**Notes on Draft Table 30**:

Proposed changes to the Toxic Substances rule reflect the movement of all the effective aquatic life criteria from Tables 20, 33A, and 33B into one new aquatic life criteria table, Table 30. As a result of this movement, Tables 20, 33A, and 33B are no longer needed and are proposed to be deleted. Table 30 contains the criteria from Tables 33A and 33B (adopted by the EQC in 2004) that EPA approved in January 2013, and the prior Table 20 criteria in those cases where EPA disapproved criteria from Table 33A or Table 33B. When a standard submitted to EPA by the state is disapproved by EPA, the previously effective standard remains in effect for federal Clean Water Act purposes. The criteria in black or dark blue type (i.e. not redline strikethrough) in Table 30 are effective immediately following EPA action. These criteria do not need further Environmental Quality Commission (EQC) adoption or EPA approval. Conversely, the redline/strikethrough proposed changes to Table 30 reflect corrections or clarifications to criteria, footnotes, or introductory language (originally associated with or contained in Tables 20, 33A, or 33B) needed to respond to EPA disapproval or to provide further clarifications on the toxics tables or rule language. These changes must be adopted by the EQC and approved by EPA before they become effective. The language portrayed in **grey** is explanatory in nature, intended to help the reader understand the changes and the table the criteria originated from. Comments in **blue** also provide information to the reader. Criteria tables must now be attached to the Oregon Administrative Rules in the Secretary of State Bulletin; therefore, proposed changes found at the end of the Toxic Substances rule state that Tables 30 and 40 will be attached as PDF documents.

**TABLE 30: Aquatic Life Criteria for Toxic Pollutants**

*Effective [EPA Approval XXXXXX]*

**Aquatic Life Criteria Summary**

The concentration for each compound listed in Table 30~~3A~~ is a criterion not to be exceeded in waters of the state in order to protect aquatic life. All values are expressed as micrograms per liter (µg/L) ~~except where noted~~. Compounds are listed in alphabetical order with the corresponding information: ~~EPA number (from National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047), the~~ 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~~, aquatic life saltwater acute and chronic criteria~~ . are not identified as by EPA

Unless otherwise noted in the table below, the acute criteria apply to the average concentration for one (1) hour and the chronic criteria apply to the average concentration for 96 hours (4 days), and these criteria should not be exceeded more than once every three (3) years. Footnote A, associated with eleven pesticide pollutants in Table 30, describes the exception to the frequency and duration stated in this paragraph.

[Note on edits above: The paragraph above originated from Table 33A. Footnote “O” in Table 33A is associated with eleven pesticides. EPA is concerned that the frequency and duration associated with the acute and chronic criteria in the introductory language in Table 33A are contradictory to footnote “O”. DEQ believes the introductory language in Table 33A with regards to the frequency and duration of a criterion was general in nature and that Footnote “O” supersedes this general statement where applicable. It has been DEQ’s intention to implement the pesticide criteria associated with this footnote in the same manner that EPA intended in the 1980 guidance referenced in the footnote. Therefore, DEQ is proposing to clarifyin the Table 30 introductory language that the method described in footnote “O” overrides the general definitions for acute and chronic. This proposed clarification language should address EPA’s disapproval of the eleven pesticides associated with Footnote O in Table 33A (which will be Footnote A in Table 30)].

The other revisions to the introductory paragraph provide clarifications or descriptions of Table 30.

|  | **Pollutant** | **CAS No.** | | **Human Health Criterion** | **Freshwater**  **(*µg/L)*** | | **Saltwater**  ***(µg/L)*** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Acute Criterion (CMC)** | **Chronic Criterion (CCC)** | **Acute Criterion (CMC)** | **Chronic Criterion (CCC)** |
| 1 | Aldrin | 309002 | | y | 3 **A**  [proposed revised criterion ]  EPA disapproved Table 33A  criterion—Revert back to Table 20 for effective criterion. Proposing to clarify footnote and Table introduction to address EPA concerns. | -- | 1.3**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | -- |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 2 | *Alkalinity* |  | | n | -- | 20,000 **B**  [approved, From Table 33A] | -- | -- |
| **B** *Criterion shown is the minimum (i.e. CCC in water may not be below this value in order to protect aquatic life).* | | | | | | | | |
| ~~3~~ | *~~Aluminum~~*  [no effective criterion] | ~~7429905~~ | |  | Table 33B  criterion disapproved—no Table 20 replacement criteria. | Table 33B  criterion disapproved-- no Table 20 replacement criteria. | -- | -- |
| 3 | Ammonia | 7664417 | | n | *Criteria are pH and temperature dependent-- See document USEPA January 1985 (Fresh Water).*  Table 33B criterion disapproved —revert back to Table 20 | | *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://www.epa.gov/ost/pc/ambientwqc/ammoniasalt1989.pdf*](http://www.epa.gov/ost/pc/ambientwqc/ammoniasalt1989.pdf).  Criterion f approved and effective, including“D” | |
| 4 | Arsenic |  | | n | 340 **C,****D**  [proposed reinstated criterion]  Criterion adopted in 2004 was inadvertently removed from subsequent adoptions of Table 33B. [Revert back to Table 20 criterion of 360 total recoverable until EPA re-approves 340 criterion] | 150 **C**, **D**  [From 2004 Table 33B]  Criterion inadvertently removed from subsequent adoptions of Table 33B, therefore values from 2004 EQC adopted Table 33B reinstated here  [Revert back to Table 20 criterion of 190 total recov. until EPA re-approves 150 criterion] | 69 **C**, **D**  [From 2004 Table 33B]  Criterion inadvertently removed from subsequent adoptions of Table 33B, therefore values from 2004 EQC adopted Table 33B reinstated here  [Revert back to Table 20 criterion of 69 total recov. until EPA re-adopts 69 criterion] | 36 **C**, **D**  [From 2004 Table 33B]  Criterion inadvertently removed from subsequent adoptions of Table 33B, therefore values from 2004 EQC adopted Table 33B reinstated here  [Revert back to Table 20 criterion of 36 total recov. until EPA re-adopts 36 criterion] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]*  **D** *Criterion is applied as arsenic (III) + arsenic (V).* | | | | | | | | |
| 5 | BHC Gamma (Lindane) | 58899 | | y | 0.95  [approved and effective, from Table 33A] | 0.08  [from Table 20]  Table 33A  criterion disapproved—Revert back to Table 20 for effective criterion, which is the same as 33A). | 0.16**A**  [proposed revised criterion]  EPA disapproved Table 33A  criterion—Revert back to Table 20 for effective criterion. Proposing to clarify footnote A andintroduction to Table 30 to address EPA concerns. |  |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 6 | Cadmium | 7440439 | | n | 3.9 **E**  [from Table 20]  EPA disapproved Table 33B criterion revert back to Table 20 for effective criterion, which is( still hardness dependent, and does not specify whether it is expressed as total recoverable or dissolved metal conc. | 1.1 **C,** **F**  [from Table 33B] | 40 **C**  [From Table 33B, approved] | 8.8 **C**  [From Table 33B, approved] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum).~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]*  **E** *Hardness Dependent Criteria (100 mg/L used): See Hardness Dependent Formula at bottom of table*  **F** *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. For more information, see expanded Footnote F at bottom of Table 30.* | | | | | | | | |
| 7 | Chlordane | 57749 | | n | 2.4**A**  [From 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0043**A**  [From 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.09**A**  [From 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.004**A**  [From 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 8 | *Chloride* | 16887006 | | n | 860,000  [From Table 33A] | 230,000  [From Table 33A] | -- | -- |
| 9 | *Chlorine* | 7782505 | | n | 19  [From Table 33A] | 11  [From Table 33A] | 13  [From Table 33A] | 7.5  [From Table 33A] |
| 10 | *Chlorpyrifos* | 2921882 | | n | 0.083  [From Table 33A] | 0.041  [From Table 33A] | 0.011  [From Table 33A] | 0.0056  [From Table 33A] |
| 11 | Chromium (Hex) | 18540299 | | n | 16 **C**  [From Table 33B] | 11 **C**  [From Table 33B] | 1100 **C**  [From 2004 Table 33B]  inadvertently removed from subsequent adoptions of Table 33B, therefore values from 2004 EQC adopted Table 33B reinstated here  [Revert back to Table 20 criterion of 1100 total recov. until EPA re-adopts 1100 dissolved criterion] | 50 **C**  [From 2004 Table 33B]  Criterion inadvertently removed from subsequent adoptions of Table 33B, therefore values from 2004 EQC adopted Table 33B reinstated here  [Revert back to Table 20 criterion of 50 total recov. until EPA re-adopts 50 dissolved criterion] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum).~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  *Note: See Conversion Table chromium VI factors under Footnote F at bottom of table to convert total recoverable results to dissolved results.* | | | | | | | | |
| 12 | Chromium (Tri) |  | | n | **C,** **F**  [From Table 33B] | **C,** **F**  [From Table 33B] | -- | -- |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  **F** *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. For more information, see expanded Footnote F at bottom of Table 30.* | | | | | | | | |
| 13 | Copper | 7440508 | | n | 18 **E**  [from Table 20]  EPA disapproved Table 33B criterion—revert back to Table 20 criterion (i.e. still hardness dependent, but expressed as total recoverable metal conc.) | 12 **E**  [from Table 20]  EPA will likely disapprove Table 33B criterion per NMFS BiOp —revert back to Table 20 criterion (i.e. still hardness dependent, but expressed as total) | 4.8 **C**  [From Table 33B] | 3.1 **C**  [From Table 33B] |
| **E** *Hardness Dependent Criteria (100 mg/L used): See Hardness Dependent Formula at bottom of table*  **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]* | | | | | | | | |
| 14 | Cyanide | 57125 | | y | 22 **J**  [From Table 33A] | 5.2 **J**  [From Table 33A] | 1 **J**  [From Table 33A] | 1 **J**  [From Table 33A] |
| **J** This criterion is expressed as µg free cyanide (CN)/L. | | | | | | | | |
| 15 | DDT 4,4' | 50293 | | y | 1.1**A ,****G**  [proposed revised criterion]  EPA disapproved Table 33A  criterion—Revert back to Table 20. Proposed revision clarifies Footnote A and lang. in intro to Table 30 . | 0.001**A ,****G**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.13**A ,****G**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.001**A ,****G**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.*  **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  [From Table 33B] | -- | 0.1  [From Table 33B] |
| 17 | Dieldrin | 60571 | | y | 0.24  [approved and effective, From Table 33A] | 0.056  [approved and effective From Table 33B] | 0.71**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0019**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 18 | Endosulfan | 115297 | | n | 0.22 **A , H**  ~~P~~  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.056 **A , H**  ~~P~~  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.034 **A , H**  ~~P~~  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0087 **A, H** ~~P~~  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.*  **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.*  ~~P~~ *~~Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).~~*  *[Incorrect footnote per EPA--*associated w/alkalinity criterion. Replace with Footnote A above*]* | | | | | | | | |
| 19 | Endosulfan Alpha | 959988 | | y | 0.22**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.056**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.034**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0087**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 20 | Endosulfan Beta | 33213659 | | y | 0.22**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.056**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.034**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0087**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 21 | Endrin | 72208 | | y | 0.086  [From Table 33A] | 0.036  [From Table 33B] | 0.037**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0023**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 22 | *Guthion* | 86500 | | n | -- | 0.01  [From Table 33A] | -- | 0.01  [From Table 33A] |
| 23 | Heptachlor | 76448 | | y | 0.52**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0038**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.053**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0036**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—Revert back to Table 20 which is the same as 33A). Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 24 | Heptachlor Epoxide | 1024573 | | y | 0.52**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0038**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.053**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy | 0.0036**A**  [From Table 33A]  EPA will likely disapprove Table 33A  criterion—No Table 20 replacement criterion, but could rely on narrative. Footnote A clarifying lang. in intro to Table 30 will provide remedy |
| **A** *This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. The CMC is expressed as an instantaneous maximum value not to be exceeded and the CCC is expressed as a maximum daily value not to be exceeded.. If assessment is to be done using an averaging period for CMC (i.e., a one hour average not to be exceeded more than once every three years), the CMC values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.* | | | | | | | | |
| 25 | *Iron* | 7439896 | | n | -- | 1000  [From Table 33A] | -- | -- |
| 26 | Lead | 7439921 | | n | **C , F**  [From Table 33B] | **C , F**  [From Table 33B] | 210 **C**  [From Table 33B] | 8.1 **C**  [From Table 33B] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  **F** *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. For more information, see expanded Footnote F at bottom of Table 30.* | | | | | | | | |
| 27 | *Malathion* | 121755 | | n | -- | 0.1  [From Table 33A] | -- | 0.1  [From Table 33A] |
| 28 | Mercury | 7439976 | | n | 2.4  [From Table 33A] | 0.012  [From Table 33A] | 2.1  [From Table 33A] | 0.025  [From Table 33A] |
| 29 | *Methoxychlor* | 72435 | | y | -- | 0.03  [From Table 33A] | -- | 0.03  [From Table 33A] |
| 30 | *Mirex* | 2385855 | | n | -- | 0.001  [From Table 33A] | -- | 0.001  [From Table 33A] |
| 31 | Nickel | 7440020 | | y | **C , F**  [From Table 33B] | **C , F**  [From Table 33B] | 74 **C**  [From Table 33B] | 8.2 **C**  [From Table 33B] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  **F** *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. For more information, see expanded Footnote F at bottom of Table 30.* | | | | | | | | |
| 32 | *Parathion* | | 56382 | n | 0.065  [From Table 33A] | 0.013  [From Table 33A] | -- | -- |
| 33 | Pentachlorophenol | | 87865 | y | **H**  [From Table 33A] | **H**  [From Table 33B] | 13  [From Table 33A] | 7.9  [From Table 33A] |
| **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  [From Table 33A] |
| 35 | Polychlorinated Biphenyls (PCBs) | NA | | y | 2 **K**  [From Table 33A] | 0.014 **K**  [From Table 33A] | 10 **K**  [From Table 33A] | 0.03 **K**  [From Table 33A] |
| **K** *This criterion applies to total PCBs (e.g.* determined as Aroclors or congeners)~~the sum of all congener or all isomer or homolog or Arochlor analyses~~  [Note: Propose to revise footnote parenthetical to align with PCB footnote for human health criteria) | | | | | | | | |
| 36 | Selenium | 7782492 | | y | **C** , **L**  [From Table 33B]  EPA will likely disapprove Table 33B criterion— Need to add the Conversion Factor to equation to convert total recoverable results to dissolved results  [Revert back to Table 20 criterion of 260 total recov. | ~~5~~ 4.6 **C**  [From Table 33B]  EPA will likely disapprove Table 33B criterion— Criterion is not expressed as dissolved.  [Revert back to Table 20 criterion of 35 total recov. | 290 **C**  [From Table 33B] | 71 **C**  [From Table 33B] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  *Note: See Conversion Table selenium factors under Footnote F at bottom of table to convert total recoverable results to dissolved results.*  **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.*  *[Note: Added CF (conversion factor) to FW acute footnote to clarify the criterion is expressed as dissolved, although the dissolved footnote would direct the user to convert to dissolved regardless. Note added as well to direct user where to access the Se CFs.]* | | | | | | | | |
| 37 | Silver | 7440224 | | n | **C** , **F** ~~P~~  [From Table 33B] | 0.10 **C**  [From Table 33B] | 1.9 **C**  ~~P~~  [From Table 33B] | -- |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  **F** *The freshwater acute criterion for this metal is expressed as a function of hardness (mg/L) in the water column. For more information, see expanded Footnote F at bottom of Table 30.*  ~~P~~*~~Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).~~*  [Remove Footnote P per EPA which is associated w/alkalinity criterion] | | | | | | | | |
| 38 | *Sulfide Hydrogen Sulfide* | 7783064 | | n | -- | 2  [From Table 33A] | -- | 2  [From Table 33A] |
| 39 | Toxaphene | 8001352 | | y | 0.73  [From Table 33A] | 0.0002  [From Table 33A] | 0.21  [From Table 33A] | 0.0002  [From Table 33A] |
| 40 | *Tributyltin (TBT)* | 688733 | | n | 0.46  [From Table 33B] | 0.063  [From Table 33B] | 0.37  [From Table 33B] | 0.01  [From Table 33B] |
| 41 | Zinc | 7440666 | | y | **C , F**  [From Table 33B] | **C , F**  [From Table 33B] | 90 **C**  [From Table 33B] | 81 **C**  [From Table 33B] |
| **C** *~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of “dissolved” concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.*  **F** *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. For more information, see expanded Footnote F at bottom of Table 30.* | | | | | | | | |

**Footnote E: Hardness Equations for Cadmium Freshwater Acute and Copper Freshwater Criteria**

The freshwater criterion for these metals are expressed as total recoverable and as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

**CMC** = (exp(mA\*[ln(hardness)] + bA))

**CCC** = (exp(mC\*[ln(hardness)] + bC))

[Proposed strikethrough to original footnote in Table 20. Cadmium freshwater acute and copper freshwater acute and chronic dissolved criteria will likely be disapproved by EPA, so criteria revert back to Table 20 criteria based on total recoverable. Therefore, conversion factor should be deleted. Propose that we also remove the pollutants below from this chart to avoid confusion, since the other metals listed below are more accurately associated with footnote F below and some of the hardness factor values have been updated since Table 20 was approved.]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chemical** | **mA** | **bA** | **mC** | **bC** |
| Cadmium | 1.128 | -3.828 | N/A | N/A |
| ~~Chromium III~~ | ~~0.819~~ | ~~3.688~~ | ~~0.819~~ | ~~1.561~~ |
| Copper | 0.9422 | -1.464 | 0.8545 | -1.465 |
| ~~Lead~~ | ~~1.273~~ | ~~-1.46~~ | ~~1.273~~ | ~~-4.705~~ |
| ~~Nickel~~ | ~~0.846~~ | ~~3.3612~~ | ~~0.846~~ | ~~1.1645~~ |
| ~~Silver~~ | ~~1.72~~ | ~~-6.52~~ |  |  |
| ~~Zinc~~ | ~~0.8473~~ | ~~0.8604~~ | ~~0.8473~~ | ~~0.7614~~ |

**Footnote F: Hardness Equations for Freshwater Criteria and Conversion Factor Table**

The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

**CMC** = (exp(mA\*[ln(hardness)] + bA))\*CF

**CCC** = (exp(mC\*[ln(hardness)] + bC))\*CF

~~where~~ ~~“~~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** | **mA** | **bA** | **mC** | **bC** |
| Cadmium | ~~1.0166~~N/A | ~~-3.924~~ N/A | 0.7409 | -4.719 |
| Chromium III | 0.8190 | 3.7256 | 0.8190 | 0.6848 |
| ~~Copper~~ | ~~0.9422~~ | ~~-1.700~~ | 0.8545 | -1.702 |
| 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 |

~~Conversion factors (CF) for dissolved metals~~ ~~(t~~ The total recoverable metals criteria that are expressed as an equation must be ~~were~~ multiplied by the appropriate conversion factors shown below to calculate the dissolved metals criteria~~)~~: [Revising to indicate that in many cases, the metals criteria in Table 30 were not calculated using default values, so conversion factors must be applied if results are in total recoverable form]

**Conversion Factor (CF) Table for Dissolved Metals**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chemical** | **Freshwater** | | **Saltwater** | |
| **Acute** | **Chronic** | **Acute** | **Chronic** |
| Arsenic | 1.000 | 1.000 | 1.000 | 1.000 |
| Cadmium | ~~1.136672-[(ln hardness)(0.041838)]~~ 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 | ~~0.960~~ N/A | ~~0.960~~ 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 |

[Note: Although Arsenic is footnoted as “dissolved”, the conversion factors of “1” above essentially assume 100% of total recoverable results are dissolved. Also footnote indicates the criteria are applied as total As—i.e. the sum of As III and V.]