6E-05	1.6E-05
60	Dichlorobromomethane	75274	0.034	-	-	4.8	-	0.73	2.8
61	Dieldrin	60571	16	-	-	410,000	-	7.0E-08	7.0E-08
62	Diethyl Phthalate	84662	-	0.20	0.8	-	920	80	80
63	Dimethyl Phthalate	131113	-	0.20	10	-	4,000	200	200
64	Di-n-Butyl Phthalate	84742	-	0.20	0.1	-	2,900	3	3
65	Endosulfan Sulfate	1031078	-	0.20	0.006	140	-	4	4
66	Endrin	72208	-	0.80	0.0003	46,000	-	0.002	0.002
67	Endrin Aldehyde	7421934	-	0.80	0.0003	850	-	0.1	0.1
68	Ethylbenzene	100414	-	0.20	0.022	160	-	12	13
69	Fluoranthene	206440	-	0.20	0.04	-	1,500	2	2
70	Fluorene	86737	-	0.20	0.04	710	-	5	5

71	gamma-BHC; Lindane	58899	-	0.50	0.0047	2,500	-	0.43	0.43
72	Heptachlor	76448	4.1	-	-	330,000	-	3.4E-07	3.4E-07
73	Heptachlor Epoxide	1024573	5.5	-	-	35,000	-	2.4E-06	2.4E-06
74	Hexachlorobenzene	118741	1.02	-	-	90,000	-	5.0E-06	5.0E-06
75	Hexachlorobutadiene	87683	0.04	-	-	1,100	-	0.01	0.01
76	Hexachlorocyclopentadiene	77474	-	0.20	0.006	1,300	-	0.4	0.4
77	Hexachloroethane	67721	0.04	-	-	600	-	0.02	0.02
78	Indeno(1,2,3-cd) Pyrene	193395	0.73	-	-	-	3,900	0.00016	0.00016
79	Isophorone	78591	0.00095	-	-	2.4	-	30	200
80	Methyl Bromide	74839	-	0.20	0.02	1.4	-	100	1,000
81	Methylene Chloride	75092	0.002	-	-	1.6	-	10	100
82	Methylmercury	22967926	-	2.7E-05	0.0001	-	-	-	[e]0.033 (mg/kg)
83	Nickel	7440020	-	0.20	0.02	-	47	30	39
84	Nitrobenzene	98953	-	0.20	0.002	3.1	-	10	60
85	N-Nitrosodimethylamine	62759	51	-	-	-	0.026	0.00065	0.34
86	N-Nitrosodi-n-Propylamine	621647	7	-	-	-	1.13	0.0044	0.058
87	N-Nitrosodiphenylamine	86306	0.0049	-	-	-	136	0.62	0.69
88	Pentachlorophenol (PCP)	87865	0.4	-	-	520	-	0.002	0.002
89	Phenol	108952	-	0.20	0.6	1.9	-	4,000	30,000
90	Polychlorinated Biphenyls (PCBs)		2	-	-	-	31,200	[f]7.3E-06	[f]7.3E-06
91	Pyrene	129000	-	0.20	0.03	-	860	3	3
92	Selenium	7782492	-	0.20	0.005	-	4.8	25	95
93	Tetrachloroethylene	127184	0.0021	-	-	76	-	2.4	2.9
94	Thallium	7440280	-	0.20	0.000068	-	116	0.048	0.054
95	Toluene	108883	-	0.20	0.0097	17	-	29	52
96	Toxaphene	8001352	1.1	-	-	6,300	-	6.6E-05	6.6E-05
97	Trichloroethylene	79016	0.05	-	-	13	-	0.3	0.7
98	Vinyl Chloride	75014	1.5	-	-	1.7	-	0.020	0.18
99	Zinc	7440666	-	0.20	0.3	-	47	450	580

[a]	This criterion refers to the inorganic form of arsenic only.
[b]	This criterion is expressed as fibers per liter (fibers/L). The criterion for asbestos is the Maximum Contaminant Level Goal (MCLG) developed under the Safe Drinking Water Act (SDWA) (56 FR 3526, January 30, 1991).
[c]	EPA's national 304(a) recommended criteria for benzene use a CSF range of 0.015 to 0.055 per mg/kg-day. EPA proposes to use the higher end of the CSF range (0.055 per mg/kg-day) to derive the proposed benzene criteria for Washington.
[d]	The criterion for copper is the Maximum Contaminant Level Goal (MCLG) developed under the Safe Drinking Water Act (SDWA) (40 CFR 141.80, June 7, 1991).
[e]	This criterion is expressed as the fish tissue concentration of methylmercury (mg methylmercury/kg fish). See *Water Quality Criterion for the Protection of Human Health: Methylmercury* (EPA-823-R-01-001, January 3, 2001) for how this value is calculated using the criterion equation in EPA's 2000 Human Health Methodology rearranged to solve for a protective concentration in fish tissue rather than in water.

[f]	This criterion applies to total PCBs (e.g., the sum of all congener or isomer or homolog or Aroclor analyses).
*	Bis(2-Chloro-1-Methylethyl) Ether was previously listed as Bis(2-Chloroisopropyl) Ether.

(c) *Applicability*. (1) The criteria in paragraph (b) of this section apply to waters with Washington's designated uses cited in paragraph (d) of this section and apply concurrently with any water quality criteria adopted by the state, except where pollutant- or waterbody-specific state human health criteria regulations determined by EPA to meet the requirements of Clean Water Act section 303(c) and 40 CFR part 131 apply, in which case Washington's pollutant- or waterbody-specific criteria will apply and not the criteria in paragraph (b) of this section.

(2) The criteria established in this section are subject to Washington's general rules of applicability in the same way and to the same extent as are other federally promulgated and state-adopted numeric criteria when applied to the same use classifications in paragraph (d) of this section.

(i) For all waters with mixing zone regulations or implementation procedures, the criteria apply at the appropriate locations within or at the boundary of the mixing zones; otherwise the criteria apply throughout the waterbody including at the end of any discharge pipe, conveyance or other discharge point.

(ii) The state must not use a low flow value below which numeric non-carcinogen and carcinogen human health criteria can be exceeded that is less stringent than the harmonic mean flow for waters suitable for the establishment of low flow return frequencies (i.e., streams and rivers). Harmonic mean flow is a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows.

(iii) If the state does not have such a low flow value for numeric criteria, then none will apply and the criteria in paragraph (b) of this section herein apply at all flows.

(d) *Applicable use designations*. (1) All waters in Washington assigned to the following use classifications are subject to the criteria identified in paragraph (d)(2) of this section:

(i) Fresh waters—

(A) Miscellaneous uses: Harvesting (Fish harvesting);

(B) Recreational uses;

(C) Water supply uses: Domestic water (Domestic water supply);

(ii) Marine waters—

(A) Miscellaneous uses: Harvesting (Salmonid and other fish harvesting, and crustacean and other shellfish (crabs, shrimp, scallops, etc.) harvesting);

(B) Recreational uses;

(C) Shellfish harvesting: Shellfish harvest (Shellfish (clam, oyster, and mussel) harvesting)

Note to paragraph (d)(1): The source of these uses is Washington Administrative Code 173-201A-600 for Fresh waters and 173-201A-610 for Marine waters.

(2) For Washington waters that include the use classification of Domestic Water, the criteria in column C1 of Table 1 in paragraph (b) of this section apply. For Washington waters that include any of the following use classifications but do not include the use classification of Domestic Water, the criteria in column C2 of Table 1 in paragraph (b) of this section apply: Harvesting (fresh and marine waters), Recreational Uses (fresh and marine waters), and Shellfish Harvesting.

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