UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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OFFICE OF
WATER AND
WATERSHEDS

APR 11 2014

Ms. Wendy Wiles
Administrator
Environmental Solutions Division
Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204-1390

Re: EPA's Action on the State of Oregon's December 12, 2013 Revision to Their Surface Water Quality Standards

Dear Ms. Wiles:

The U.S. Environmental Protection Agency has completed its Clean Water Act review of the new and revised water quality standards that Oregon submitted to the EPA on January 9, 2014. Under Section 303 of the Clean Water Act, 33 U.S.C § 1313, states must establish water quality standards and submit them to the EPA for approval or disapproval. Revisions to a state'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 State of Oregon's Revised Surface Water Quality Standards Submitted on January 9, 2014* (hereafter referred to as the TSD).

Summary of the EPA's Action

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:

- Toxic Substances, Provisions 1 through 4 (OAR 340-041-0033 provisions 1 through 4)
- Bacteria Provision at OAR 340-041-0009
- 36 criteria associated with 11 pesticides
- 2 freshwater criteria associated with selenium
- 4 aquatic life criteria for arsenic
- 2 aquatic life criteria for chromium VI
- Table 30 (Aquatic Life Criteria for Toxic Pollutants)
- Corrections and clarifications to Table 40 (Human Health Water Quality Criteria for Toxic Pollutants)

Provisions the EPA Did Not Take Action On

The EPA did not take an action on several provisions submitted by Oregon because they are not water quality standards under section 303(c) of the CWA. The TSD (page 2) provides the EPA's rationale for not acting on the provisions. The provisions include:

- Corrections and clarifications to OAR 340-040 (Groundwater Quality Protection).
- Arsenic Reduction Policy (OAR 340-041-0033, provision 7).
- Revisions to OAR 340-041-0033, provision 5, and to Table 31 Aquatic Life Water Quality Criteria Guidance Values for Toxic Pollutants. (Note: Table 31 was referred to as "Table 33C, Water Quality Guidance Values Summary" prior to the 2013 adoption).

The revisions adopted by Oregon, and approved by EPA today, address the EPA's January 31, 2013, disapproval of 36 criteria associated with eleven pesticides and two freshwater criteria associated with selenium. Based on your January 9, 2014, letter we understand that Oregon intends to address the EPA's January 2013 disapproval of the ammonia and copper criteria next, and will address the aluminum and cadmium criteria once the EPA finalizes their revisions to the 304(a) national criteria recommendations.

We have appreciated our work together throughout this process. If you have any questions concerning this letter please contact me at (206) 553-1855 or your staff may contact Kathleen Collins, Water Quality Standards Coordinator, at (206) 553-2108.

Sincerely,

Daniel D. Opalski
Director
Office of Water and Watersheds

Enclosure

cc: Jennifer Wigal, ODEQ
Deborah Sturdevant, ODEQ
Andrea Matzke, ODEQ

U.S. ENVIRONMENTAL PROTECTION AGENCY – REGION 10

Technical Support Document

for Action on the State of Oregon's Revised Surface Water Quality Standards
Submitted on January 9, 2014

April 11, 2014

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I. INTRODUCTION

The Oregon Environmental Quality Commission adopted new and revised water quality standards (WQS) in Chapter 340, Division 41, of Oregon's Administrative rules (OAR 340-041) on December 12, 2013 (hereafter referred to as the 2013 adoption). Oregon submitted the new and revised standards to the U.S. Environmental Protection Agency (EPA) on January 9, 2014. This document provides the basis for the EPA's decisions under the federal WQS regulations at 40 CFR 131.11 and section 303(c) of the Clean Water Act (CWA) to approve or disapprove the new and revised aquatic life water quality criteria in Oregon's 2013 adoption.

A. Oregon Submittal Package

Oregon's 2013 adoption includes the following revisions to its WQS:

- Revises 36 criteria associated with 11 pesticides and 2 freshwater criteria associated with selenium that the EPA disapproved in its January 2013 action.
- Re-adopts 4 aquatic life criteria for arsenic and 2 aquatic life criteria for chromium VI.
- Consolidates the aquatic life criteria contained in Tables 20, 33A and 33B into one new table designated as Table 30.
- Provides other corrections and clarifications to the State's narrative toxic substances rule (OAR 340-041-0033, provisions 1 through 4) to correct typographical errors and incorrect references.
- Provides corrections and clarifications to the bacteria provision (OAR 340-041-0009).
- Provides corrections and clarifications to Table 40 (Human Health Water Quality Criteria for Toxic Pollutants).

Additionally, there are several revisions in the 2013 adoptions that EPA is not taking action on because they are not WQS under section 303(c) of the CWA. These revisions include the following:

- Corrections and clarifications to OAR 340-040 (Groundwater Quality Protection).
- Arsenic Reduction Policy (OAR 340-041-0033, provision 7).
- Revisions to OAR 340-041-0033, provision 5 and to Table 31 Aquatic Life Water Quality Criteria Guidance Values for Toxic Pollutants. Note: Table 31 was referred to as "Table 33C, Water Quality Guidance Values Summary" prior to the 2013 adoption.

EPA is taking no action on the above provisions for the following reasons:

- Groundwater Quality Protection: Section 303(c) of the CWA does not regulate groundwater quality.
- Arsenic Reduction Policy: In its October 17, 2011 *Technical Support Document for Action on the State of Oregon's New and Revised Human Health Water Quality Criteria of Toxics and Associated Implementation Provisions Submitted July 12 and 21 2011*, EPA determined that the Arsenic Reduction Policy is not a WQS subject to the EPA review and approval under section 303(c) of the CWA.

- OAR 340-041-0003 provision 5 and Table 31: In its June 6, 2010 *Technical Support Document for Action on the State of Oregon's New and Revised Human Health Water Quality Criteria for Toxics and Revision to Narrative Toxics Provisions Submitted on July 8, 2004* EPA determined that the provision[1] and values contained in Table 33C (now referred to as Table 31) are not WQS under section 303(c) the CWA.

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 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 § 131.10 (a)) and to adopt criteria to protect those designated uses (as required in 40 CFR § 131.11 (a)).

States are required to review applicable WQS periodically, 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 the 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 the EPA for review. The EPA is required to review these changes to ensure revisions to WQS are consistent with the CWA. The EPA determines whether a particular 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?

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[1] In the EPA's 2010 action OAR 340-041-0033 (5) was numbered OAR 340-041-0033 (3). Oregon changed provision (3) to Provision (5) in its June 15, 2011 WQS 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

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

II. EPA ACTION ON REVISIONS TO NARRATIVE TOXIC PROVISIONS (OAR 340-041-033)

A. Narrative Toxic Substances (340-041-0033), Provision 1

The following presents the new and revised language to the WQS contained in the Toxic Substances Section (340-041-0033), provision 1. All underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2013 adoptions.

> *(1) Amendments to ~~in~~ sections (4<u>1-5</u>) and (~~6~~<u>7</u>) of this rule (OAR 340-041-0033) and associated revisions to Tables 20, 33A, 33B, <u>33C</u>, and 40 ~~do not~~ become <u>effective on April 18, 2014. The amendments do not become</u> applicable for purposes of ORS chapter 468B or the federal Clean Water Act<u>, however,</u> unless <u>approved by</u> ~~and until~~ EPA ~~approves the provisions it identifies as water quality standards~~ pursuant to 40 CFR 131.21 (4/27/2000).*

<u>EPA Action</u>
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves both the non-substantive editorial changes and the substantive revisions to the language in OAR 340-041-0033 (1) with the exception of the reference to Table 33C.

OAR 340-041-0033 (1) provides a date (April 18, 2014) that the new and revised WQS provision becomes effective, which is a substantive change to the WQS. The new date identifies when the revisions to OAR 340-041-0033 provisions 1 through 5, and 7 as well as the revisions to Tables 20, 33A, 33B, 33C, and 40 become effective under state and federal law provided the EPA has completed its CWA action by April 18, 2014. As stated in the introduction to this document, EPA is not taking an action on Table 33C because it is not a WQS under section 303(c) of the CWA.

The non-substantive changes include minor wording changes (e.g., replacing the word "in" with "to"), and correcting reference errors. These revisions do not substantively change the meaning or intent of the existing WQS. The EPA's approval of these non-substantive changes does not re-open the EPA's approval of the underlying substantive WQS.

B. Narrative Toxic Substances (340-041-0033), Provisions (2) through (4)

The following presents the new and revised language to the WQS contained in the Toxic Substances Section (340-041-0033(2) through (4)). All underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2013 adoption.

> *(2) **Toxic Substances Narrative.** Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses.*
>
> *(3) **Aquatic Life Numeric Criteria.** Levels of toxic substances in waters of the state may not exceed the applicable aquatic life criteria listed in Table 30. ~~Tables 20, 33A, and 33B. Tables 33A and 33B, adopted on May 20, 2004, update Table 20 as described in this section.~~*
>
> *~~(a) Each value for criteria in Table 20 is effective until the corresponding value in Tables 33A or 33B becomes effective.~~*
> *~~(A) Each value in Table 33A is effective on February 15, 2005, unless EPA has disapproved the value before that date. If a value is subsequently disapproved, any corresponding value in Table 20 becomes effective immediately. Values that are the same in Tables 20 and 33A remain in effect.~~*
> *~~(B) Each value in Table 33B is effective upon EPA approval.~~*
> *~~(b) The department will note the effective date for each value in Tables 20, 33A, and 33B as described in this section.~~*
>
> *(4) **Human Health Numeric Criteria.** The criteria for waters of the state listed in Table 40 are established to protect Oregonians from potential adverse health effects associated with long-term exposure to toxic substances associated with consumption of fish, shellfish, and water.*

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the revisions to the language in OAR 340-041-0033(2) through (4) as non-substantive editorial changes. The EPA's approval of the non-substantive editorial changes in provisions (2) through (4) does not re-open the EPA's approval of the underlying substantive WQS.

Provisions (2) and (4)

Provisions (2) and (4) added minor clarifying language to the provisions (i.e., provision (2) added the title "Toxic Substance Narrative" to the paragraph, and provision (3) clarified the paragraph title). The additional language does not substantively change the meaning or intent of the existing EPA-approved WQS.

Provision (3)

Provision (3) deletes the references to Tables 20, 33A and 33B and references a new Table 30 because the state has consolidated the aquatic life criteria into one new table (Table 30).

C. Narrative Toxic Substances Editorial Note

The following presents the new and revised language to the WQS contained in the editorial note contained in the Toxic Substances Section (OAR 340-041-0033). All underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2013 adoption.

> *[ED. NOTE: Tables referencing the toxics criteria~~ed~~ are not included in rule text. Click here for a PDF copy of Table 30: Aquatic Life Water Quality Criteria for Toxic Pollutants. Click here for a PDF copy of Table 31: Aquatic Life Water Quality Guidance Values for Toxic Pollutants. Click here for a PDF copy of Table 40: Human Health Water Quality Criteria for Toxic Pollutants.~~available from the agency~~.]*

EPA Action

The EPA recognizes the revisions to the editorial note but is not taking action on the revisions because the editorial note is not a WQS under section 303(c) of the CWA. This note simply tells the reader how they may obtain a PDF copy of the various criteria and guidance value tables referenced in the WQS.

III. EPA ACTION ON REVISIONS TO BACTERIA PROVISIONS (OAR 340-041-0009)

The following presents the specific sections of provision OAR 340-041-0009 that have been revised. All underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2013 adoption.

> *Provision (5)(b):*
> *(b) The aquatic life criteria ~~in-stream criterion~~ for chlorine established in the water quality toxic substances rule under OAR 340-041-0033 ~~listed in Table 20~~ must be met at all times outside the assigned mixing zone;*

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the revisions to the language in OAR 340-041-0009(5)(b) as non-substantive editorial changes. These revisions do not substantively change the meaning or intent of the existing WQS. The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive WQS.

IV. EPA ACTION ON TABLE 30, AQUATIC LIFE CRITERIA

A. Table 30 in Oregon's Water Quality Standards

The following presents the new table 30 that Oregon adopted into its WQS. Table 30 includes the aquatic life criteria from Tables 20, 33A and 33B the EPA approved in a prior action, and new acute and chronic aquatic life criteria for freshwater and saltwater arsenic, new acute and chronic saltwater aquatic life criteria for chromium VI, and revised acute and chronic freshwater aquatic life criteria. Table 30

replaces Tables 20, 33A, and 33B, which Oregon has removed from its WQS. All of the language in Table 30 is underlined because Table 30 is new. EPA has included OR's Table 30, introductory language to Table 30 and endnotes below for easy reference.

TABLE 30: Aquatic Life Water Quality Criteria for Toxic Pollutants

Effective April 18, 2014

Aquatic Life Criteria Summary

The criteria for each compound listed in Table 30 is a criterion not to be exceeded in waters of the state in order to protect aquatic life. The aquatic life criteria apply to waterbodies where fish and aquatic life is a designated beneficial use. All values are expressed as micrograms per liter (µg/L). Compounds are listed in alphabetical order with the corresponding information: the Chemical Abstract Service (CAS) number, whether there is a human health criterion for the pollutant (i.e. "y"= yes, "n" = no), and the associated aquatic life freshwater and saltwater acute and chronic criteria. Italicized pollutants are not identified as priority pollutants by EPA. Dashes in the table column indicate that there is no aquatic life criterion.

Unless otherwise noted in the table below, the acute criterion is the Criterion Maximum Concentration (CMC) applied as a one-hour average concentration, and the chronic criterion is the Criterion Continuous Concentration (CCC) applied as a 96-hour (4 days) average concentration. The CMC and CCC criteria should not be exceeded more than once every three years. Footnote A, associated with eleven pesticide pollutants in Table 30, describes the exception to the frequency and duration of the toxics criteria stated in this paragraph.

Table 30

Aquatic Life Water Quality Criteria for Toxic Pollutants

				Freshwater (µg/L)		Saltwater (µg/L)	
	Pollutant	CAS Number	Human Health Criterion	Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
1	Aldrin	309002	y	3 [A]	--	1.3 [A]	--
	[A] *See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.*						
2	*Alkalinity*		n	--	20,000 [B]	--	--
	[B] *Criterion shown is the minimum (i.e. CCC in water may not be below this value in order to protect aquatic life).*						
3	*Ammonia*	7664417	n	*Criteria are pH, temperature, and salmonid or sensitive coldwater species dependent--See document USEPA January 1985 (Fresh Water).* [M]		*Ammonia criteria for saltwater may depend on pH and temperature. Values for saltwater criteria (total ammonia) can be calculated from the tables specified in Ambient Water Quality Criteria for Ammonia (Saltwater)--1989 (EPA 440/5-88-004;*	

Table 30

Aquatic Life Water Quality Criteria for Toxic Pollutants

	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L) Acute Criterion (CMC)	Freshwater (µg/L) Chronic Criterion (CCC)	Saltwater (µg/L) Acute Criterion (CMC)	Saltwater (µg/L) Chronic Criterion (CCC)
						http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm)	
[M] See expanded endnote M equations at bottom of Table 30 to calculate freshwater ammonia criteria							
4	Arsenic	7440382	y	340 [C, D]	150 [C, D]	69 [C, D]	36 [C, D]
[C] Criterion is expressed in terms of "dissolved" concentrations in the water column. [D] Criterion is applied as total inorganic arsenic (i.e. arsenic (III) + arsenic (V)).							
5	BHC Gamma (Lindane)	58899	y	0.95	0.08 [A]	0.16 [A]	--
[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
6	Cadmium	7440439	n	See E	See C, F	40 [C]	8.8 [C]
[C] Criterion is expressed in terms of "dissolved" concentrations in the water column. [E] The freshwater criterion for this metal is expressed as "total recoverable" and is a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote E at bottom of Table 30. [F] The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.							
7	Chlordane	57749	y	2.4 [A]	0.0043 [A]	0.09 [A]	0.004 [A]
[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
8	*Chloride*	16887006	n	860,000	230,000	--	--
9	*Chlorine*	7782505	n	19	11	13	7.5
10	*Chlorpyrifos*	2921882	n	0.083	0.041	0.011	0.0056
11	Chromium III	16065831	n	See C, F	See C, F	--	--
[C] Criterion is expressed in terms of "dissolved" concentrations in the water column. [F] The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.							
12	Chromium VI	18540299	n	16 [C]	11 [C]	1100 [C]	50 [C]
[C] Criterion is expressed in terms of "dissolved" concentrations in the water column.							
13	Copper	7440508	y	See E	See E	4.8 [C]	3.1 [C]
[C] Criterion is expressed in terms of "dissolved" concentrations in the water column. [E] The freshwater criterion for this metal is expressed as "total recoverable" and is a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote E at bottom of Table 30.							
14	Cyanide	57125	y	22 [J]	5.2 [J]	1 [J]	1 [J]
[J] This criterion is expressed as µg free cyanide (CN)/L.							

Table 30

Aquatic Life Water Quality Criteria for Toxic Pollutants

	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L) Acute Criterion (CMC)	Freshwater (µg/L) Chronic Criterion (CCC)	Saltwater (µg/L) Acute Criterion (CMC)	Saltwater (µg/L) Chronic Criterion (CCC)
15	DDT 4,4'	50293	y	1.1 [A, G]	0.001 [A, G]	0.13 [A, G]	0.001 [A, G]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
	[G] This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).						
16	*Demeton*	8065483	n	--	0.1	--	0.1
17	Dieldrin	60571	y	0.24	0.056	0.71[A]	0.0019[A]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
18	Endosulfan	115297	n	0.22 [A, H]	0.056 [A, H]	0.034 [A, H]	0.0087 [A, H]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
	[H] This value is based on the criterion published in Ambient Water Quality Criteria for Endosulfan (EPA 440/5-80-046) and should be applied as the sum of alpha- and beta-endosulfan.						
19	Endosulfan Alpha	959988	y	0.22 [A]	0.056 [A]	0.034 [A]	0.0087 [A]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
20	Endosulfan Beta	33213659	y	0.22 [A]	0.056 [A]	0.034 [A]	0.0087 [A]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
21	Endrin	72208	y	0.086	0.036	0.037 [A]	0.0023 [A]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
22	*Guthion*	86500	n	--	0.01	--	0.01
23	Heptachlor	76448	y	0.52 [A]	0.0038 [A]	0.053 [A]	0.0036 [A]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
24	Heptachlor Epoxide	1024573	y	0.52 [A]	0.0038 [A]	0.053 [A]	0.0036 [A]
	[A] See expanded endnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
25	*Iron (total)*	7439896	n	--	1000	--	--
26	Lead	7439921	n	*See C , F*	*See C , F*	210 [C]	8.1 [C]
	[C] Criterion is expressed in terms of "dissolved" concentrations in the water column.						
	[F] The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.						
27	*Malathion*	121755	n	--	0.1	--	0.1
28	Mercury (total)	7439976	n	2.4	0.012	2.1	0.025
29	*Methoxychlor*	72435	y	--	0.03	--	0.03
30	*Mirex*	2385855	n	--	0.001	--	0.001

Table 30

Aquatic Life Water Quality Criteria for Toxic Pollutants

	Pollutant	CAS Number	Human Health Criterion	Freshwater (µg/L) Acute Criterion (CMC)	Freshwater (µg/L) Chronic Criterion (CCC)	Saltwater (µg/L) Acute Criterion (CMC)	Saltwater (µg/L) Chronic Criterion (CCC)
31	Nickel	7440020	y	*See* C , F	*See* C , F	74 [C]	8.2 [C]
[C] *Criterion is expressed in terms of "dissolved" concentrations in the water column.* [F] *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.*							
32	*Parathion*	56382	n	0.065	0.013	--	--
33	Pentachlorophenol	87865	y	*See* **H**	*See* **H**	13	7.9
[H] *Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC=(exp(1.005(pH)-4.869); CCC=exp(1.005(pH)-5.134).*							
34	*Phosphorus Elemental*	7723140	n	--	--	--	0.1
35	Polychlorinated Biphenyls (PCBs)	NA	y	2 [K]	0.014 [K]	10 [K]	0.03 [K]
[K] *This criterion applies to total PCBs (e.g.* determined as Aroclors or congeners)							
36	Selenium	7782492	y	*See* **C , L**	4.6 [C]	290 [C]	71 [C]
[C] *Criterion is expressed in terms of "dissolved" concentrations in the water column.* [L] *The CMC=(1/[(f1/CMC1)+(f2/CMC2)]µg/L) * CF where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively,and CMC1 and CMC2 are 185.9 µg/L and 12.82 µg/L, respectively. See expanded endnote F for the Conversion Factor (CF) for selenium.*							
37	Silver	7440224	n	*See* **C , F**	0.10 [C]	1.9 [C]	--
[C] *Criterion is expressed in terms of "dissolved" concentrations in the water column.* [F] *The freshwater acute criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.*							
38	*Sulfide Hydrogen Sulfide*	7783064	n	--	2	--	2
39	Toxaphene	8001352	y	0.73	0.0002	0.21	0.0002
40	*Tributyltin (TBT)*	688733	n	0.46	0.063	0.37	0.01
41	Zinc	7440666	y	*See* **C , F**	*See* **C , F**	90 [C]	81 [C]
[C] *Criterion is expressed in terms of "dissolved" concentrations in the water column.* [F] *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.*							

Expanded Endnotes A, E, F, M

Endnote A: Alternate Frequency and Duration for Certain Pesticides

This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines which update minimum data requirements and derivation procedures. The CMC may not be exceeded at any time and the CCC may not be exceeded based on a 24-hour average. The CMC may be applied using a one hour averaging period not to be exceeded more than once every three years, if the CMC values given in Table 30 are divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

Endnote E: Equations for Hardness-Dependent Freshwater Metals Criteria for Cadmium Acute and Copper Acute and Chronic Criteria

The freshwater criterion for this metal is expressed as total recoverable with two significant figures, and is a function of hardness (mg/L) in the water column. Criteria values for hardness are calculated using the following formulas (CMC refers to the acute criterion; CCC refers to the chronic criterion):

$$\mathbf{CMC} = (\exp(m_A*[\ln(\text{hardness})] + b_A))$$
$$\mathbf{CCC} = (\exp(m_C*[\ln(\text{hardness})] + b_C))$$

Chemical	m_A	b_A	m_C	b_C
Cadmium	1.128	-3.828	N/A	N/A
Copper	0.9422	-1.464	0.8545	-1.465

Endnote F: Equations for Hardness-Dependent Freshwater Metals Criteria and Conversion Factor Table

The freshwater criterion for this metal is expressed as dissolved with two significant figures, and is a function of hardness (mg/L) in the water column. Criteria values for hardness are calculated using the following formulas (CMC refers to the acute criterion; CCC refers to the chronic criterion):

$$\mathbf{CMC} = (\exp(m_A*[\ln(\text{hardness})] + b_A))*CF$$
$$\mathbf{CCC} = (\exp(m_C*[\ln(\text{hardness})] + b_C))*CF$$

"CF" is the conversion factor used for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

Chemical	m_A	b_A	m_C	b_C
Cadmium	N/A	N/A	0.7409	-4.719
Chromium III	0.8190	3.7256	0.8190	0.6848
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.59	--	--
Zinc	0.8473	0.884	0.8473	0.884

The conversion factors (CF) below must be used in the equations above for the hardness-dependent metals in order to convert total recoverable metals criteria to dissolved metals criteria. For metals that are not hardness-dependent (i.e. arsenic, chromium VI, selenium, and silver (chronic)), or are saltwater criteria, the criterion value associated with the metal in Table 30 already reflects a dissolved criterion based on its conversion factor below.

Conversion Factor (CF) Table for Dissolved Metals

Chemical	Freshwater		Saltwater	
	Acute	Chronic	Acute	Chronic
Arsenic	1.000	1.000	1.000	1.000
Cadmium	N/A	1.101672-[(ln hardness)(0.041838)]	0.994	0.994
Chromium III	0.316	0.860	--	--
Chromium VI	0.982	0.962	0.993	0.993
Copper	N/A	N/A	0.83	0.83
Lead	1.46203-[(ln hardness)(0.145712)]	1.46203-[(ln hardness)(0.145712)]	0.951	0.951
Nickel	0.998	0.997	0.990	0.990
Selenium	0.996	0.922	0.998	0.998
Silver	0.85	0.85	0.85	--
Zinc	0.978	0.986	0.946	0.946

Endnote M: Equations for Freshwater Ammonia Calculations

Acute Criterion

The 1-hour average concentration of un-ionized ammonia (mg/L NH_3) may not exceed more often than once every three years on average, the numerical value given by:

$CMC_{NH3} = 0.52/FT/FPH/2$ where:

FT = temperature adjustment factor
FPH = pH adjustment factor
TCAP = temperature cap

$FT = 10^{0.03(20-TCAP)}$; $TCAP \leq T \leq 30°\ C$
$FT = 10^{0.03(20-T)}$; $0 \leq T \leq TCAP$
$FPH = 1$ $8 \leq pH \leq 9$
$FPH = \frac{1 + 10^{7.4-pH}}{1.25}$ $6.5 \leq pH \leq 8$

TCAP = 20 °C; Salmonids and other sensitive coldwater species present
TCAP = 25 °C; Salmonids and other sensitive coldwater species absent

Chronic Criterion
The 4-day average concentration of un-ionized ammonia (mg/L NH_3) may not exceed more often than once every three years on average, the average numerical value given by:

$CCC_{NH3} = 0.80/FT/FPH/RATIO$

where FT and FPH are as above for acute criterion and:

$RATIO = 16$ *where* $7.7 \leq pH \leq 9$

$RATIO = 24 \times \left[\frac{10^{7.7-pH}}{1 + 10^{7.4-pH}}\right]$ *where* $6.5 \leq pH \leq 7.7$

TCAP = 15 °C; Salmonids and other sensitive coldwater species present
TCAP = 20 °C; Salmonids and other sensitive coldwater species absent

B. EPA Action on the Introductory Language to Table 30

This section of the document addresses the introductory language to Table 30. The introductory language states:

> *The criteria for each compound listed in Table 30 is a criterion not to be exceeded in waters of the state in order to protect aquatic life. The aquatic life criteria apply to waterbodies where fish and aquatic life is a designated beneficial use. All values are expressed as micrograms per liter (µg/L). Compounds are listed in alphabetical order with the corresponding information: the Chemical Abstract Service (CAS) number, whether there is a human health criterion for the pollutant (i.e. "y"= yes, "n" = no), and the associated aquatic life freshwater and saltwater acute and chronic criteria. Italicized pollutants are not identified as priority pollutants by EPA. Dashes in the table column indicate that there is no aquatic life criterion.*
>
> *Unless otherwise noted in the table below, the acute criterion is the Criterion Maximum Concentration (CMC) applied as a one-hour average concentration, and the chronic criterion is*

the Criterion Continuous Concentration (CCC) applied as a 96-hour (4 days) average concentration. The CMC and CCC criteria should not be exceeded more than once every three years. Footnote A, associated with eleven pesticide pollutants in Table 30, describes the exception to the frequency and duration of the toxics criteria stated in this paragraph.

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the introductory language to Table 30.

The introductory language to Table 30 provides the organization of the table, general information (i.e., CAS number, whether there is a human health criterion associated with the pollutant, priority pollutant information), the units of criteria, explains that the criteria are not to be exceeded in waters where fish and aquatic life are a designated use, provides the frequency and duration for each aquatic life criterion (i.e., the acute criterion is expressed as the one-hour average concentration not to be exceeded more than once in three years and the chronic criterion is expressed as the four-day average concentration not to be exceeded more than once every three years) and clarifies that there are eleven pesticides that cite to footnote A which provides a frequency and duration different than what is described in the introductory paragraph.

The federal regulation at 40 CFR 131.11(b) states that in establishing criteria, states should set numerical values based on the EPA's 304(a) recommendation[3] (potentially modified to reflect site-specific conditions) or other scientifically defensible methods. The frequencies and durations cited in the introductory paragraphs are consistent with the EPA's 304(a) recommendations. The EPA's specific decisions on the adequacy of the magnitude for each new criterion to protect Oregon's fish and aquatic life designated use, given the specified duration and frequency, is provided below.

C. EPA's Action on Eight Pesticides

This section of the document contains the EPA's specific decisions on the adequacy of the magnitude for each criterion, identified below, to protect Oregon's fish and aquatic life designated use, given the duration and frequency specified in the introductory language to Table 30 and footnote and endnote A. Footnote A and endnote A of Table 30 states that the acute criteria (CMC) may not be exceeded at any time, and the chronic criteria (CCC) may not be exceeded based on a 24-hour average. Endnote A further states that the acute criteria may be applied using a one-hour averaging period not to be exceeded more than once every three years if the acute values given in Table 30 are divided by 2.

Table 30 contains the following freshwater and saltwater aquatic life criteria for eight pesticides. Dashes in the table indicate that there is no aquatic life criterion for that pollutant. An italicized reference to another part of this document means that the EPA addressed that criterion at the part cited.

[3] The EPA's 304(a) criteria generally consist of the following components: (1) Magnitude (level of pollutant allowable, usually expressed as a concentration, (2) Frequency (period of time over which the instream concentration is averaged for comparison with criteria concentrations), and (3) Frequency (how often a particular criterion can be exceeded).

Pollutant	Freshwater		Saltwater	
	Acute	Chronic	Acute	Chronic
Aldrin	3	---	1.3	---
BHC gamma (Lindane)	*Part IV.G.*	0.08	0.16	---
Chlordane	2.4	0.0043	0.09	0.004
DDT4,4	1.1	0.001	0.13	0.001
Dieldrin	*Part IV.G*	*Part IV.H*	0.71	0.0019
Endosulfan	0.22	0.056	0.034	0.0087
Endrin	*Part IV.G*	*Part IV.H*	0.37	0.0023
Heptachlor	0.52	0.0038	0.053	0.0036

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the magnitudes for each of the criteria described above and the citation to footnote and endnote A as non-substantive editorial changes.

The revisions do not substantively change the meaning or intent of the existing water quality criteria, rather they clarify the frequency and duration associated with each of the above referenced pollutants. The EPA's approval of these non-substantive editorial changes does not re-open the water quality criteria that the EPA previously approved in 1988.

EPA RATIONALE:
In 1987, Oregon adopted numeric criteria for the pesticides referenced above. These numeric criteria were incorporated into Table 20 of the 1987 Oregon WQS. Additionally, the introduction to the water quality criteria in Table 20 specified that the "specific descriptions and an explanation of the values are included in *Quality Criteria for Water (1986).*" The *Quality Criteria for Water (1986)* identified the frequency and duration associated with each of the numeric aquatic life criteria listed in Table 20. For the specific pollutants listed above the acute criterion was not to be exceeded at any time and the chronic criterion was not to be exceeded based on a 24-hour average. In 1988, the EPA approved the criteria because the magnitude, frequency, and duration of each criterion was consistent with the EPA's 304(a) recommendation.

In 2004, Oregon revised its WQS. The magnitudes of the above referenced pollutants were moved from Table 20 to a new table titled Table 33A. When moving the magnitudes to the new table, Oregon inadvertently failed to move the associated frequency and duration for each of these specific pollutants listed above (i.e., acute criteria may not be exceeded at any time and the chronic criteria may not be exceeded based on a 24-hour average). Additionally, Oregon mistakenly applied a footnote "P" to the freshwater and saltwater acute and chronic endosulfan criteria. Footnote "P" stated that the value shown in the table was a minimum (i.e., that there should be at *least* this level of the pollutant in the water).

In the EPA's January 31, 2013 action, it disapproved the deletion of the appropriate frequency and duration in Table 33A, and the transfer of the magnitude for each criterion from Table 20 to Table 33A. The EPA also disapproved the citation of footnote "P" to the endosulfan criteria.

Oregon's 2013 adoption resolved the EPA's disapproval by reinstating the magnitude, frequency, and duration for each of the criteria that was in their WQS prior to the 2004 adoption. For each of the above referenced pollutants, Oregon references footnote/endnote "A" in Table 30 which describes the frequency and duration applicable to the acute and chronic criteria. The frequency and duration

described is the same as was referenced prior to Oregon's 2004 adoption and, as noted above, it is consistent with the EPA's 304(a) recommendation. Endnote A also states that the acute criterion can be applied as a one-hour average not to be exceeded more than once in three years provided the magnitude in Table 30 is divided by 2. This alternate way of expressing the magnitude, frequency and duration provides the same level of protection to aquatic life and is consistent with the EPA's 304(a) recommendations.

Additionally, as noted, the EPA disapproved the citation of footnote "P" to the freshwater and saltwater acute and chronic endosulfan criteria in its January 31, 2013 action. Oregon has addressed that disapproval by removing that footnote from all of the endosulfan criteria in its new Table 30.

D. EPA Action on Arsenic, Chromium VI (saltwater only), Endosulfan alpha, Endosulfan beta and Heptachlor epoxide

This section of the document contains the EPA's specific decisions on the adequacy of the magnitude for each of the new criteria, identified below, to protect Oregon's fish and aquatic life designated use, given the duration and frequency specified in the introductory language to Table 30.

Arsenic and Chromium VI

The magnitude for the freshwater and saltwater acute and chronic criteria for arsenic are contained in Table 30 and cite to footnote C (which expresses the criteria in terms of dissolved concentrations in the water column) and footnote D (which identifies the criterion as total inorganic form of arsenic). The magnitudes for the saltwater acute and chronic criteria for chromium VI are contained in Table 30 and cite to footnote C (which expresses the criteria in terms of dissolved concentrations in the water column). The arsenic and chromium VI acute criteria are expressed as one-hour averages that should not be exceeded more than once in three years, and the chronic criteria are expressed as four-day averages that should not be exceeded more than once in three years. The specific conversion factors[4] applied to the arsenic and chromium VI criteria can be found in endnote F of Table 30. The specific magnitudes and conversion factors for arsenic and chromium VI are:

Chemical	Freshwater/Saltwater Acute/Chronic	Magnitude, dissolved	Conversion Factor
Arsenic	Freshwater acute	340	1.000
	Freshwater chronic	150	1.000
	Saltwater acute	69	1.000
	Saltwater chronic	36	1.000
Chromium VI	Saltwater acute	1100	0.993
	Saltwater chronic	50	0.993

Endosulfan alpha, Endosulfan beta, Heptachlor epoxide

The magnitudes for the freshwater and saltwater acute and chronic criteria for endosulfan alpha, endosulfan beta, and heptachlor epoxide are contained in Table 30. Each of these criteria references footnote A and endnote A of Table 30 which states that the acute criteria may not be exceeded at any time and the chronic criteria may not be exceeded based on a 24-hour average. Footnote A further states

[4] Conversion factors are used to convert total recoverable metals criteria to dissolved metals criteria.

that the acute criteria may be applied using a one hour averaging period not to be exceeded more than once every three years if the acute values given in Table 30 are divided by 2. The specific magnitudes and conversion factors for endosulfan alpha, endosulfan beta, and heptachlor epoxide are:

Chemical	Freshwater		Saltwater	
	Acute	Chronic	Acute	Chronic
Endosulfan alpha	0.22	0.056	0.034	0.0087
Endosulfan beta	0.22	0.056	0.034	0.0087
Heptachlor epoxide	0.52	0.0038	0.053	0.0036

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the magnitude, frequency, and duration for each arsenic, chromium VI, endosulfan alpha, endosulfan beta and heptachlor epoxide criterion. Additionally, the EPA approves the citation to footnote and endnote A for endosulfan alpha, endosulfan beta, and heptachlor epoxide, and the citation to footnotes C and D for freshwater and saltwater acute and chronic criteria for arsenic, and footnote C for saltwater acute and chronic criteria for chromium VI. The EPA also approves the conversion factors associated with the freshwater and saltwater arsenic criteria and the saltwater chromium VI criteria that are contained in Footnote F of Table 30 and the expression of each of these criteria as the dissolved concentration in the water column.

EPA RATIONALE:
In its final 304(a) recommendations for each of the above listed pollutants, the EPA provides an extensive technical basis and justification as to how its recommended aquatic life criteria adequately protect aquatic life uses.[5] Oregon has adopted those recommendations for these criteria. Based on the information in the 304(a) recommendations, the EPA has determined that Oregon's new criteria are protective of Oregon's fish and aquatic life use, therefore, the EPA approves these aquatic life criteria.

E. EPA Action for Aluminum, Ammonia, Cadmium and Copper Aquatic Life Criteria

This section of the document addresses the following aquatic life criteria:

Aluminum: Freshwater acute and chronic
Ammonia: Freshwater acute and chronic
Cadmium: Freshwater acute only
Copper: Freshwater acute and chronic

On January 31, 2013, the EPA disapproved the aquatic life criteria, listed above, that Oregon adopted in 2004. When a criterion is disapproved, the previously EPA-approved numeric aquatic life criterion is in effect for CWA purposes until the EPA approves or promulgates a revision.

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[5] Freshwater arsenic criteria: *Water Quality Criteria Documents for the protection of Aquatic Life in Ambient Water,* EPA-440/5-84-0330;
Saltwater arsenic criteria: *Ambient Water Quality Criteria for Arsenic,* EPA 440/5-84-033;
Saltwater chromium VI criteria: *Ambient Water Quality Criteria for Chromium,* EPA 440/5-84-029; Freshwater and saltwater endosulfan alpha and beta: *Ambient Water Quality Criteria for Endosulfan,* EPA 440/5-80-046;
Freshwater and saltwater criteria for heptachlor epoxide: *Ambient Water Quality Criteria for Heptachlor,* EPA 440/5-80-062.

Oregon is in the process of determining appropriate criteria for these pollutants and has not yet proposed revised criteria.[6] Therefore, Oregon's 2013 adoption reinstates the previously EPA-approved and CWA effective numeric criteria for ammonia, cadmium and copper (the ammonia criteria are contained in footnote M and endnote M, and the cadmium, and copper criteria are contained in footnote E and endnote E). The applicable duration and frequency for the magnitudes are described in the introductory paragraph to Table 30 as a one-hour average that should not be exceeded more than once in three years for the acute criterion, and a four-day average that should not be exceeded more than once in three years for the chronic criterion. Aluminum did not have previously approved numeric criteria; therefore, no numeric criteria are included in the table for aluminum.

EPA ACTION:

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the revisions to Table 30, including footnote and endnote E, and footnote and endnote M as non-substantive editorial changes because it leaves in effect previously EPA-approved criteria that are already in effect for CWA purposes, as a result of the January 31, 2013 disapproval.

In Oregon's January 9, 2014 submittal letter to the EPA, the State explained that they anticipate addressing the EPA's January 2013 disapproval of the ammonia and copper criteria next, and will address the aluminum and cadmium criteria once the EPA finalizes their revisions to the 304(a) national criteria recommendations.

F. EPA Action on Selenium Aquatic Life Criteria

The magnitudes for the freshwater acute and chronic selenium criteria to protect Oregon's fish and aquatic life designated use are contained in Table 30, which provides a numeric concentration for the chronic criterion, and references footnote L, an equation with input parameters, for the acute criterion. The applicable duration and frequency are described in the introductory language to Table 33B as a one-hour average that should not be exceeded more than once in three years for the acute criterion, and a four-day average that should not be exceeded more than once in three years for the chronic criterion (see Part IV.B. above for the EPA's approval action for duration and frequency). A citation to footnote C provides that these criteria are expressed in terms of dissolved concentrations in the water column. The conversion factors (CF) used to convert from a total recoverable criterion to a dissolved criterion are contained in Endnote F. The criteria subject to the EPA's review are:

[6] See Oregon's January 9, 2014 letter to Daniel D. Opalski from Gregory K. Aldrich. This letter states that Oregon anticipates reviewing ammonia and copper criteria this year, and is waiting for EPA's updated 304(a) criteria recommendations for cadmium and aluminum.

Selenium	Magnitude, dissolved	Conversion Factor	Comments
Acute (µg/L)	1/[(f1/CMC1)+(f2/CMC2)] *CF	0.996	Footnote L provides the acute equation and states that f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 µg/L and 12.82 µg/L, respectively. Footnote L also directs the reader to endnote F for CF for acute selenium (i.e., 0.996).
Chronic (µg/L)	4.6	0.992	The numeric chronic criterion incorporates the CF for selenium that is found in endnote F (i.e., 0.922).

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the magnitudes for the acute and chronic aquatic life criteria for selenium described above and the citations to footnote C (which expresses the acute and chronic criteria as dissolved), footnote L (which provides the equation for the acute aquatic life criterion and references endnote F that provides the CF for the acute aquatic life criterion equation), the CF used to develop the dissolved criteria, and the expression of these criteria as the dissolved concentration in the water column.

The EPA is approving the acute and chronic criteria because they are consistent with the EPA's most recent 304(a) recommendation for selenium.[7] Additionally, the EPA believes it is scientifically acceptable to use a CF of 0.996 for the acute criterion and a CF of 0.922 for the chronic criterion to convert the total recoverable value to a dissolved value (see *National Recommended Water Quality Criteria:2002*, EPA-822-R-02-047, Footnote T).

The EPA also acknowledges that it is in the process of updating its 304(a) recommendation for selenium but has not identified a completion date. Once those recommendations are finalized and publicly available, the EPA recommends that Oregon consider updating its selenium criteria at that time.

G. EPA Action on Criteria Moved from Table 33A to Table 30

This section of the document contains the EPA's action on the aquatic life criteria that the EPA previously approved and that were simply moved from Table 33A to Table 30 as part of Oregon's 2013 adoption. The previously approved magnitude, frequency, and duration for each of the criteria listed in the table below were retained when they were moved to Table 30. The frequency and duration are described in the introductory paragraph to Table 30. The "comments" section of the table below lists any minor editorial changes that were made when the criteria were moved to Table 30. Dashes in the table indicate that Oregon does not have an aquatic life criterion for that pollutant. An italicized reference to another part of this document means that the EPA addressed the criterion at the part cited.

[7] See *Ambient Water Quality Criteria for Selenium – 1987*, EPA-440/5-87-006 for the chronic criterion and *Acute Water Quality Criteria Guidance for the Great Lakes System*, 61FR58444) for the acute criterion.

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Comments
Alkalinity	---	20,000 [B]	---	---	Freshwater chronic criterion in Table 30 cites footnote "B". Footnote "B" was cited as footnote "P" in Table 33A. The substance of the footnote did not change.
Ammonia	*See Part IV. E.*		Ammonia criteria for saltwater may depend on pH and temperature. Values for saltwater criteria (total ammonia) can be calculated from the tables specified in Ambient Water Quality Criteria for Ammonia (Saltwater)--1989 (EPA 440/5-88-004; http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm)		The text contained in Table 30 for the saltwater criteria was previously contained in footnote "D" of Table 33A. The text also updated to provide the correct EPA website for the saltwater criteria.
BHC gamma lindane	0.95	*See Part IV.C*	*See Part IV.C*	---	No changes from Table 33A.
Chloride	860,000	230,000	---	---	No changes from Table 33A.
Chlorine	19	11	13	7.5	No changes from Table 33A.
Chlorpyrifos	0.083	0.041	0.011	0.0056	No changes from Table 33A.
Cyanide	22[J]	5.2 [J]	1[J]	1[J]	Each criterion for cyanide cites footnote "J". Footnote "J" was cited as footnote "S" in Table 33A. The substance of the footnote did not change.
Demeton	--	0.1	--	0.1	No changes from Table 33A.
Dieldrin	0.24	*See Part IV.H*	*See Part IV.C*	*See Part IV.C*	No changes from Table 33A.
Endrin	0.086	*See Part IV.H*	*See Part IV.C*	*See Part IV.C*	No changes from Table 33A.
Guthion	---	0.01	---	0.01	No changes from Table 33A.
Iron	---	1000	---	---	No changes from Table 33A.
Malathion	---	0.1	---	0.1	No changes from Table 33A.
Mercury (total)	2.4	0.012	2.1	0.025	No changes from Table 33A.
Methoxychlor	---	0.03	---	0.03	No changes from Table 33A.
Mirex	---	0.001	---	0.001	No changes from Table 33A.
Parathion	0.065	0.013	---	---	No changes from Table 33A.
Pentachlorphenol	See H	*See Part IV.H*	13	7.9	The freshwater acute criterion cites footnote "H" which contains the equation for the acute criterion. Footnote "H" was cited as footnote "M" in Table 33A. The substance of the footnote did not change.
Phosphorus Elemental	---	---	---	0.1	No change from 33A.
Polychlorinated Biphenyls	2[K]	0.014[K]	10[K]	0.03[K]	Each criterion cites to footnote K. This footnote was cited as footnote "U" in Table 33A. The language in the footnote has been slightly revised, but not substantively, see Part IV.I.10 for the revised language.
Sulfide hydrogen sulfide	---	2	---	2	No changes from Table 33A.
Toxaphene	0.73	0.0002	0.21	0.0002	No changes from Table 33A.

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves moving the numeric criteria listed in the table above from Table 33A to Table 30, changing footnote citations, and correcting website addresses as non-substantive editorial changes. These revisions do not substantively change the meaning or intent of the existing previously approved WQS. The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.

H. EPA Action on Criteria Moved from Table 33B to Table 30

This section of the document contains the EPA's action on the aquatic life criteria that the EPA previously approved and that were simply moved from Table 33B to Table 30 as part of Oregon's 2013 adoption. The magnitude, frequency and duration for each of the criteria listed in the table below were retained when they were moved from Table 33B to Table 30. The frequency and duration are described in the introductory paragraph to Table 30. The "comments" section of the table lists any minor editorial changes that were made when the criteria were moved to Table 30. Dashes in the table indicate that Oregon does not have an aquatic life criterion for that pollutant. An italicized reference to another part of this document means that the EPA addressed the criterion at the part cited.

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Comments
Cadmium	*See Part IV.E*	See C, F	40 [C]	8.8 [C]	The freshwater chronic criterion and the saltwater acute and chronic criteria cite to footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. The freshwater chronic criterion also cites to footnote "F". Footnote "F" did not change when moving the criteria from Table 33B to Table 30. No substantive changes were made to the footnotes.
Chromium III	See C,F	See C, F	---	---	No change from Table 33B.
Chromium VI	16[C]	11[C]	*See Part IV.D*	*See Part IV.D*	No change from Table 33B.
Copper	*See Part IV.E*	*See Part IV.E*	4.8 [C]	3.1 [C]	The saltwater acute and chronic criteria cite footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. No substantive change was made to the footnote.
Endrin	*See Part IV.G*	0.036	*See Part IV.C*	*See Part IV.C*	No change from Table 33B.
Dieldrin	*See Part IV.G*	0.056	*See Part IV.C*	*See Part IV.C*	No change from Table 33B.
Lead	See C,F	See C,F	210[C]	8.1[C]	The freshwater and saltwater acute and chronic criteria cite to footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. The freshwater acute and chronic criteria also cite to footnote "F". Footnote "F" did not change when moving the criteria from Table 33B to Table 30. No substantive changes were made to the footnotes.
Nickel	See C,F	See C,F	74[C]	8.2[C]	The freshwater and saltwater acute and chronic criteria cite to footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. The freshwater acute and chronic criteria also cite to footnote "F". Footnote "F" did not change when moving the criteria from Table 33B to Table 30. No substantive changes were made to the footnotes.
Pentachlorophenol	*See Part IV.G*	See H	*See Part IV.G*	*See Part IV.G*	The freshwater chronic criterion cites footnote "H" which contains the equation for the acute criterion. Footnote "H" was cited as footnote "M" in Table 33B. No substantive change was made to the footnote.
Selenium	*See Part IV.F*	*See Part IV.F*	290[C]	71[C]	The acute and chronic saltwater criteria cite footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. No substantive change was made to the footnote.
Silver	See C, F	0.10[C]	1.9[C]	---	The freshwater acute and chronic criteria and the saltwater acute criterion cite footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. The acute criterion also cites to footnote "F". Footnote "F" did not change when moving the criteria from Table 33B to Table 30. No substantive changes were made to the footnotes. In Table 33B, the freshwater and saltwater acute criteria cited to footnote "P" which stated the criterion

Pollutant	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Comments
					is a minimum. EPA disapproved the citation to footnote "P" in its 2013 action. Oregon has addressed that disapproval by not including the footnote in Table 30. This leaves the criteria as maximums, as previously approved.
Tributyltin	0.46	0.063	0.37	0.01	No change from Table 33B.
Zinc	See C, F	See C, F	90[C]	81[C]	The freshwater and saltwater acute and chronic criteria cite footnote "C". Footnote "C" was cited as footnote "E" in Table 33B. The freshwater acute and chronic criteria also cite to footnote "F". Footnote "F" did not change when moving the criteria from Table 33B to Table 30. No substantive changes were made to the footnotes.

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves moving the criteria listed in the table above from Table 33B to Table 30, and changing footnote citations as non-substantive editorial changes. These revisions do not substantively change the meaning or intent of the existing WQS. The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.

I. EPA's Action on Footnotes and Endnotes in Table 30

This section addresses the footnotes and endnotes in Table 30 (footnotes are preceded by a superscript of the footnote letter).

1. Footnote A and Endnote A.

[A] See expanded endnote A at the bottom of Table for alternate frequency and duration of this criterion.

Endnote A: Alternate Frequency and Duration for Certain Pesticides
This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines which update minimum data requirements and derivation procedures. The CMC may not be exceeded at any time and the CCC may not be exceeded based on a 24-hour average. The CMC may be applied using a one hour averaging period not to be exceeded more than once every three years, if the CMC values given in Table 30 are divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

Footnote A and endnote A apply to the following pollutants. Dashes in the table indicate that there is no aquatic life criterion for that pollutant and "NA" indicates that there is an aquatic life criterion but footnote and endnote A do not apply to it.

Pollutant	Freshwater		Saltwater	
	Acute	Chronic	Acute	Chronic
Aldrin	3	---	1.3	---
BHC gamma (Lindane)	NA	0.08	0.16	---
Chlordane	2.4	0.0043	0.09	0.004
DDT4,4	1.1	0.001	0.13	0.001
Dieldrin	NA	NA	0.71	0.0019
Endosulfan	0.22	0.056	0.034	0.0087
Endrin	NA	NA	0.37	0.0023
Heptachlor	0.52	0.0038	0.053	0.0036
Endosulfan alpha	0.22	0.056	0.034	0.0087
Endosulfan beta	0.22	0.056	0.034	0.0087
Heptachlor epoxide	0.52	0.0038	0.053	0.0036

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote A and endnote A. This footnote simply explains the origin of the criteria, clarifies the duration and frequency associated with the magnitudes and explains how the acute criterion should be implemented if a one hour averaging period is used.

2. Footnote B

[B]Criterion shown is the minimum (i.e. CCC in water may not be below this value in order to protect aquatic life).

Footnote B applies to alkalinity only.

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote B to Table 30 as non-substantive editorial change. Prior to the 2013 adoption footnote "B" was referred to as footnote "P" and it was contained in Table 33A. Additionally, the footnote now uses the words "may not" rather than "should not." In the negative, changing "should not' to "may not" is not a substantive change. These revisions do not substantively change the meaning or intent of the footnote that the EPA previously approved for alkalinity. The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.

3. Footnote C

[C]Criterion is expressed in terms of "dissolved" concentrations in the water column.

Footnote C applies to the following criteria (Dashes in the table indicate that there is no aquatic life criterion for that pollutant. NA means the criterion is not expressed as dissolved):

Pollutant	Freshwater		Saltwater	
	Acute (µg/L)	Chronic (µg/L)	Acute	Chronic
Arsenic	340	150	69	36
Cadmium	NA	(exp(0.7409 • [ln(hardness)] - 4.719)) * CF	40	8.8
Chromium III	(exp(0.8190 • [ln(hardness)] + 3.7256)) * CF	(exp(0.8190 • [ln(hardness)] + 0.6848)) * CF	---	---
Chromium VI	16	11	1100	50
Copper	NA	NA	4.8	3.1
Lead	(exp(1.273 • [ln(hardness)] -1.460)) * CF	(exp(1.273 • [ln(hardness)] - 4.705)) * CF	210	81
Nickel	(exp(0.8460 • [ln(hardness)] + 2.255)) * CF	(exp(0.8460 • [ln(hardness)] + 0.0584)) * CF	74	8.2
Selenium	1/[(f1/CMC1) + (f2/CMC2)]	4.6	290	71
Silver	(exp(1.72 • [ln(hardness)] -6.59)) * CF	0.01	1.9	---
Zinc	(exp(0.8473 • [ln(hardness)] + 0.884)) * CF	(exp(0.8473 • [ln(hardness)] + 0.884)) * CF	90	81
Note: CF refers to the conversion factor and is found in endnote F of Table 30.				

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote C to Table 30 as a non-substantive editorial change. Prior to the 2013 adoption, footnote "C" was referred to as footnote "E" and it was contained in Table 33A. Additionally, footnote C has been revised slightly. The language below shows how the footnote has changed:

> *~~Freshwater and saltwater criteria for metals are~~ Criterion is expressed in terms of "dissolved" concentrations in the water column. ~~except where otherwise noted (e.g. aluminum).~~*

The language in the footnote has been edited slightly and the exception for aluminum has been removed since Table 30 does not contain numeric criteria for aluminum. These revisions do not substantively change the meaning or intent of the footnote that the EPA previously approved. The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.

4. Footnote D

[D]Criterion is applied as total inorganic arsenic (i.e. arsenic (III) + (V)).

EPA ACTION:
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote D to Table 30. This footnote describes the form of arsenic and is consistent with the EPA's 304(a) recommendation (see 57 FR 60876).

5. Footnote E and Endnote E

[E]The freshwater criterion for this metal is expressed as "total recoverable" and is a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expended endnote E at bottom of Table 30.

***Endnote E**: Equations for Hardness-Dependent Freshwater Metals Criteria for Cadmium Acute and Copper Acute and Chronic Criteria: The freshwater criterion for this metal is expressed as total recoverable with two significant figures and is a function of hardness (mg/L) in the water column.*

Criteria values for hardness are calculated using the following formulas (CMC refers to the acute criterion; CCC refers to the chronic criterion):

$$CMC = (\exp(m_A * [\ln(hardness)] + b_A))$$
$$CCC = (\exp(m_C * [\ln(hardness)] + b_C))$$

Chemical	m_A	b_A	m_C	b_C
Cadmium	*1.128*	*-3.828*	*N/A*	*N/A*
Copper	*0.9422*	*-1.464*	*0.8545*	*-1.456*

Footnote E and endnote E, above, apply to the freshwater acute cadmium criterion and the freshwater acute and chronic copper criteria.

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote E and endnote E to Table 30 as non-substantive editorial change. Prior to the 2013 adoption, footnote E and endnote E were referenced in the introductory paragraph to Table 20. The introductory paragraph referred the reader to the EPA's *Quality Criteria for Water (1986)*. The *Quality Criteria for Water (1986)* contained the information now included in footnote and endnote E. These revisions do not substantively change the meaning or intent of the previously EPA approved criteria for freshwater acute cadmium, and acute and chronic copper criteria (see also Part IV.E for additional information). The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.

6. Footnote F and Endnote F

[F] The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded endnote F at bottom of Table 30.

***Endnote F**: Equations for Hardness-Dependent Freshwater Metals Criteria and Conversion Factor Table. The freshwater criterion for this metal is expressed as dissolved with two significant figures, and is a function of hardness (mg/L) in the water column. Criteria values for hardness are calculated using the following formulas (CMC refers to the acute criterion; CCC refers to the chronic criterion):*

$$CMC = (\exp(m_A * [\ln(hardness)] + b_A) * CF$$
$$CCC = (\exp(m_C * [\ln(hardness)] + b_C)) * CF$$

CF is the conversion factor used for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

Chemical	m_A	b_A	m_C	b_c
Cadmium	*N/A*	*N/A*	*0.7409*	*-4.719*
Chromium III	*0.8190*	*3.7256*	*0.8190*	*0.6848*
Lead	*1.273*	*-1.460*	*1.273*	*-4.705*
Nickel	*0.8460*	*2.255*	*0.8460*	*0.0584*
Silver	*1.72*	*-6.59*	*--*	*--*
Zinc	*0.8473*	*0.884*	*0.8473*	*0.884*

The conversion factors (CF) below must be used in the equations above for the hardness-dependent metals in order to convert total recoverable metals criteria to dissolved metals criteria. For metals that are not hardness-dependent (i.e. arsenic, chromium VI, selenium, and silver (chronic)), or are saltwater criteria, the criterion value associated with the metal in Table 30 already reflects a dissolved criterion based on its conversion factor below.

Conversion Factor (CF) Table for Dissolved Metals

Chemical	*Freshwater*		*Saltwater*	
	Acute	*Chronic*	*Acute*	*Chronic*
Arsenic	*1.000*	*1.000*	*1.000*	*1.000*
Cadmium	*N/A*	*1.101672-[(ln hardness)(0.041838)]*	*0.994*	*0.994*
Chromium III	*0.316*	*0.860*	*---*	*---*
Chromium VI	*0.982*	*0.962*	*0.993*	*0.993*
Copper	*N/A*	*N/A*	*0.83*	*0.83*
Lead	*1.46203-[(ln hardness)(0.145712)]*	*1.46203-[(ln hardness)(0.145712)]*	*0.951*	*0.951*
Nickel	*0.998*	*0.997*	*0.990*	*0.990*
Selenium	*0.996*	*0.922*	*0.998*	*0.998*
Silver	*0.85*	*0.85*	*0.85*	*---*
Zinc	*0.978*	*0.986*	*0.946*	*0.946*

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote F and endnote F to Table 30 as non-substantive editorial changes except for the conversion factors for freshwater and saltwater arsenic, saltwater chromium VI, and freshwater selenium. For the EPA's action on the conversion factors for freshwater and saltwater arsenic and saltwater chromium VI, see Part IV. D. of this document. For the EPA's action on the conversion factors for selenium, see Part IV.F of this document.

In its January 2013 action, the EPA approved the equations and input variables (i.e., m_a, b_a, m_c, b_c) and the conversion factors for the following freshwater criteria:

Cadmium:	chronic only
Chromium III:	acute and chronic
Lead:	acute and chronic
Nickel:	acute and chronic
Silver:	acute only
Zinc:	acute and chronic

Additionally, the EPA approved the saltwater conversion factors for:

Cadmium:	acute and chronic
Lead:	acute and chronic
Nickel:	acute and chronic
Silver:	acute only
Zinc:	acute and chronic

7. **Footnote G**

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

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote G to Table 30 as non-substantive editorial change. Prior to the 2013 adoption footnote "G" was referred to as footnote "T" and was contained in Table 33A. This revision does not substantively change the meaning or intent of the footnote that the EPA previously approved for DDT and its metabolites. The EPA's approval of this non-substantive editorial change does not re-open the EPA's approval of the underlying substantive water quality criteria.

8. **Footnote H**

[H]This value is based on the criterion published in Ambient Water Quality Criteria for Endosulfan (EPA 440/5-80-046) and should be applied as the sum of alpha- and beta-endosulfan.

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote "H" to Table 30. This footnote provides clarification regarding the basis for Oregon's derivation of the endosulfan criteria. Additionally, it provides that the aquatic life criteria for endosulfan should be applied as the sum of alpha- and beta-endosulfan, which directly affects how the endosulfan criteria are applied with respect to the forms of endosulfan. The implementation of the endosulfan criteria described in this footnote is a conservative method of applying the criteria.

9. **Footnote J**

[J]This criterion is expressed as µg free cyanide (CN)/L.

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote "J" to Table 30 as a non-substantive editorial change. Prior to the 2013 adoption, footnote "J"

was referred to as footnote "S" and was contained in Table 33A. This revision does not substantively change the meaning or intent of the footnote that the EPA previously approved. The EPA's approval of this non-substantive editorial change does not re-open the EPA's approval of the underlying substantive water quality criteria.

10. Footnote K

[K]This criterion applies to total PCB (e.g. determined as Aroclors or congeners).

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves footnote "K" to Table 30 as a non-substantive editorial change. Prior to the 2013 adoption footnote "K" was referred to as footnote "U" and was contained in Table 33A. Additionally, footnote "K" has been revised slightly. The language below shows how the footnote has changed.

[K]This criterion applies to total PCB (e.g. determined as Aroclors or ~~all isomer or homolog or~~ congeners).

The revision to this footnote simply deleted some of the examples for total PCBs. Providing two rather than four examples of total PCBs does not substantively change the meaning or intent of the footnote that the EPA previously approved. The EPA's approval of this non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.

11. Footnote L

*[L]The CMC=(1/[(f1/CMC1)+(f2/CMC20]µg/L*CF where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 µg/L and 12.82 µg/L, respectively. See expanded footnote F for the Conversion Factor (CF) for selenium.*

EPA ACTION

See Part IV.F for the EPA's action on this footnote.

12. Footnote M and Endnote M

[M]See expanded endnote M equations at bottom of Table 30 to calculate freshwater ammonia criteria.

Endnote M: Equations for Freshwater Ammonia Calculations

Acute Criterion

The 1-hour average concentration of un-ionized ammonia (mg/L NH_3) may not exceed more often than once every three years on average, the numerical value given by:

$CMC_{NH3} = 0.52/FT/FPH/2$ *where:*

FT = temperature adjustment factor
FPH = pH adjustment factor
TCAP = temperature cap

$FT = 10^{0.03(20-TCAP)}$; $TCAP \leq T \leq 30^{\circ}C$
$FT = 10^{0.03(20-T)}$; $0 \leq T \leq TCAP$
$FPH = 1$ $8 \leq pH \leq 9$
$FPH = \frac{1 + 10^{7.4-pH}}{1.25}$ $6.5 \leq pH \leq 8$
TCAP = 20 °C; Salmonids and other sensitive coldwater species present
TCAP = 25 °C; Salmonids and other sensitive coldwater species absent

Chronic Criterion
The 4-day average concentration of un-ionized ammonia (mg/L NH_3) may not exceed more often than once every three years on average, the average numerical value given by:

$CCC_{NH3} = 0.80/FT/FPH/RATIO$

where FT and FPH are as above for acute criterion and:

$RATIO = 16$ where $7.7 \leq pH \leq 9$

$RATIO = \left[24 \times \frac{10^{7.7-pH}}{1 + 10^{7.4-pH}}\right]$ where $6.5 \leq pH \leq 7.7$
TCAP = 15 °C; Salmonids and other sensitive coldwater species present
TCAP = 20 °C; Salmonids and other sensitive coldwater species absent

EPA ACTION
See the EPA action at Part IV.E.

V. EPA ACTION ON TABLES 20, 33A, 33B, AND 40

A. EPA Action on Tables 20, 33A and 33B in Oregon's Water Quality Standards

In Oregon's 2013 adoption, they consolidated all of the EPA approved aquatic life criteria from Tables 20 (Aquatic Life Criteria Summary), 33A (Aquatic Life Criteria Summary) and 33B (Aquatic Life Criteria Summary) into one new Table 30 (Aquatic Life Criteria for Toxic Pollutants). Oregon then deleted Tables 20, 33A, and 33B, in their entirety, from its WQS.

EPA ACTION
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the removal of Tables 20, 33A and 33B from Oregon's WQS as a non-substantive formatting change.

B. EPA Action on Table 40

In Oregon's 2013 adoption, the following revisions were made to Table 40 (Human Health Water Quality Criteria for Toxics Pollutants):

- Included an effective date, April 18, 2014, upon which the changes contained in Table 40 will become effective.
- Corrected several typographical errors for arsenic criteria and revised the estimated cancer risk in associated footnote A from 2 significant digits to one significant digit per the EPA guidance (i.e., changed "organisms only" risk factor from 1.1×10^{-5} to 1×10^{-5}). The criterion itself did not change.
- Corrected the bis 2 Chloroethyl Ether "organisms only" criterion to reflect 2 significant digits to be consistent with other human health criteria (i.e., the "organisms only" criteria went from 0.05 µg/L to 0.053 µg/L).
- Corrected nickel, selenium and zinc typographical errors (i.e., the box which indicates whether Oregon has also established aquatic life criteria has changed from no to yes).
- Corrected trichloroethane 1,1,2 typographical errors (i.e., the box which indicates whether Oregon has also established aquatic life criteria has changed from yes to no).
- Bolded and increased the font size of the footnote letters, changed the term "CAS No." to "CAS Number" and reformatted table to new Agency guidelines.

EPA ACTION

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, the EPA approves the revisions to Table 40 as non-substantive editorial changes that do not substantively change the meaning or intent of the WQS that the EPA previously approved. The EPA's approval of these non-substantive editorial changes does not re-open the EPA's approval of the underlying substantive water quality criteria.