From:
 McGill, Richard

 To:
 Brown, Don

 Cc:
 Fox, Tim

 Subject:
 FW: R18-23 (Register issue 20)

 Date:
 Tuesday, January 17, 2023 10:26:33 AM

Attachments: 35-302 JCAR Suga Chas.pdf

<u>image001.png</u> <u>35-302RG-P r01.pdf</u>

Good morning, Mr. Clerk:

Please docket this email exchange with JCAR, including the two attachments, as a public comment in R18-23.

Thank you.

Richard R. McGill, Jr.
Senior Attorney for Research & Writing
Illinois Pollution Control Board
60 E. Van Buren St., Suite 630
Chicago, Illinois 60605
richard.mcgill@illinois.gov (312) 814-6983



From: McGill, Richard

Sent: Tuesday, January 17, 2023 10:13 AM **To:** Eastvold, Jonathan C. <JonathanE@ilga.gov>

Subject: RE: R18-23 (Register issue 20)

Good morning, Jonathan:

I've attached two documents. The first document contains Board staff responses to your proposed Part 302 changes emailed to me on May 26, 2022. The second document is the JCAR line-numbered r01 referenced in your changes and our responses. Our responses include related changes prompted by your suggestions.

Thank you for your careful review. Please let me know if you have any questions.

Best regards,

Richard

Richard R. McGill, Jr.
Senior Attorney for Research & Writing
Illinois Pollution Control Board
60 E. Van Buren St., Suite 630
Chicago, Illinois 60605

richard.mcgill@illinois.gov (312) 814-6983



From: Eastvold, Jonathan C. < <u>Jonathan E@ilga.gov</u>>

Sent: Thursday, May 26, 2022 1:36 PM

To: McGill, Richard < <u>Richard.McGill@illinois.gov</u>> **Subject:** [External] R18-23 (Register issue 20)

Richard -

Attached are suggested first notice changes for the PCB rules published in Issue 20 of the *Illinois Register*. A few notes:

- 1. USC vs. U.S.C. Kim changed these to U.S.C. at publication to comply with the style guide. I understand that we've been changing U.S.C. to USC for years now and that the Board can't turn on a dime and easily reverse all of those earlier changes. JCAR's position is that we should make sure that the references in current and future rulemakings say U.S.C. but that having several residual USCs hanging about in the Code until their Sections are reopened shouldn't cause too much confusion.
- 2. IAC citations: We appreciated the initiative to make IAC citations more precise. Citations to other Parts should be preceded by "35 III. Adm. Code". However, across the Code the convention is for internal cross-references to refer to Section ###.### rather than to use the longer format. In the changes proposed, we did our best to standardize this.
- 3. Subsection headings: Although the convention in the CFR is for a subsection heading to capitalize only the first word and end with a period, the convention in the IAC is to use title case and no punctuation (unless the text of the subsection starts on the same line of the heading, in which case a period is added).
- 4. We've made a number of suggested changes to further clarify and simplify the language in these Parts in the spirit of the Board's initiative. Many of these would have been unilaterally made by Vicki at publication, but JCAR's current approach is much more collaborative. If we have been too aggressive in our proposals, please don't feel obliged to accept them.
- 5. Moving forward, especially on the really big rulemakings, would it be possible for the Board to submit revisions in predraft form first? That would enable changes to phrases that occur quite frequently without the need for individually written amendments (the number of proposals we've made for Part 307 is somewhat exceptional, and I imagine neither agency really relishes the prospect of similar lists...).

Thanks in advance for your consideration. Please let me know if you have any questions or concerns.

All the best,

Jonathan

Electronic Filing: Received, Clerk's Office 01/17/2023 P.C. #7

Jonathan C. Eastvold, Ph.D. Rules Analyst III

Illinois General Assembly Joint Committee on Administrative Rules 700 Stratton Building Springfield IL 62706 217-524-9010

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

From: Eastvold, Jonathan C. <JonathanE@ilga.gov>

Sent: Thursday, May 26, 2022 1:36 PM

To: McGill, Richard < Richard. McGill@illinois.gov> **Subject:** [External] R18-23 (Register issue 20)

Richard -

Attached are suggested first notice changes for the PCB rules published in Issue 20 of the *Illinois Register*. A few notes:

- 1) USC vs. U.S.C. Kim changed these to U.S.C. at publication to comply with the style guide. I understand that we've been changing U.S.C. to USC for years now and that the Board can't turn on a dime and easily reverse all of those earlier changes. JCAR's position is that we should make sure that the references in current and future rulemakings say U.S.C. but that having several residual USCs hanging about in the Code until their Sections are reopened shouldn't cause too much confusion.
- 2) IAC citations: We appreciated the initiative to make IAC citations more precise. Citations to other Parts should be preceded by "35 III. Adm. Code". However, across the Code the convention is for internal cross-references to refer to Section ###.### rather than to use the longer format. In the changes proposed, we did our best to standardize this.
- 3) Subsection headings: Although the convention in the CFR is for a subsection heading to capitalize only the first word and end with a period, the convention in the IAC is to use title case and no punctuation (unless the text of the subsection starts on the same line of the heading, in which case a period is added).
- 4) We've made a number of suggested changes to further clarify and simplify the language in these Parts in the spirit of the Board's initiative. Many of these would have been unilaterally made by Vicki at publication, but JCAR's current approach is much more collaborative. If we have been too aggressive in our proposals, please don't feel obliged to accept them.
- 5) Moving forward, especially on the really big rulemakings, would it be possible for the Board to submit revisions in predraft form first? That would enable changes to phrases that occur quite frequently without the need for individually written amendments (the number of proposals we've made for Part 307 is somewhat exceptional, and I imagine neither agency really relishes the prospect of similar lists...).

Thanks in advance for your consideration. Please let me know if you have any questions or concerns.

All the best,

Jonathan

Jonathan C. Eastvold, Ph.D. Rules Analyst III

Illinois General Assembly
Joint Committee on Administrative Rules
700 Stratton Building
Springfield IL 62706
217-524-9010

Board staff responses and related changes (1/17/23) appear in bold, red font below.

SUGGESTED FIRST NOTICE CHANGES

Agency: Pollution Control Board

Rulemaking: Water Quality Standards (35 Ill. Adm. Code 302; 46 Ill. Reg. 7052)

Changes:

1. In line 13, after "Zones" add a comma. Agree.

2. In line 158, delete "/13, 11(b), and 27".

Disagree. Because the sentence refers not to the Act generally but rather to specific sections of the Act, we must cite those specific sections.

- 3. In line 195, after "impairment" add a comma.
 - a. Agree.
 - b. In lines 193-94, strike "but not limited to".
 - c. In lines 196 and 197, strike "which" and add "that".
- 4. Before line 200, add "<u>"Agency" or "IEPA" means the Illinois Environmental Protection Agency.</u>".

Disagree. Unnecessary as the term is defined for the Chapter in Section 301.215.

- 5. In line 201, strike "which" and add "that".
 - a. Agree.
 - b. In line 203, strike "but not limited to".
 - c. In line 204, after "phases" add a comma.
- 6. In line 210, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In line 209, strike "which" and add "that".
- 7. In line 214, after "considered" add "to be".

 Agree.
- 8. In line 224, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In lines 230 and 231, strike "which" and add "that".
 - c. In lines 237-38, strike ", but are not limited to,".
- 9. In line 243, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.

- 10. In line 250, strike "which" and add "that".

 Agree.
- 11. In line 251, strike "Site specific" and add "Site-specific".

 Agree.
- 12. In line 255, strike "which" and add "that".

 Agree.
- 13. In line 267, after "303.240" add a comma. **Agree.**
- 14. In line 276, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 15. In line 284, after "**Zones**" add a comma. Agree.
- 16. In line 289, after "by" add "the".
 a. Agree.
 b. In line 293, after "volume" add a comma.
 c. In line 297, strike "which" and add "that".
- 17. In line 303, strike "which" and add "that".

 Agree.
- 18. In line 312, strike "well being" and add "wellbeing".
 a. Disagree. Strike "well being" and add "well-being".
 b. In lines 310 and 311, replace commas with semi-colons.
- 19. In line 313, delete "<u>maintaining</u>" and restore "the maintenance of". **Disagree.**
- 20. In line 361, after "permit" add "<u>a</u>". **Agree.**
- 21. In line 364, strike "the purposes of".

 Agree. Strike "shall" and add "will".
- 22. In line 365, strike the colon.
 - a. Agree.
 - b. In line 366, after "Section" add a comma.
 - c. In line 368, after "Act" add a comma.
- 23. In line 372, strike "the procedures of". **Agree.**

- 24. In line 378, after "within" add "a".

 Disagree. Strike the first "of" and add "to".
- 25. In line 378, strike ", so as to minimize" and add "<u>that minimizes</u>". **Agree to strike comma; otherwise, disagree.**
- 26. In line 380, strike "so as".
 - a. Disagree.
 - b. In line 383, after "must" add a comma.
- 27. In line 389, after "and" strike "of". **Agree.**
- 28. In line 395, change "constitutes" to "constitute".
 - a. Disagree.
 - b. In line 399, strike the second "or" and add "of".
- 29. In line 402, after "in" strike "a" and add "<u>an</u>". **Agree.**
- 30. In line 416, strike "seven day" and add "seven-day".
 - a. Agree.
 - b. In line 417, strike "which" and add "that".
- 31. In line 442, strike the second "for". **Agree.**
- 32. In line 443, after "paddling" add a comma. Agree.
- 33. In line 481, strike "High Quality" and add "<u>High-Quality</u>". **Agree.**
- 34. In line 485, strike the comma.
 - a. Agree.
 - b. In line 490, after "renewed" add a comma.
 - c. In lines 516 and 519, after "data" add a comma.
 - d. In line 536, after "Compensation" add a comma.
- 35. In line 537, strike the comma.
 - a. Agree.
 - b. In line 540, after "pollutants" add a comma and strike "which" and add "that".
- 36. In line 564, strike "prior to" and add "<u>before</u>". **a. Agree.**

- b. In line 565, after "renewed" add a comma and after "permit" add a comma.
- 37. In line 576, after "technology" add a comma. a. Agree. Strike "quality based" and add "quality-based". b. Agree.
- 38. In line 581, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 39. In line 595, strike "Characterization" and add "The characterization". a. Agree. After "address" add "the". b. Agree.
 c. In line 596, after "biological" add a comma.
 d. In line 603, strike "Such" and add "These".
- 40. In line 610, strike "long range" and add "long-range". **Agree.**
- 41. In line 621, after "increase" add a comma. Agree. Strike "Such" and add "These".
- In lines 643-644, delete "35 Ill. Adm. Code" and restore "Section".
 a. Agree.
 b. In lines 668, 671, 673, and 677, strike "will" and add "must".
 c. In line 687, strike the comma and add "and".
 d. In line 690, after "segment" add a comma.
- 43. In line 694, after "by" add "the". Agree.
- 44. In line 695, after "boards" add a comma. Agree.
- 45. In line 711, strike "which" and add "that". Agree.
- 46. In line 718, strike "General Use" and add "general use".

 Agree.
- 47. In line 719, after "contact use" add a comma. **Agree.**
- 48. In line 721, strike "General Use" and add "general use".

 Agree. Strike "such" and add "primary contact".
- 49. In line 728, after "color" add a comma. **Disagree. After "growth," add "and".**

- 50. In line 729, delete "35 Ill. Adm. Code" and restore "Section". Agree.
- 51. In line 736, strike "except" and add "<u>unless a deviation is due to</u>".

 Disagree. Strike "for" and add "<u>due to</u>".
- 52. In lines 746-747, strike "low level" and add "low-level".
 a. Agree.
 b. In line 745, strike "any such" and add "that".
- 53. In line 747, strike "free flowing" and add "<u>free-flowing</u>". Agree.
- 54. In lines 747 and 748, strike "which" and add "that". **Agree.**
- 55. In line 749, strike "be in compliance" and add "comply". a. Agree. After "for" add "the". b. Disagree. No change in meaning; just an extra word.
- 56. In line 750, strike "application of".a. Agree.b. In line 757, after "(b)" add a comma.
- 57. In lines 760-761, delete "35 Ill. Adm. Code" and restore "Section". Agree.
- 58. In line 761, strike "General Use" and add "general use".

 Agree.
- 59. In line 762, after "backwaters" add a comma. **Agree.**
- 60. In lines 772, 778, 789, and 795, strike "During the period of" and add "For". Disagree. After "During" strike "the period of".
- 61. In line 803, strike "attainment of dissolved oxygen mean and minimum values." and add "Attainment of Dissolved Oxygen Mean and Minimum Values".

 Agree.
- 62. In lines 848-849, delete "35 Ill. Adm. Code" and restore "Section". Agree.
- 63. In line 858, strike "quality based" and add "quality-based". Agree.
- 64. In line 861, after "calculate" add "the".

- 65. In line 861, strike "chronic-standards" and add "chronic standards".

 Agree.
- 66. In line 868, strike "stream flow" and add "<u>streamflow</u>".

 Agree.
- 67. In lines 869, 873, and 877-878, delete "35 Ill. Adm. Code" and restore "Section".
 - a. Agree.
 - b. In line 869, after "302.658" add a comma.
 - c. In line 870, after "samples" strike the comma.
- 68. In the table after line 882, in the third full row strike "Hardness" and add "hardness".
 - a. Agree.
 - b. In the table after line 882, fifth full row, after "EPA-821-R-04-001" add a semicolon.

In the table after line 882, "Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3)" is not directly incorporated by reference in 35 IAC 301.106. c. Section 301.106(c) incorporates all of 40 CFR 136.

- 69. In line 895, strike "of".

 Disagree. Retaining "of" more clearly conveys a single "average".
- 70. In line 896, strike "30 day" and add "30-day".
 - a. Agree.
 - b. In line 927, after "in" add "subsection".
 - c. In line 941, strike "1313," and add "1313(c))".
- 71. In line 948, strike "During the months" and add "<u>For</u>". **Disagree.**
- 72. In line 949, strike "30 day" and add "<u>30-day</u>". **Agree.**
- 73. In line 950, change "<u>milliliter</u>" to "<u>milliliters</u>". **Agree.**
- 74. In line 951, strike "30 day" and add "<u>30-day</u>". **Agree.**
- 75. In line 952, strike "which" and add "that". Agree.
- 76. In line 953, add commas after "value" and "significance". **Agree.**

- 77. In lines 953-954, strike "are deserving of" and add "deserve".
 - a. Agree.
 - b. In line 962, after "hydrologic" add a comma.
- 78. In line 963, after "and" add "that". Agree.
- 79. In line 965, strike the comma. Agree.
- 80. In line 975, after "health" strike ", or to" and add "or".

 Agree. After "plant" add a comma.
- 81. In lines 983-984, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 82. In line 984, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 83. In lines 988-989, change "35 Ill. Adm. Code" to "Section". Agree.
- 84. In line 994, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 85. In lines 1002 and 1006-1007, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 86. In lines 1011-1012 and 1015, delete "35 Ill. Adm. Code" and reinstate "Section".
 a. Agree.
 b. In line 1011, strike the comma.
- 87. In line 1018, after "protocols" add a comma.
 - a. Agree.
 - b. In line 1019, strike "such" and add "these".
 - c. In line 1020, strike "adjusted standards" and add "adjusted standard".
 - d. In line 1023, strike "Titles" and add "Title".
 - e. In line 1025, strike "such".
- 88. In line 1027, change "application of criteria" to "Applying Criteria".
 - a. Agree.
 - b. In lines 1031 and 1035, strike "such" and add "the".
- 89. In line 1036, after "involving" add "<u>the</u>". **Agree.**

```
90. In line 1052, after "where" add "the". Agree.
```

- 91. In line 1053, after "on" add "an".
 - a. Agree.
 - b. In line 1054, strike "such" and add "the".
- 92. In line 1058, strike "USEPA registered" and add "<u>USEPA-registered</u>".
 - a. Agree.
 - b. In line 1065, strike "135" and add "136".
- 93. In line 1066, strike "(1972)". **Agree.**
- 94. In line 1068, strike "be in" and change "compliance" to "comply".
 - a. Agree.
 - b. In line 1069, after "regulations" add a comma.
 - c. In line 1070, after "use" add a comma.
- 95. In line 1076, strike "pesticide" and add "<u>pesticides</u>". **Agree.**
- 96. In line 1079, after "or" strike "of". **Agree.**
- 97. In line 1080, strike "or regulations".
 - a. Agree.
 - b. In line 1094, strike "which" and add "that".
 - c. In line 1103, strike "such" and add "those".
- 98. In line 1107, strike "which" and add "<u>that</u>". **Agree.**
- 99. In line 1113, change "the" to "this".
 - a. Agree.
 - b. In line 1115, delete "must" and add "will".
- 100. In lines 1118-1119, strike "Illinois Environmental Protection".

 Agree.
- 101. In line 1119, strike "(Agency)".
 - a. Agree.
 - b. In line 1144, after "hearing" add a comma.
 - c. In line 1157, strike "(j)(3)" and add "(i)(3)".

- 102. In line 1162, strike ", which" and add "that".
 - a. Agree.
 - b. In line 1163, strike "(j)(3)" and add "(i)(3)".
 - c. In line 1166, delete "must" and add "will".
- 103. In line 1168, strike "Lake" and add "<u>lake</u>". **Agree.**
- 104. In lines 1190 and 1193, after "When" add "the".
- 105. In lines 1201 and 1204, after "When" add "the".

 Agree.
- 106. In lines 1215, 1219, and 1228, delete "35 Ill. Adm. Code" and reinstate "Section".a. Agree.b. In line 1217, after "mg/L" add ")".
- 107. In line 1229, strike "pursuant to" and add "<u>under</u>". **Agree.**
- 108. In lines 1230-1231, strike "a period of". Agree.
- 109. In line 1276, after "that" add a comma. Agree.
- 110. In line 1277, after "storage" add a comma. **Agree.**
- 111. In the table after line 1286, strike "Expoxide" and add "<u>Epoxide</u>". **Disagree.**
- 112. In the table after line 1286, strike "Selenuim" and add "<u>Selenium</u>". **Agree.**
- 113. In the table after line 1286, strike "Sulphates" and add "<u>Sulfates</u>". **Disagree.**
- 114. In lines 1292-1293 and 1300, delete "35 Ill. Adm. Code" and reinstate "Section".a. Agree.b. In line 1292, strike "which" and add "that".
- 115. In line 1301, strike "over not more than" and add "within".

 Agree.

- 116. In line 1301, strike "30 day" and add "<u>30-day</u>". **Agree.**
- 117. In line 1333, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Section". Agree.
- 118. In line 1343, after "contact" add a comma. Agree.
- 119. In line 1356, delete "35 Ill. Adm. Code" and reinstate "Section".

 a. Agree.
 - b. In line 1369, after "9.0 except" strike "for" and add "due to".
 - c. In line 1370, after "Creek)" add a comma.
 - d. In line 1371, after "9.0 except" strike "for" and add "due to".
- 120. In lines 1386, 1392, 1403, and 1405, strike "during the period of" and add "<u>for</u>". Disagree. After "during" strike "the period of".
- 121. In line 1418, strike "attainment of dissolved oxygen mean and minimum values." and add "Attainment of Dissolved Oxygen Mean and Minimum Values".

 Agree.
- 122. In line 1456, strike "quality based" and add "<u>quality-based</u>". Agree.
- 123. In line 1459, after "calculate" add "the". Agree.
- 124. In lines 1470, 1474-1475, 1478, and 1481, delete "35 Ill. Adm. Code" and reinstate "Section".

 Agree.
- 125. In the fourth row of the table after line 1487, strike "Hardness" and add "hardness". **a. Agree.**
 - **b.** In table after line 1487, sixth row, after "EPA-821-R-04-001" add a semicolon. In the table after line 1487, "Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3)" is not directly incorporated by reference in 35 IAC 301.106.
 - c. Section 301.106(c) incorporates all of 40 CFR 136.
- 126. In lines 1498-1499, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 127. In the table after line 1503, 3rd row, strike "Hardness" and add "<u>hardness</u>". **Agree.**

- 128. In the table after line 1503, 4th row, strike "Chloride" and add "<u>chloride</u>". **Agree.**
- 129. In the table after line 1503, 6th row, strike "Hardness" and add "<u>hardness</u>". **Agree.**
- 130. In line 1513, strike "Chloride" and add "chloride".
 a. Agree.
 b. In line 1535, strike "shall" and add "may".
- 131. In line 1542, after the comma add "the".

 Agree.
- 132. In line 1550, after "exceed" add "<u>a</u>". **Agree.**
- 133. In line 1554, after "be" add "any". Agree.
- 134. In line 1603, after "health" strike the comma. After "or" strike "to".

 Agree. After "plant" add a comma.
- 135. In lines 1611-1612, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 136. In lines 1612-1613, 1616-1617, and 1622, delete "35 Ill. Adm. Code" and reinstate "Section".

 Agree.
- 137. In lines 1631 and 1635-1636, delete "35 Ill. Adm. Code" and reinstate "Sections".
 a. Agree.
 b. In line 1639, after "(b)" add a comma.
- 138. In line 1640, strike the comma. Agree.
- In lines 1640-1641 and 1644, delete "35 Ill. Adm. Code" and reinstate "Section".
 a. Agree.
 b. In line 1648, after "(b)" add a comma.
 c. In line 1649, strike "such" and add "these".
- 140. In line 1666, after "involving" add "<u>the</u>". **Agree.**
- 141. In lines 1674 and 1675, strike "Petitioner" and add "<u>petitioner</u>". **Agree.**

- 142. In line 1681, after "which" add "the".

 Agree.
- 143. In line 1682, after "on" add "<u>an</u>". **Agree.**
- 144. In line 1694, strike "135" and add "<u>136</u>". **Agree.**
- 145. In line 1695, strike "(1972)".
 - a. Agree.
 - b. In line 1698, after "regulations" add a comma.
 - c. In line 1699, after "use" add a comma.
- 146. In lines 1726 and 1730, after "When" add "the".

 Agree.
- 147. In lines 1740 and 1744, after "When" add "the".

 Agree.
- 148. In lines 1757, 1762, and 1772, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 149. In line 1775, strike "a period of". **Agree.**
- 150. In line 1805, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 151. In line 1811, strike "noncancer" and add "noncancerous".
 - a. Agree.
 - b. In line 1829, after "harmful" add a comma.
- 152. In line 1833, after "means a" add "bioaccumulation factor (". After "BAF" add ")". Agree.
- 153. In line 1834, after "of" add "<u>a</u>". **Agree.**
- 154. In line 1838, after "means a" add "bioconcentration factor (". After "BCF" add ")".

 Agree.
- 155. In line 1839, after "of" add "<u>a</u>". **Agree**.

- 156. In line 1841, strike "BAF" and add "<u>BCF</u>". **Agree.**
- 157. In line 1848, strike ", in" and change "<u>compliance</u>" to "<u>based on</u>".

 Agree.
- 158. In line 1849, strike "with". Agree.
- 159. In line 1849, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 160. In line 1850, strike "half life" and add "<u>half-life</u>". **Agree.**
- 161. In line 1850, after "sediment" add a comma. Agree.
- 162. In line 1965, strike "Octanol water" and add "Octanol-water".

 Agree.
- 163. In lines 1967 and 1968, strike "octanol water" and add "octanol-water". **Agree.**
- 164. In line 1979, strike "percent" and add "percentage".
 a. Agree.
 b. In lines 1984 and 1985, strike the commas.
 c. In line 1989, strike "which" and add "that".
- 165. In line 1994, strike "through use of" and add "<u>by</u>". **Agree.**
- 166. In line 1994, strike "other" and add "<u>another</u>". **Agree.**
- 167. In line 2021, after "and" add "are". Agree.
- 168. In line 2037, after "minnow" add a comma. **Agree.**
- 169. In line 2043, after "means" add "the".

 Agree.
- 170. In lines 2050 and 2059, delete "35 Ill. Adm. Code" and reinstate "Section". a. Agree.

- b. In lines 2058 and 2060, strike "for" and add "<u>due to</u>". c. In line 2060, strike the comma.
- 171. In lines 2067, 2072, and 2074-2075, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Sections". **Agree.**
- 172. In line 2076, strike "strat" and add "at". Disagree. Strike "a period of".
- 173. In line 2078, strike "which" and add "that". Agree.
- 174. In the table after line 2080, 3rd full row, strike "Hardness" and add "<u>hardness</u>". **a.** Agree.
 - b. In the table after line 2080, fifth full row, after "EPA-821-R-04-001" add a semicolon.

In the table after line 882, "Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3)" is not directly incorporated by reference in 35 IAC 301.106. c. Section 301.106(c) incorporates all of 40 CFR 136.

- 175. In line 2083, strike the comma.
 - a. Agree.
 - b. In line 2092, after "(b)" add a comma.
- 176. In line 2095, strike "a period of". **Agree.**
- 177. In line 2097, strike "which" and add "that". Agree.
- 178. In line 2105, strike "a period of".

 Agree.
- 179. In line 2106, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Sections". Agree.
- 180. In line 2118, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 181. In line 2120, strike "30 day" and add "30-day".
 - a. Agree.
 - b. In line 2120, strike "shall" and add "may".
 - c. In lines 2128 and 2129, strike "such".
 - d. In line 2129, delete "its".
 - e. In line 2130, restore "their".
 - f. In line 2142, strike "which" and add "that is".

- g. In line 2160, after "1971" add a comma.
- 182. In line 2161, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 183. In line 2161, strike "in addition". **Agree.**
- 184. In line 2161, after "must" add "also".
 a. Disagree.
 b. In lines 2185 and 2189, strike "which" and add "that".
- 185. In lines 2191-2192, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 186. In line 2269, after "color" add a comma.

 Disagree. After "growth," add "and".
- 187. In line 2270, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 188. In lines 2278-2279, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 189. In lines 2282-2283, 2286, 2302, 2305, and 2306-2307, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree except for line 2305. See (d) below.
 - b. In line 2289, strike "or".
 - c. In line 2298, strike "such" and add "the".
 - d. In line 2305, delete "must" and add "will".
- 190. In lines 2309-2310, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Sections". Agree.
- 191. In lines 2316 and 2319, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 192. In line 2321, strike "P.L. 92-100, as amended" and add "33 U.S.C. 1341".
 a. Agree.
 b. In line 2323, strike "such" and add "the".
- 193. In line 2340, strike "cost effective" and add "cost-effective". **Agree.**
- 194. In lines 2371-2372, strike "prior to" and add "<u>before</u>". **Agree.**

- 195. In line 2377, strike the comma.
 - a. Agree.
 - b. In line 2387, after "Compensation" add a comma.
- 196. In line 2389, after "pollutants" add a comma. Agree.
- 197. In line 2396, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 198. In lines 2413-2414, 2415-2416, and 2422, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In lines 2421, 2423, and 2426, after the years add a comma.
- 199. In line 2427, strike "where" and add "when".

 Agree. After "2007" add a comma.
- 200. In line 2429, after "in" add "an".
 - a. Agree.
 - b. In lines 2432 and 2434, after the years add a comma.
- 201. In line 2435, strike the comma. Agree.
- 202. In line 2445, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 203. In lines 2453-2454, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 204. In line 2477, after "health" strike the comma. After "or" strike "to". Agree. After "plant" add a comma.
- 205. In line 2479, delete "35 Ill. Adm. Code" and reinstate "Section".

 Agree. After "Section", strike the comma and add a semicolon.
- 206. In lines 2487-2488, change "35 Ill. Adm. Code" to "Sections". Disagree. Delete "35 Ill. Adm. Code" and add "Section".
- 207. In lines 2493 and 2521-2522, delete "35 Ill. Adm. Code" and reinstate "Section". a. Agree.
 - b. In line 2497, after "or" add "(b)", i.e., will end up with "(b)(1) or (b)(2)".
 - c. In line 2509, strike "(1) and (2)" and add "(b)(1) and (b)(2)".
 - d. In lines 2511 and 2512, strike "fishes" and add "fish".

- 208. In line 2528, strike "in" and add "<u>to</u>". **Agree.**
- 209. In lines 2536-2537, 2544-2545, and 2549, delete "35 Ill. Adm. Code" and reinstate "Section".

 Agree. (In line 2549, the second appearance of "Section" remains stricken.)
- 210. In line 2553, after "protocols" add a comma. Agree.
- 211. In line 2555, strike "such" and add "these".
 - a. Agree.
 - b. In line 2556, strike "standards" and add "standard".
 - c. In line 2560, strike "such".
- 212. In line 2563, strike "application of criteria and values." and add "Applying Criteria and Values".
 - a. Agree.
 - b. In line 2567, strike "such" and add "the".
- 213. In line 2573, after "involving" add "an". Agree.
- 214. In line 2585, strike "where" and add "when the".

 Agree.
- 215. In line 2586, after "based on" add "<u>an</u>". Agree.
- 216. In line 2600, strike "135" and add "<u>136</u>". **Agree.**
- 217. In line 2601, strike "(1972)". **Agree.**
- 218. In line 2607, strike "pesticide" and add "<u>pesticides</u>". **Agree.**
- 219. In line 2610, after "or" strike "of".

 Agree. In line 2613, strike "will" and add "must".
- 220. In line 2620, after "review" strike the comma. Agree.
- 221. In line 2620, after "applicability" add a comma.

- 222. In line 2621, after "available", strike the comma. Agree.
- 223. In line 2621, strike "to the extent". **Agree.**
- 224. In line 2622, after "species" add a comma. Agree.
- In lines 2622-2623, strike "be according to" and add "use".a. Agree.b. In line 2636, strike "and" and add a comma.
- 226. In line 2645, strike "short" and add "short-". a. Agree. Strike "long term" and add "long-term". b. Agree.
- 227. In lines 2649-2650, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 228. In lines 2650 and 2654-2655, delete "35 Ill. Adm. Code" and reinstate "Section".
 a. Agree (i.e., lines 2650-2651 and 2654-2655).
 b. In line 2650, after "302.560" add a comma.
 c. In line 2652, after "pH," add "or" and strike ", etc".
- 229. In line 2657, strike "data requirements" and add "<u>Data Requirements</u>". **Agree.**
- 230. In line 2657, strike "In order to" and add "<u>To</u>". **Agree.**
- 231. In lines 2681, 2683, 2685, and 2687, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Section". Agree.
- In line 2690, strike "salt water" and add "saltwater".
 a. Agree.
 b. In lines 2733 and 2734, strike the commas.
 c. In line 2749, after "K)" add a comma. After "obtain" add "a".
 d. In line 2754, strike "linear" and after "squares" add "linear".
- 233. In line 2763, strike "or if". Agree.
- 234. In line 2764, after "dissimilar" add a comma. Strike "if". Agree.

- 235. In line 2766, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- In lines 2798 and 2822, delete "35 Ill. Adm. Code" and reinstate "Section".
 a. Agree.
 b. In line 2799, after "procedure" add a comma.
- 237. In line 2822, strike "In order to" and add "<u>To</u>". Agree.
- 238. In line 2823, strike "database" and add "database".

 Agree to strike "data base" and add "database".
- 239. In lines 2829, 2841, and 2842-2843, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Section". **Agree.**
- 240. In line 2861, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 241. In line 2871, after "calculating" strike "a" and add "<u>an</u>". **Agree.**
- 242. In line 2900, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 243. In line 2932, strike "baseline BAFs for organic chemicals." and add "Baseline BAFs for Organic Chemicals".
 Agree.
- 244. In line 2936, strike "determining the necessary elements of baseline calculation." and add "Determining the Necessary Elements of Baseline Calculation".

 Agree.
- In line 2938, strike "normalization" and add "Normalization".
 a. Agree.
 b. In line 2958, restore the comma.
- 246. In line 2961, strike "baseline" and add "<u>Baseline</u>". Strike the period. Agree.
- 247. In line 2963, strike "field-measured" and add "<u>Field-Measured</u>". **a.** Agree. Strike the colon. **b.** Agree.
- 248. In line 2970, strike "field measured biota-sediment accumulation factor" and add "<u>Field-Measured Biota-Sediment Accumulation Factor</u>".

- 249. In line 2971, strike the colon. **Agree.**
- In line 2996, strike "laboratory-measured" and add "<u>Laboratory-Measured</u>". a. Agree. Strike the colon. b. Agree.
 c. In the table after line 3001, fourth row, delete "of" and add "to" and after "132" restore the comma.
- In line 3003, strike "predicted" and add "<u>Predicted</u>". a. Agree. Strike the colon.b. Agree.
- 252. In the table after line 3008, first row, after "Appendix B" change "of" to "to". Agree. Strike "302.510".
- 253. In line 3010, strike "health and wildlife BAFs for organic chemicals:" and add "Health and Wildlife BAFs for Organic Chemicals".

 Agree.
- In line 3023, strike "trophic level" and add "<u>Trophic Level</u>". a. Agree. Strike the colon.b. Agree.
- 255. In lines 3027, 3040, and 3044, strike "trophic level" and add "<u>Trophic Level</u>". **a. Agree.** Strike the colon. **b. Agree.**
- 256. In line 3054, strike "health and wildlife BAFs for inorganic chemicals" and add "Health and Wildlife BAFs for Inorganic Chemicals".

 Agree.
- 257. In line 3055, after "chemicals" add a comma. Agree.
- 258. In line 3058, strike "health" and add "<u>Health</u>". Agree.
- In line 3071, strike "which" and add "that".
 a. Disagree. Strike "which" and add "that,".
 b. In line 3072, after exceeded, add a comma.
- 260. In line 3073, after "resulting from" add "the".

 Agree. Strike "and" and add "or".
- In line 3073, strike "from ingestion of".Agree to strike the second "from ingestion of".

- 262. In line 3076, strike "utilization" and add "the use".

 Agree.
- 263. In line 3077, after "mink" add a comma. Agree.
- 264. In line 3078, strike "species specific" and add "<u>species-specific</u>". **Agree.**
- 265. In line 3090, strike "data requirements:" and add "<u>Data Requirements</u>". Agree.
- 266. In line 3092, strike "dose" and add "<u>Dose</u>". **Agree.**
- 267. In line 3092, strike "In order to" and add "<u>To</u>". **Agree.**
- 268. In line 3092, after "calculate" strike "a" and add "an". Agree. After "LMWC" add a comma.
- 269. In lines 3092-3093, strike "data base" and add "<u>database</u>". **Agree.**
- 270. In line 3103, strike "data requirements:" and add "<u>Data Requirements</u>". **Agree.**
- 271. In lines 3105 and 3108, after "125" add a comma. **Agree.**
- 272. In line 3112, strike "development of criteria" and add "<u>Developing Criteria</u>".

 Agree.
- 273. In line 3114, strike "standardization" and add "<u>Standardization</u>". **Agree.**
- 274. In line 3122, strike "intermittent exposure" and add "<u>Intermittent Exposure</u>". **Agree.**
- 275. In line 3127, strike "lowest observed adverse effect level" and add "Lowest Observed Adverse Effect Level".

 Agree.
- 276. In line 3132, strike "subchronic to chronic extrapolation" and add "<u>Subchronic to Chronic Extrapolation</u>".Agree.

- 277. In line 3137, strike "interspecies extrapolations" and add "<u>Interspecies Extrapolations</u>". **Agree.**
- 278. In lines 3140-3141, strike "species specific" and add "<u>species-specific</u>". **Agree.**
- 279. In line 3151, after "mean" add "<u>of the</u>". Strike "of all mammal species". **Agree.**
- 280. In line 3152, strike "and also of" add "<u>for all mammal species and</u>". **Agree.**
- 281. In line 3166, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 282. In line 3167, strike "which" and add "that". Agree.
- 283. In line 3170, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 284. In line 3175, strike the period. **Agree.**
- 285. In line 3186, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 286. In line 3195, strike "end point" and add "endpoint". Agree.
- 287. In line 3199, strike "data requirements:" and add "<u>Data Requirements</u>". **Agree.**
- 288. In line 3209, strike "development of Tier I criteria and Tier II values:" and add "Development of Tier I Criteria and Tier II Values".

 Agree.
- 289. In line 3213, strike "for calculation of" and add "to calculate". Agree.
- 290. In line 3229, strike the comma. **Agree.**
- 291. In line 3252, strike "criteria and Tier II value derivation." and add "Criteria and Tier II Value Derivation".

292. In the table after line 3274, in the penultimate and last rows, delete "35 Ill. Adm. Code" and reinstate "Section".

Agree.

293. In line 3282, strike "A" and add "An". Agree.

- 294. In line 3285, strike "for the purpose of determination of a" and add "to determine an".

 Agree.
- 295. In line 3287, strike "data requirements" and add "<u>Data Requirements</u>". Agree.
- 296. In line 3289, strike the first "at" and add "<u>in</u>". **Agree.**
- 297. In line 3292, strike "development of criteria or values:" and add "<u>Development of Criteria or Values</u>".

 Agree.
- 298. In line 3305, strike "bodyweight" and add "body weight".

 Agree.
- 299. In line 3308, strike "risk associated dose" and add "Risk-Associated Dose".

 Agree.
- 300. In the table after line 3314, in the 1st and 4th rows, strike "risk associated" and add "<u>risk-associated</u>".

 Agree.
- 301. In line 3318, strike the colon. **Agree.**
- 302. In the table after line 3325, in the first full row, strike "risk associated" and add "<u>risk-associated</u>".

 Agree.
- 303. In the table after line 3325, in the last row, delete "35 Ill. Adm. Code" and reinstate "Section".

 Agree.
- 304. In line 3340, after "information" add a comma. **Agree.** After "including" strike the comma. **Agree.**

- 305. In line 3341, after "data" add a comma.

 Agree. After "calculations" add a comma.
- 306. In lines 3351-3352, delete "35 Ill. Adm. Code" and reinstate "Sections".
 a. Agree.
 b. In line 3352, add a comma after the first "(b)" and after the second "(b)".
- 307. In line 3360, after "in" add "<u>the</u>". **Agree.**
- 308. In line 3365, strike "which" and add "that". Agree.
- 309. In line 3366, strike the comma.

 a. Disagree. In line 3367, after "neoplasms" add a comma. The commas clarify that the "at least one mammalian" clause applies not only to the "statistically significant decrease" clause but also to the "increased incidence" clause.

 b. In lines 3370, 3373, and 3377, strike "which" and add "that".
- 310. In line 3384, strike "which" and add "that". Agree.
- 311. In line 3384, strike "the occurrence of". **Agree.**
- 312. In line 3385, strike "which" and add "that". **Agree.**
- 313. In line 3385, strike "the occurrence of". **a.** Agree.
 - b. In lines 3386-87, strike "such an occurrence" and add "a specified adverse effect".
- 314. In line 3394, strike "which" and add "that".
 - a. Agree.
 - b. In line 3395, strike the comma. Strike "which" and add "that".
 - c. In line 3409, after "applicability" add a comma.
- 315. In line 3410, after "available" strike the comma. Agree. Strike "to the extent". Agree.
- 316. In line 3411, after "species" add a comma. Agree.
- 317. In line 3422, strike "chemical specific" and add "chemical-specific".

 Agree.
- 318. In line 3423, delete "35 Ill. Adm. Code" and reinstate "Sections".

- a. Agree.
- b. In line 3425, after "organisms" add a comma.
- c. In line 3428, strike "Fishes" and add "Fish".
- 319. In line 3434, strike "which" and add "that". Agree.
- 320. In lines 3439-3440, 3442, and 3450, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In line 3458, after "pH," add "or". Strike "etc.,".
- 321. In line 3480, strike "GMAV's" and add "GMAVs".

 Agree. Strike "which" and add "that".
- 322. In lines 3482-3483, 3485, 3476, 3490, and 3492-3493, delete "<u>35 Ill. Adm. Code</u>" and reinstate "Section".

 Agree.
- 323. In line 3485, strike "from".
 - a. Agree.
 - b. In line 3496, strike "subsections" and add "<u>subsection</u>". Add a comma after "(b)".
 - c. In lines 3508 and 3509, strike the commas.
- 324. In line 3522, strike "best documented" and add "<u>best-documented</u>". **Agree.**
- 325. In line 3522, strike "that". **Agree.**
- 326. In line 3523, after "hardness" add a comma.
 - a. Agree.
 - b. In lines 3525 and 3528, after "i.e." add a comma.
 - c. In line 3528, after "K)" add a comma.
- 327. In line 3528, after "obtain" add "the".
 - a. Disagree but add "a".
 - b. In line 3533, strike "linear" and after "squares" add "linear".
- 328. In line 3542, strike the first "or". **Agree.**
- 329. In line 3545, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In line 3548, after "species" add a comma.

- 330. In line 3593, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In line 3594, after "procedure" add a comma.
- 331. In line 3613, strike "invertebrate" and add "<u>invertebrates</u>". **Agree.**
- 332. In line 3614, strike "fishes" and add "fish".
 - a. Agree.
 - b. In line 3631, strike "Fishes" and add "Fish".
- 333. In line 3639, change "35 Ill. Adm. Code" to "Sections".

 Disagree. Delete "35 Ill. Adm. Code" and add "Section".
- 334. In lines 3647-3648, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 335. In lines 3657-3658, strike "in order". **Agree.**
- 336. In line 3667, strike the comma.
 - a. Disagree. The comma comes at a natural pause in the sentence and avoids the confusing phrasing "calculated corrected".
 - b. In line 3680, strike the comma.
 - c. In line 3681, strike "but not limited to".
- 337. In line 3706, strike "which" and add "that,". a. Agree. After "exceeded" add a comma. b. Agree.
- 338. In line 3707, strike both commas.
 - Disagree. The commas clarify that the "resulting from" clause modifies "adverse effects" and is not simply part of the "such as" clause.
- 339. In line 3708, strike "and from" and add "<u>or</u>". **Agree.**
- 340. In line 3717, strike "prior to" and add "<u>before</u>". **Agree.**
- 341. In line 3717, after "WDAPC" strike the comma.

 Disagree. The comma comes at a natural pause in the sentence and avoids the confusing phrasing "the WDAPC the NOAEL".
- 342. In line 3723, strike "prior to" and add "<u>before</u>". **Agree.**

- 343. In line 3723, after "WDAPC" strike the comma. Disagree. See No. 341.
- 344. In the table after line 3749, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 345. In line 3758, strike "which" and add "that".
 - a. Agree.
 - b. In line 3765, strike the commas and replace them with open and closed parentheses, respectively.
- 346. In lines 3765-3766, strike ", or in" and add "<u>and</u>". **Disagree. See No. 345(b).**
- 347. In line 3770, strike "which are".
 - a. Agree.
 - b. In line 3779, strike the comma.
- 348. In line 3798, strike "then". Agree.
- 349. In line 3798, strike "prior to" and add "<u>before</u>". **Agree.**
- 350. In line 3798, after "intake" strike the comma.

 Disagree. The comma comes at a natural pause in the sentence and avoids the confusing phrasing "acceptable daily intake the NOAEL-A".
- 351. In line 3805, strike "prior to" and add "<u>before</u>". **Agree. After "intake" add a comma.**
- 352. In the table after line 3836, 2nd and 3rd rows, delete "35 Ill. Adm. Code" and reinstate "Section".
 - Agree. Third row, strike the second "which" and add "that".
- 353. In the table after line 3836, last row, delete "35 Ill. Adm. Code" and reinstate "Sections". Agree.
- 354. In line 3842, strike "that" and add "the".
 - a. Agree.
 - b. In line 3845, strike "and from" and add "or".
- 355. In lines 3850-3851 and 3854-3855, strike "for the purposes of" and change "determining" to "to determine".
 - a. Agree.
 - b. In lines 3850 and 3854, strike "i.e," and add "i.e.,"

- 356. In line 3861, strike "which" and add "that,".

 Agree.
- 357. In line 3862, after "lifetime" add a column". Agree to add comma.
- 358. In line 3868, after "milligrams" add "of".
 - a. Agree.
 - b. In line 3879, after "species" add a comma.
 - c. In line 3886, strike "which" and add "that".
- 359. In lines 3886-3887, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 360. In line 3889, strike "non-threshold" and add "<u>no-threshold</u>". **Agree.**
- 361. In line 3894, strike "life time" and add "<u>lifetime</u>".
 - a. Agree.
 - b. In line 3902, after "strain" add a comma.
- 362. In line 3903, strike "in". **Agree.**
- 363. In lines 3906 and 3908, strike "dose response" and add "dose-response".
 - a. Agree.
 - b. In line 3911, after "strain" add a comma.
 - c. In line 3917, after "(mg/kg-d)" add a comma.
- 364. In line 3929, after "evidence" add "of".
 - a. Agree.
 - b. In the table after line 3943, second row, strike "which" and add "that".
- 365. In the table after line 3943, in the 2nd, 3rd, and 5th rows, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In the table after line 3955, second row, strike "stream flows" and add "streamflows".
 - c. In lines 3987-88, strike "steady-state" and add "steady state,".
 - i. In line 3990, after "duration" add a comma.
- 366. In line 3990, strike "which" and add "that".
 - a. Agree.
 - b. In line 3991, strike "steady-state" and add "steady state".
 - c. In line 4006, strike "fishes" and add "fish".

- 367. In line 4009, strike "which" and add "that". Agree.
- 368. In line 4009, strike "steady-state" and add "steady state".
 - a. Agree.
 - b. In line 4027, strike "such" and add "the".
- 369. In lines 4034 and 4037, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In line 4038, after "steady-state" add a comma.
- 370. In lines 4038 and 4043, strike "whole body" and add "whole-body".
 - a. Agree.
 - b. In line 4039, strike "which" and add "that".
- 371. In lines 4049-4050, delete "35 Ill. Adm. Code" and reinstate "Section". Agree.
- 372. In line 4050, strike "whole body" and add "whole-body". Agree.
- 373. In lines 4055 and 4056, delete "35 Ill. Adm. Code" and reinstate "Sections".
 - a. Agree.
 - b. In line 4055, strike "and" and add "or".
- 374. In line 4065, strike "molluscs" and add "mollusks".
 - a. Agree.
 - b. In line 4067, strike "fishes" and add "fish".
 - c. In line 4069, after "scales" add a comma.
 - d. In line 4071, strike "fishes" and add "fish".
- 375. In lines 4073 and 4074, strike "whole body" and add "whole-body". Agree.
- 376. In lines 4078-4079, delete "35 Ill. Adm. Code" and reinstate "Section".
 - a. Agree.
 - b. In line 4095, after "information" add a comma.
 - c. In line 4096, after "data" add a comma. After "calculations" add comma.

<u>1st Notice</u> JCAR350302-2207052r01

1		TITLE 35: ENVIRONMENTAL PROTECTION
1		
2		SUBTITLE C: WATER POLLUTION
3		CHAPTER I: POLLUTION CONTROL BOARD
4 5		PART 302
6		WATER QUALITY STANDARDS
7		WATER QUALITY STANDARDS
8		SUBPART A: GENERAL WATER QUALITY PROVISIONS
9		SOBITION OF THE WITTER CONDITT TROVISIONS
10	Section	
11	302.100	Definitions
12	302.101	Scope and Applicability
13	302.102	Allowed Mixing, Mixing Zones and ZIDs
14	302.102	Stream Flows
15	302.104	Main River Temperatures
16	302.101	Antidegradation
17	302.103	Mindegradation
18		SUBPART B: GENERAL USE WATER QUALITY STANDARDS
19		SOBIART B. SEIVERINE COE WITTER QUILETT STATISTICS
20	Section	
21	302.201	Scope and Applicability
22	302.202	Purpose
23	302.202	Offensive Conditions
24	302.204	pH
25	302.205	Phosphorus
26	302.206	Dissolved Oxygen
27	302.207	Radioactivity
28	302.207	Numeric Standards for Chemical Constituents
29	302.209	Fecal Coliform
30	302.210	Other Toxic Substances
31	302.210	Temperature
32	302.211	Total Ammonia Nitrogen
33	302.212	Effluent Modified Waters (Ammonia) (Repealed)
34	302.213	Elitachi Waters (Milliona) (Repeared)
35	SURP	ART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS
36	SCDI	THE C. I COULT THE I COULT THOUSENING WITTER SOTTET STRAIGHTED
37	Section	
38	302.301	Scope and Applicability
39	302.301	Algicide Permits
40	302.302	Finished Water Standards
41	302.303	Chemical Constituents
42	302.304	Other Contaminants
43	302.305	Fecal Coliform
44	302.300	Radium 226 and 228
7-7	302.307	Nation 220 and 220

<u>1st Notice</u> JCAR350302-2207052r01

45 46		SUBPART D: CHICAGO AREA WATERWAY SYSTEM AND
47		LOWER DES PLAINES RIVER WATER QUALITY AND
48		INDIGENOUS AQUATIC LIFE STANDARDS
49		
50	Section	
51	302.401	Scope and Applicability
52	302.402	Purpose
53	302.403	Unnatural Sludge
54	302.404	pH
55	302.405	Dissolved Oxygen
56	302.406	Fecal Coliform (Repealed)
57	302.407	Chemical Constituents
58	302.408	Temperature
59	302.409	Cyanide for the South Fork of the South Branch of the Chicago River (Bubbly
60		Creek)
61	302.410	Other Toxic Substances
62	302.412	Total Ammonia Nitrogen
63		
64	SU	BPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS
65		
66	Section	
67	302.501	Scope, Applicability, and Definitions
68	302.502	Dissolved Oxygen
69	302.503	pH
70	302.504	Chemical Constituents
71	302.505	Fecal Coliform
72	302.506	Temperature
73	302.507	Thermal Standards for Existing Sources on January 1, 1971
74	302.508	Thermal Standards for Sources Under Construction But Not In Operation on
75		January 1, 1971
76	302.509	Other Sources
77	302.510	Incorporations by Reference (Repealed)
78	302.515	Offensive Conditions
79	302.520	Regulation and Designation of Bioaccumulative Chemicals of Concern (BCCs)
80	302.521	Supplemental Antidegradation Provisions for Bioaccumulative Chemicals of
81		Concern (BCCs)
82	302.525	Radioactivity
83	302.530	Supplemental Mixing Provisions for Bioaccumulative Chemicals of Concern
84		(BCCs)
85	302.535	Ammonia Nitrogen
86	302.540	Other Toxic Substances
87	302.545	Data Requirements
88	302.550	Analytical Testing

<u>1st Notice</u> JCAR350302-2207052r01

89	302.553	Determining the Lake Michigan Aquatic Toxicity Criteria or Values – General
90	202.555	Procedures Description of Time III II I
91	302.555	Determining the Tier I Lake Michigan Acute Aquatic Toxicity Criterion
92	202.560	(LMAATC): Independent of Water Chemistry
93	302.560	Determining the Tier I Lake Michigan Basin Acute Aquatic Life Toxicity
94	202 562	Criterion (LMAATC): Dependent on Water Chemistry
95	302.563	Determining the Tier II Lake Michigan Basin Acute Aquatic Life Toxicity Value
96 97	202 565	(LMAATV) Determining the Leke Michigan Pesin Chronic Aquetic Life Toxicity Criterian
97 98	302.565	Determining the Lake Michigan Basin Chronic Aquatic Life Toxicity Criterion
98 99		(LMCATC) or the Lake Michigan Basin Chronic Aquatic Life Toxicity Value (LMCATV)
100	302.570	Procedures for Deriving Bioaccumulation Factors for the Lake Michigan Basin
101	302.575	Procedures for Deriving Dioaceannatation I actors for the East Whengan Basin Procedures for Deriving Tier I Water Quality Criteria and Values in the Lake
102	202.272	Michigan Basin to Protect Wildlife
103	302.580	Procedures for Deriving Water Quality Criteria and Values in the Lake Michigan
104		Basin to Protect Human Health – General
105	302.585	Procedures for Determining the Lake Michigan Basin Human Health Threshold
106		Criterion (LMHHTC) and the Lake Michigan Basin Human Health Threshold
107		Value (LMHHTV)
108	302.590	Procedures for Determining the Lake Michigan Basin Human Health
109		Nonthreshold Criterion (LMHHNC) or the Lake Michigan Basin Human Health
110		Nonthreshold Value (LMHHNV)
111	302.595	Listing of Bioaccumulative Chemicals of Concern, Derived Criteria and Values
112		
113	SUBPAR	T F: PROCEDURES FOR DETERMINING WATER QUALITY CRITERIA
114		
115	Section	
116	302.601	Scope and Applicability
117	302.603	Definitions
118	302.604	Mathematical Abbreviations
119	302.606	Data Requirements
120	302.612	Determining the Acute Aquatic Toxicity Criterion for an Individual Substance –
121	202 (15	General Procedures
122	302.615	Determining the Acute Aquatic Toxicity Criterion – Toxicity Independent of
123	202 (10	Water Chemistry
124	302.618	Determining the Acute Aquatic Toxicity Criterion – Toxicity Dependent on Water
125	202 (21	Chemistry Determining the Acceptance Transition Criterian Proceedings for Combinations
126	302.621	Determining the Acute Aquatic Toxicity Criterion – Procedure for Combinations
127	202 627	of Substances Determining the Change Aquetic Toxicity Criterion for an Individual Substance
128	302.627	Determining the Chronic Aquatic Toxicity Criterion for an Individual Substance – General Procedures
129 130	302.630	Determining the Chronic Aquatic Toxicity Criterion – Procedure for
131	304.030	Combinations of Substances
131	302.633	The Wild and Domestic Animal Protection Criterion
134	302.033	The Wha and Domestic Alimia Florection Chichon

133 134 135 136 137 138 139 140 141 142	The Human Threshold Criterion 302.645 Determining the Acceptable Daily Intake 302.648 Determining the Human Threshold Criterion 302.651 The Human Nonthreshold Criterion 302.654 Determining the Risk Associated Intake 302.657 Determining the Human Nonthreshold Criterion 302.658 Stream Flow for Application of Human Nonthreshold Criterion 302.660 Bioconcentration Factor 302.663 Determination of Bioconcentration Factor Utilizing the Bioconcentration Factor
143	302.669 Listing of Derived Criteria
144 145 146 147 148 149 150 151 152 153 154 155	302.APPENDIX A 302.APPENDIX B Sources of Codified Sections (Repealed) 302.APPENDIX C Maximum total ammonia nitrogen concentrations allowable for certain combinations of pH and temperature 302.TABLE A 302.TABLE B Temperature and pH-Dependent Values of the CS (Chronic Standard) for Fish Early Life Stages Absent 302.TABLE C Temperature and pH-Dependent Values of the CS (Chronic Standard) for Fish Early Life Stages Present 302.APPENDIX D Section 302.206(d): Stream Segments for Enhanced Dissolved Oxygen Protection
156	
157	AUTHORITY: Implementing Section 13 and authorized by Sections 11(b) and 27 of the
158	Environmental Protection Act [415 ILCS 5/13, 11(b), and 27].
159	
160	SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 III. Reg. 44, p. 151,
161 162	effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; codified at 6 Ill. Reg. 7818; amended at 6 Ill.
163	Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26,
164	1982; amended at 8 Ill. Reg. 1629, effective January 18, 1984; peremptory amendments at 10 Ill.
165	Reg. 461, effective December 23, 1985; amended at R87-27 at 12 Ill. Reg. 9911, effective May
166	27, 1988; amended at R85-29 at 12 Ill. Reg. 12082, effective July 11, 1988; amended in R88-1 at
167	13 Ill. Reg. 5998, effective April 18, 1989; amended in R88-21(A) at 14 Ill. Reg. 2899, effective
168	February 13, 1990; amended in R88-21(B) at 14 III. Reg. 11974, effective July 9, 1990; amended
169	in R94-1(A) at 20 III. Reg. 7682, effective May 24, 1996; amended in R94-1(B) at 21 III. Reg.
170 171	370, effective December 23, 1996; expedited correction at 21 Ill. Reg. 6273, effective December 23, 1996; amended in R97-25 at 22 Ill. Reg. 1356, effective December 24, 1997; amended in
172	R99-8 at 23 Ill. Reg. 11249, effective August 26, 1999; amended in R01-13 at 26 Ill. Reg. 3505,
173	effective February 22, 2002; amended in R02-19 at 26 Ill. Reg. 16931, effective November 8,
174	2002; amended in R02-11 at 27 Ill. Reg. 166, effective December 20, 2002; amended in R04-21
175	at 30 Ill. Reg. 4919, effective March 1, 2006; amended in R04-25 at 32 Ill. Reg. 2254, effective
176	January 28, 2008; amended in R07-9 at 32 III. Reg. 14978, effective September 8, 2008;

177 amended in R11-18 at 36 Ill. Reg. 18871, effective December 12, 2012; amended in R11-18(B) 178 at 37 Ill. Reg. 7493, effective May 16, 2013; amended in R08-09(D) at 39 Ill. Reg. 9388, 179 effective July 1, 2015; amended in R18-23 at 46 Ill. Reg. _____, effective _____. 180 181 SUBPART A: GENERAL WATER QUALITY PROVISIONS 182 183 **Section 302.100 Definitions** 184 185 Unless otherwise specified, the definitions of the Environmental Protection Act (Act) [415 ILCS 5] and 35 Ill. Adm. Code 301 apply to this Part. As used in this Part, each of the following 186 187 definitions has the specified meaning. 188 189 "Acute Toxicity" means the capacity of any substance or combination of 190 substances to cause mortality or other adverse effects in an organism resulting 191 from a single or short-term exposure to the substance. 192 "Adverse Effect" means any gross or overt effect on an organism, including but 193 194 not limited to reversible histopathological damage, severe convulsions, 195 irreversible functional impairment and lethality, as well as any non-overt effect on 196 an organism resulting in functional impairment or pathological lesions which may 197 affect the performance of the whole organism, or which reduces an organism's 198 ability to respond to an additional challenge. 199 200 "Chronic Toxicity" means the capacity of any substance or combination of 201 substances to cause injurious or debilitating effects in an organism which result 202 from exposure for a time period representing a substantial portion of the natural 203 life cycle of that organism, including but not limited to the growth phase, the 204 reproductive phases or such critical portions of the natural life cycle of that 205 organism. 206 207 "Criterion" means the numerical concentration of one or more toxic substances 208 derived in compliance with the procedures in Subpart F which, if not exceeded, 209 would assure compliance with the narrative toxicity standard of 35 Ill. Adm. Code 210 302.210. 211 212 "Early Life Stages" of fish means the pre-hatch embryonic period, the post-hatch 213 free embryo or yolk-sac fry, and the larval period, during which the organism feeds. Juvenile fish, which are anatomically similar to adults, are not considered 214 215 an early life stage. 216 217 "Hardness" means a water quality parameter or characteristic consisting of the 218 sum of calcium and magnesium concentrations expressed in terms of equivalent 219 milligrams per liter as calcium carbonate. Hardness is measured in compliance

with methods specified in 40 CFR 136, incorporated by reference in 35 Ill. Adm.

221 Code 301.106. 222 223 "Mixing Zone" means a portion of the waters of the State identified as a region within which mixing is allowed under 35 Ill. Adm. Code 302.102(d). 224 225 226 "Thermocline" means the plane of maximum rate of decrease of temperature with 227 respect to depth in a thermally stratified body of water. 228 229 "Total Residual Chlorine" or "TRC" means those substances which include 230 combined and uncombined forms of both chlorine and bromine and which are 231 expressed, by convention, as an equivalent concentration of molecular chlorine. 232 TRC is measured in compliance with methods specified in 40 CFR 136, 233 incorporated by reference in 35 Ill. Adm. Code 301.106. 234 235 "Toxic Substance" means a chemical substance that causes adverse effects in 236 humans, or in aquatic or terrestrial animal or plant life. Toxic substances include, 237 but are not limited to, those substances listed in 40 CFR 302.4, incorporated by 238 reference in 35 Ill. Adm. Code 301.106, or any "chemical substance" as defined 239 by the Illinois Chemical Safety Act [430 ILCS 45] 240 241 "ZID" or "Zone of Initial Dilution" means a portion of a mixing zone, identified 242 pursuant to 35 Ill. Adm. Code 302.102(e), within which acute toxicity standards 243 need not be met. 244 245 (Source: Amended at 46 Ill. Reg. _____, effective _____) 246 247 **Section 302.101 Scope and Applicability** 248 249 This Part contains water quality standards which apply throughout the State as a) 250 designated in 35 Ill. Adm. Code 303. Site specific water quality standards are 251 found with the water use designations in 35 Ill. Adm. Code 303. 252 253 b) Subpart B contains general use water quality standards which must be met in 254 waters of the State for which there is no specific use designation (35 Ill. Adm. 255 Code 303.201). 256 257 Subpart C contains the public and food processing water supply standards. These c) are cumulative with Subpart B and must be met by all designated waters at the 258 259 point at which water is drawn for treatment and distribution as a potable supply or 260 for food processing (35 Ill. Adm. Code 303.202). 261 Subpart D contains the Chicago Area Waterway System and the Lower Des 262 d) Plaines River water quality standards. These standards must be met only by 263 264 certain waters designated in 35 Ill. Adm. Code 303.204, 303.220, 303.225,

265 303.227, 303.230, 303.235, 303.240 and 303.449. Subpart D also contains water 266 quality standards applicable to indigenous aquatic life waters found only in the 267 South Fork of the South Branch of the Chicago River (Bubbly Creek). 268 269 Subpart E contains the Lake Michigan Basin water quality standards. These must e) 270 be met in the waters of the Lake Michigan Basin as designated in 35 Ill. Adm. 271 Code 303.443. 272 273 f) Subpart F contains the procedures for determining each of the criteria designated 274 in 35 Ill. Adm. Code 302.210 and 302.410. 275 276 (Source: Amended at 46 Ill. Reg. _____, effective _____) 277 278 Section 302.102 Allowed Mixing, Mixing Zones and ZIDs 279 280 Whenever a water quality standard is more restrictive than its corresponding a) 281 effluent standard, or where there is no corresponding effluent standard specified at 282 35 Ill. Adm. Code 304, an opportunity will be allowed for compliance with 35 Ill. 283 Adm. Code 304.105 by mixture of an effluent with its receiving waters, provided 284 the discharger has made every effort to comply with the requirements of 35 Ill. 285 Adm. Code 304.102. 286 287 b) The portion, volume and area of any receiving waters within which mixing is 288 allowed pursuant to subsection (a) must be limited by the following: 289 290 Mixing must be confined in an area or volume of the receiving water no 1) 291 larger than the area or volume which would result after incorporation of 292 outfall design measures to attain optimal mixing efficiency of effluent and 293 receiving waters. These measures may include the use of diffusers and 294 engineered location and configuration of discharge points. 295 296 2) Mixing is not allowed in waters which include a tributary stream entrance 297 if the mixing occludes the tributary mouth or otherwise restricts the 298 movement of aquatic life into or out of the tributary. 299 300 Mixing is not allowed in water adjacent to bathing beaches, bank fishing 3) 301 areas, boat ramps or dockages or any other public access area. 302 303 4) Mixing is not allowed in waters containing mussel beds, endangered 304 species habitat, fish spawning areas, areas of important aquatic life habitat, 305 or any other natural features vital to the well being of aquatic life in a 306 manner that maintaining aquatic life in the body of water as a whole 307 would be adversely affected. 308

309 310 311		5)	Mixing is not allowed in waters that contain intake structures of public or food processing water supplies, points of withdrawal of water for irrigation, or watering areas accessed by wild or domestic animals.
312			<i>5</i>
313		6)	Mixing must allow for a zone of passage for aquatic life in which water
314		0)	quality standards are met. However, a zone of passage is not required in
315			receiving streams that have zero flow for at least seven consecutive days
316			recurring on average in nine years out of 10.
317			reculting on average in time years out of 10.
318		7)	The area and volume in which mixing occurs, alone or in combination
319		1)	with other areas and volumes of mixing, must not intersect any area of any
320			body of water in such a manner that the maintenance of aquatic life in the
320			•
			body of water as a whole would be adversely affected.
322		0)	The case and velves in valid minima commendance in continuation
323		8)	The area and volume in which mixing occurs, alone or in combination
324			with other areas and volumes of mixing, must not contain more than 25%
325			of the cross-sectional area or volume of flow of a stream except for those
326			streams for which the dilution ratio is less than 3:1. In streams where the
327			dilution ratio is less than 3:1, the volume in which mixing occurs, alone or
328			in combination with other volumes of mixing, must not contain more than
329			50% of the volume flow unless an applicant for an NPDES permit
330			demonstrates, pursuant to subsection (d), that an adequate zone of passage
331			is provided for pursuant to subsection (b)(6).
332			
333		9)	No mixing is allowed when the water quality standard for the constituent
334			in question is already violated in the receiving water.
335			
336		10)	No body of water may be used totally for mixing of single outfall or
337			combination of outfalls, except as provided in subsection (b)(6).
338			
339		11)	Single sources of effluents that have more than one outfall must be limited
340			to a total area and volume of mixing no larger than that allowable if a
341			single outfall were used.
342			
343		12)	The area and volume in which mixing occurs must be as small as is
344			practicable under the limitations prescribed in this subsection (b), and in
345			no circumstances may the mixing encompass a surface area larger than 26
346			acres.
347			
348	c)	All w	vater quality standards of this Part must be met at every point outside of the
349	,		and volume of the receiving water within which mixing is allowed. The
350			e toxicity standards of this Part must be met within the area and volume
351			in which mixing is allowed, except as provided in subsection (e).
352			· 1 1

d) Pursuant to the procedures of Section 39 of the Act and 35 Ill. Adm. Code 309, a person may apply to the Agency to include as a condition in an NPDES permit formal definition of the area and volume of the waters of the State within which mixing is allowed for the NPDES discharge in question. The defined area and volume of allowed mixing shall constitute a "mixing zone" for the purposes of 35 Ill. Adm. Code: Subtitle C. Upon proof by the applicant that a proposed mixing zone conforms with the requirements of Section 39 of the Act, this Section and any additional limitations as may be imposed by the Clean Water Act (CWA) (33 U.S.C. 1251 et seq.), the Act or Board regulations, the Agency must, under Section 39(b) of the Act, include within the NPDES permit a condition defining the mixing zone.

e) Under the procedures of Section 39 of the Act and 35 Ill. Adm. Code 309, a person may apply to the Agency to include as a condition in an NPDES permit a ZID as a component portion of a mixing zone. The ZID must be limited to waters within which effluent dispersion is immediate and rapid. For this subsection, "immediate" dispersion means an effluent's merging with receiving waters without delay in time after its discharge and within close proximity of the end of the discharge pipe, so as to minimize the length of exposure time of aquatic life to undiluted effluent, and "rapid" dispersion means an effluent's merging with receiving waters so as to minimize the length of exposure time of aquatic life to undiluted effluent. Upon proof by the applicant that a proposed ZID conforms with the requirements of Section 39 of the Act and this Section, the Agency must under Section 39(b) of the Act, include within the NPDES permit a condition defining the ZID.

f) Under Section 39 of the Act and 35 Ill. Adm. Code 309.103, an applicant for an NPDES permit must submit data to allow the Agency to determine that the nature of any mixing zone or mixing zone in combination with a ZID conforms with the requirements of Section 39 of the Act and of this Section. A permittee may appeal Agency determinations concerning a mixing zone or ZID under the procedures of Section 40 of the Act and 35 Ill. Adm. Code 309.181.

g) When a mixing zone is defined in an NPDES permit, the waters within that mixing zone, for the duration of that NPDES permit, constitutes the sole waters within which mixing is allowed for the permitted discharge. It will not be a defense in any action brought pursuant to 35 Ill. Adm. Code 304.105 that the area and volume of waters within which mixing may be allowed pursuant to subsection (b) is less restrictive than the area or volume or waters encompassed in the mixing zone.

h) When a mixing zone is explicitly denied in a NPDES permit, no waters may be used for mixing by the discharge to which the NPDES permit applies, all other provisions of this Section notwithstanding.

397			
398	i)	When	re an NPDES permit is silent on the matter of a mixing zone, or when no
399		NPD	ES permit is in effect, the burden of proof will be on the discharger to
400		demo	onstrate compliance with this Section in any action brought pursuant to 35 Ill.
401		Adm	. Code 304.105.
402			
403	(Sou	rce: An	nended at 46 Ill. Reg, effective)
404			
405	Section 302.	.103 St	ream Flows
406			
407	Except as other	herwise	provided in this Chapter, the water quality standards in this Part apply at all
408	times except	during	periods when flows are less than the average minimum seven day low flow
109	which occur	s once i	n ten years.
410			
411	(Sou	rce: An	nended at 46 Ill. Reg, effective)
412			
413	Section 302.	.105 Aı	ntidegradation
414			
415	This Section	protect	s existing uses of all waters of the State of Illinois, maintains the quality of
416			that is better than water quality standards, and prevents unnecessary
417	deterioration	of wate	ers of the State.
418			
419	a)	Exist	ring Uses
120		Uses	actually attained in a surface water body or water body segment on or after
42 1		Nove	ember 28, 1975, whether or not they are included in the water quality
122		stand	lards, must be maintained and protected. Examples of degradation of
123		existi	ing uses of the waters of the State include:
124			
125		1)	an action that would result in the deterioration of the existing aquatic
126			community, such as a shift from a community of predominantly pollutant-
127			sensitive species to pollutant-tolerant species or a loss of species diversity;
128			
129		2)	an action that would result in a loss of a resident or indigenous species
430			whose presence is necessary to sustain commercial or recreational
431			activities; or
432			
433		3)	an action that would preclude continued use of a surface water body or
434			water body segment for a public water supply or for recreational or
435			commercial fishing, swimming, paddling or boating.
436			
437	b)	Outst	tanding Resource Waters
438			
139		1)	Waters that are designated as Outstanding Resource Waters (ORWs)
14 0			pursuant to 35 Ill. Adm. Code 303.205 and listed in 35 Ill. Adm. Code

141 142			303.20	6 mus	t not be lowered in quality except as provided below:
142 143			A)	A ativ	vities that result in short-term, temporary (i.e., weeks or
143 144			,		
				ШОП	hs) lowering of water quality in an ORW; or
145 146			D)	Errict	ing site stampyyeten dischanges that comply with applicable
146 147			B)		ing site stormwater discharges that comply with applicable
147					al and State stormwater management regulations and do not
148 140				resum	t in a violation of any water quality standards.
149 150		2)	A	41_14_	:
450 451		2)			in subsection (b)(1)(A) or (b)(1)(B) that requires a National
451 452					scharge Elimination System (NPDES) permit or a Clean
452 453				`	CWA) Section 401 certification must also comply with
453 454			subsect	tion (c	c)(2).
454 455		2)	A	41_14_	1:4-1:
455 456		3)			listed in subsection (b)(1) or any other proposed increase in
456 457			polluta	nt Ioa	ding to an ORW must also meet the following requirements:
457 450			A N	A 11	
458 450			A)	All ex	xisting uses of the water will be fully protected; and
459 460			D)	г	
460				-	pt for activities falling under one of the exceptions provided
461				ın sut	bsection (b)(1)(A) or (B) above:
462 463				.,	
463				i)	The proposed increase in pollutant loading is necessary for
164 165					an activity that will improve water quality in the ORW; and
465 466				,	
466 467				ii)	The improvement could not be practicably achieved
467					without the proposed increase in pollutant loading.
468 460		4)			1' ' 11 4 41 1' ' NIDDEG '4
469 470		4)			d increase in pollutant loading requiring an NPDES permit or
470 471					certification for an ORW must be assessed pursuant to
471 472			subsect	:10n (1) to determine compliance with this Section.
472 472	-)	TT: - 1.	O1:4 V	1 7 - 4	
473 474	c)	High	Quality V	<i>N</i> aters	S
174 175		1)	Б.,	.1	
475		1)	-		nerwise provided in subsection (d), waters of the State whose
476 477					ity is better than any of the established standards of this Part
477 470					ntained in their present high quality, unless the lowering of
478 470					is necessary to accommodate important economic or social
479 400			develop	pment	
480		•			
481		2)	_	_	must assess any proposed increase in pollutant loading that
482					a new, renewed or modified NPDES permit or any activity
483					CWA Section 401 certification to determine compliance with
184			this Sec	ction	The assessment to determine compliance with this Section

485		maxat 1		and a saca by saca basis. In malting this assessment the
		must be made on a case-by-case basis. In making this assessment, the Agency must:		
486 487		Agent	y musi	. .
487		A)	Cana	1 - 1 - 6 1 - 66 - + - 6 1
488		A)		ider the fate and effect of any parameters proposed for an
489			increa	ased pollutant loading.
490		70.		1 011 1
491		B)	Assui	re the following:
492				
493			i)	The applicable numeric or narrative water quality standard
494				will not be exceeded as a result of the proposed activity;
495				
496			ii)	All existing uses will be fully protected;
497				
498			iii)	All technically and economically reasonable measures to
499				avoid or minimize the extent of the proposed increase in
500				pollutant loading have been incorporated into the proposed
501				activity; and
502				
503			iv)	The activity that results in an increased pollutant loading
504			ĺ	will benefit the community at large.
505				, ,
506		C)	Use t	he following information sources, when available:
507		,		,
508			i)	Information, data or reports available to the Agency from
509			,	its own sources;
510				,
511			ii)	Information, data or reports supplied by the applicant;
512			/	
513			iii)	Agency experience with factually similar permitting
514			111)	scenarios; and
515				section, and
516			iv)	Any other valid information available to the Agency.
517			11)	This other valid information available to the rigency.
518	d)	Activities No	t Subje	ct to a Further Antidegradation Assessment
519	u)			ties will not be subject to a further antidegradation
520		assessment u	_	, and the second
521		assessificiti ui	iuci su	oscenon (c).
522		1) Short-	torm t	emporary (i.e., weeks or months) lowering of water quality;
523		1) 511011-	·tC1111, t	emporary (i.e., weeks or mondis) lowering or water quanty,
		2) Primas	agag tha	t are not prohibited at 40 CER 122 41(m) incorporated by
524 525		, ·		t are not prohibited at 40 CFR 122.41(m), incorporated by
525 526		refere	nce at 3	35 Ill. Adm. Code 301.106;
526 527		2) Dagge	maa aat	iona under the Comprehensive Environmental Description
527 528		· -		ions under the Comprehensive Environmental Response,
528		Comp	ensauo	n and Liability Act (CERCLA), as amended, corrective

529			actions, under the Resource Conservation and Recovery Act (RCRA), as
530			amended, or similar federal or State authority, taken to alleviate a release
531			into the environment of hazardous substances, pollutants or contaminants
532			which may pose a danger to public health or welfare;
533			
534		4)	Thermal discharges that have been approved through a CWA Section
535			316(a) demonstration;
536			
537		5)	New or increased discharges of a non-contact cooling water:
538			
539			A) without additives, except as provided in subsection (d)(5)(B),
540			returned to the same body of water from which it was taken, as
541			defined by 35 Ill. Adm. Code 352.104, provided that the discharge
542			complies with applicable Illinois thermal standards; or
543			
544			B) containing chlorine when the non-contact cooling water is treated
545			to remove residual chlorine, and returned to the same body of
546			water from which it was taken, as defined in 35 Ill. Adm. Code
547			352.104, provided that the discharge complies with applicable
548			Illinois thermal and effluent standards at 35 Ill. Adm. Code 302,
549			303, and 304;
550			303, unu 301,
551		6)	Discharges permitted under a current general NPDES permit as provided
552		Ο)	by 415 ILCS 5/39(b) or a nationwide or regional CWA Section 404 permit
553			are not subject to facility-specific antidegradation review; however, the
554			Agency must assure that individual permits or certifications are required
555			prior to all new pollutant loadings or hydrological modifications that
556			necessitate a new, renewed or modified NPDES permit or CWA Section
557			401 certification that affects waters of particular biological significance,
558			which may include streams identified by the Illinois Department of
559			Natural Resources as "biologically significant"; or
560			radial resources as biologically significant, of
561		7)	Changing or including a new permit limitation that does not result in an
562		')	actual increase of a pollutant loading, such as those stemming from
563			improved monitoring data, new analytical testing methods, new or revised
564			technology or water quality based effluent limits.
565			technology of water quanty based efficient finitis.
566	e)	Lakal	Michigan Basin
567	C)		rs in the Lake Michigan basin as identified in 35 Ill. Adm. Code 303.443 are
			ubject to the requirements applicable to bioaccumulative chemicals of
568 560			rn found at 35 Ill. Adm. Code 302.521.
569 570		conce	III Ioulia at 33 III. Adiii. Code 302.321.
570 571	Ð	A ntid	agradation Assassments
	f)		egradation Assessments
572		m con	iducting an antidegradation assessment under this Section, the Agency must

573 comply with the following procedures. 574 575 A permit application for any proposed increase in pollutant loading that 1) necessitates the issuance of a new, renewed, or modified NPDES permit or 576 a CWA Section 401 certification must include, to the extent necessary for 577 578 the Agency to determine that the permit application meets the 579 requirements of this Section, the following information: 580 581 A) Identification and characterization of the water body affected by the proposed load increase or proposed activity and the existing 582 water body's uses. Characterization must address physical, 583 584 biological and chemical conditions of the water body. 585 586 Identification and quantification of the proposed load increases for B) 587 the applicable parameters and of the potential impacts of the 588 proposed activity on the affected waters. 589 590 C) The purpose and anticipated benefits of the proposed activity. 591 Such benefits may include: 592 593 i) Providing a centralized wastewater collection and treatment 594 system for a previously unsewered community; 595 596 ii) Expanding to provide service for anticipated residential or 597 industrial growth consistent with a community's long range 598 urban planning; 599 600 iii) Adding a new product line or production increase or 601 modification at an industrial facility; or 602 603 iv) Increasing or retaining current employment levels at a 604 facility. 605 606 Assessments of alternatives to proposed increases in pollutant D) loading or activities subject to Agency certification under Section 607 401 of the CWA that result in less of a load increase, no load 608 609 increase or minimal environmental degradation. Such alternatives 610 may include: 611 612 i) Additional treatment levels, including no discharge alternatives: 613 614 615 ii) Discharge of waste to alternate locations, including 616 publicly-owned treatment works and streams with greater

617				assimilative capacity; or
518				
519			iii)	Manufacturing practices that incorporate pollution
520				prevention techniques.
521				
622		E)	Any a	additional information the Agency may request.
623				
624		F)	Proof	That a copy of the application has been provided to the
525			Illino	is Department of Natural Resources.
626				
527	2)	The A	Agency	must complete an antidegradation assessment in compliance
628	,			visions of this Section on a case-by-case basis.
629			•	•
630		A)	The A	Agency must consider the criteria stated in 35 Ill. Adm. Code
631		,		05(c)(2).
632				
633		B)	The A	Agency must consider the information provided by the
634		-,		cant under subsection $(f)(1)$.
635				(-)(-)
636		C)	After	its assessment, the Agency must produce a written analysis
637		Ο)		essing the requirements of this Section and provide a decision
638				ing one of the following results:
639			y icia.	ing one of the following results.
640			i)	If the proposed activity meets the requirements of this
541			1)	Section, then the Agency must proceed with public notice
542				of the NPDES permit or CWA Section 401 certification
543				and include the written analysis as a part of the fact sheet
544				accompanying the public notice;
545				accompanying the paone notice,
646			ii)	If the proposed activity does not meet the requirements of
5 4 0 547			11)	this Section, then the Agency must provide a written
548				
549				analysis to the applicant and must be available to discuss the deficiencies that led to the disapproval. The Agency
650				
				may suggest methods to remedy the conflicts with the
651				requirements of this Section;
652			:::)	If the managed entirity does not meet the requirements of
653			iii)	If the proposed activity does not meet the requirements of
654				this Section, but some lowering of water quality is
655				allowable, then the Agency will contact the applicant with
656				the results of the review. If the reduced loading increase is
657				acceptable to the applicant, upon the receipt of an amended
658				application, the Agency will proceed to public notice; or if
659				the reduced loading increase is not acceptable to the
660				applicant, the Agency will transmit its written review to th

661		applicant in the context of an NPDES permit denial or a
662		CWA Section 401 certification denial.
563		
664	3) The A	Agency will conduct public notice and public participation through
665	the pu	ublic notice procedures found in 35 Ill. Adm. Code 309.109 or CWA
666	Section	on 401 certifications. The Agency must incorporate the following
667	inform	mation into a fact sheet accompanying the public notice:
668		
669	A)	A description of the activity, including identification of water
670	,	quality parameters for which there will be an increased pollutant
671		loading;
672		
673	B)	Identification of the affected surface water body or water body
674	,	segment, any downstream surface water body or water body
675		segment also expected to experience a lowering of water quality,
676		characterization of the designated and current uses of the affected
577		surface water body or water body segment and identification of
678		which uses are most sensitive to the proposed load increase;
679		
680	C)	A summary of any review comments and recommendations
681		provided by Illinois Department of Natural Resources, local or
682		regional planning commissions, zoning boards and any other
683		entities the Agency consults regarding the proposal;
584		
585	D)	An overview of alternatives considered by the applicant and
586		identification of any provisions or alternatives imposed to lessen
587		the load increase associated with the proposed activity; and
588		
589	E)	The name and telephone number of a contact person at the Agency
590		who can provide additional information.
591		
592	(Source: Amended a	at 46 Ill. Reg, effective)
593		
594	SUBPART B	: GENERAL USE WATER QUALITY STANDARDS
595		
596	Section 302.201 Scope and	d Applicability
597		
598		use water quality standards which must be met in waters of the State
599	for which there is no specifi	c designation (35 Ill. Adm. Code 303.201).
700		
701	(Source: Amended	at 46 Ill. Reg, effective)
702		
703	Section 302.202 Purpose	

/05	The General U	Use standards will protect the State's water for aquatic life, wildlife, agricultural
706	use, secondar	y contact use and most industrial uses and ensure the aesthetic quality of the State's
707		onment. Primary contact uses are protected for all General Use waters whose
708	•	iguration permits such use.
709	r,	2 I
710	(Source	e: Amended at 46 Ill. Reg, effective)
711	(Bouree	Timenaea at 10 m. reg, encetive
712	Section 302 2	203 Offensive Conditions
713	Section 502.2	of Officialive Conditions
714	Waters of the	State must be free from sludge or bottom deposits, floating debris, visible oil, odor,
715		growth, color or turbidity of other than natural origin. The allowed mixing
716		35 Ill. Adm. Code 302.102 must not be used to comply with the provisions of this
717	Section.	
718	(0	00 1
719	(Source	e: Amended at 46 Ill. Reg, effective)
720		
721	Section 302.2	204 pH
722		
723	pH must be w	within the range of 6.5 to 9.0 except for natural causes.
724		
725	(Source	ce: Amended at 46 Ill. Reg, effective)
726		
727	Section 302.2	205 Phosphorus
728		
729	Phosphorus:	After December 31, 1983, Phosphorus as P must not exceed 0.05 milligram per
730	liter (mg/L) in	n any reservoir or lake with a surface area of 8.1 hectares (20 acres) or more, or in
731	, - /	the point where it enters any such reservoir or lake. For this Section, the term
732	•	ake" does not include low level pools constructed in free flowing streams or any
733		which is an integral part of an operation which includes the application of sludge
734	•	at source discharges which comply with 35 Ill. Adm. Code 304.123 must be in
735		with this Section for purposes of application of 35 Ill. Adm. Code 304.105.
736	compilation	in the section for purposes of approaction of section frame code so miss.
737	(Source	e: Amended at 46 Ill. Reg, effective)
738	(Bouree	Timenaea at 10 m. reg, encetive
739	Section 302 2	206 Dissolved Oxygen
740	Section 502.2	Dissolved Oxygen
741	General use w	vaters must maintain dissolved oxygen concentrations at or above the values
742		
	contained in s	subsections (a), (b) and (c).
743	`	
744	a)	General use waters at all locations must maintain sufficient dissolved oxygen
745		concentrations to prevent offensive conditions as required in 35 Ill. Adm. Code
746		302.203. Quiescent and isolated sectors of General Use waters including
747		wetlands, sloughs, backwaters and waters below the thermocline in lakes and

748 749				sust be maintained at sufficient dissolved oxygen concentrations to r natural ecological functions and resident aquatic communities.
750 751 752 753 754	b)	conc of th	entratio ermally	ose waters identified in Appendix D, the dissolved oxygen on in the main body of all streams, in the water above the thermocline stratified lakes and reservoirs, and in the entire water column of lakes and reservoirs must not be less than the following:
755 756		1)	Duri	ng the period of March through July,
757 758			A)	5.0 mg/L at any time; and
759 760			B)	6.0 mg/L as a daily mean averaged over 7 days.
761 762		2)	Duri	ng the period of August through February,
763 764			A)	3.5 mg/L at any time;
765 766			B)	4.0 mg/L as a daily minimum averaged over 7 days; and
767 768			C)	5.5 mg/L as a daily mean averaged over 30 days.
769 770 771	c)			ed oxygen concentration in all sectors within the main body of all attified in Appendix D must not be less than:
772 773		1)	Duri	ng the period of March through July,
774 775			A)	5.0 mg/L at any time; and
776 777			B)	6.25 mg/L as a daily mean averaged over 7 days.
778 779		2)	Duri	ng the period of August through February,
780 781			A)	4.0 mg/L at any time;
782 783			B)	4.5 mg/L as a daily minimum averaged over 7 days; and
784 785			C)	6.0 mg/L as a daily mean averaged over 30 days.
786 787	d)	Asse	essing at	tainment of dissolved oxygen mean and minimum values.
788 789 790		1)		y mean is the arithmetic mean of dissolved oxygen concentrations in

792 793		2)	Daily minimum is the minimum dissolved oxygen concentration in 24 consecutive hours.
794			CONSTRUCTION OF THE STATE OF TH
795		3)	The measurements of dissolved oxygen used to determine attainment or
796		3)	lack of attainment with any of the dissolved oxygen standards in this
797			Section must assure daily minima and daily means that represent the true
798			daily minima and daily means.
799			daily illimina and daily illeans.
300		4)	The dissolved oxygen concentrations used to determine a daily mean or
301		,	daily minimum should not exceed the air-equilibrated concentration.
302			J I
303		5)	"Daily minimum averaged over 7 days" means the arithmetic mean of
304		,	daily minimum dissolved oxygen concentrations in 7 consecutive 24-hour
305			periods.
306			
307		6)	"Daily mean averaged over 7 days" means the arithmetic mean of daily
808		,	mean dissolved oxygen concentrations in 7 consecutive 24-hour periods.
309			
310		7)	"Daily mean averaged over 30 days" means the arithmetic mean of daily
311			mean dissolved oxygen concentrations in 30 consecutive 24-hour periods.
312			
313	(Source	e: Am	ended at 46 Ill. Reg, effective)
314			
315	Section 302.2	207 Ra	dioactivity
316	`		1100 1 1100 11 (G'/T)
317	a)	Gross	beta concentration must not exceed 100 picocuries per liter (pCi/L).
318	1.)	C44	: 00
319	b)	Stront	ium 90 concentration must not exceed 2 pCi/L.
320	-)	T1	1
321	c)		nnual average radium 226 and 228 combined concentration must not exceed
322		3.75 p	CI/L.
323 324	(Source)	A .m	and at 46 III Pag affective
32 4 325	(Sourc	e. Am	ended at 46 Ill. Reg, effective)
323 326	Section 302 2	ng N.	meric Standards for Chemical Constituents
320	Section 302.2	400 Mu	meric Standards for Chemical Constituents
327	a)	The ac	cute standard (AS) for the chemical constituents listed in subsection (e) mus
329	a)		exceeded at any time except for those waters for which a zone of initial
330			on (ZID) has been approved by the Agency under 35 Ill. Adm. Code
331		302.10	· · · · · · · · · · · · · · · · · · ·
332		302.1	<i>52.</i>
333	b)	The cl	pronic standard (CS) for the chemical constituents listed in subsection (e)
334	-)		not be exceeded by the arithmetic average of at least four consecutive
335			es collected over any period of at least four days, except for those waters in
		1	

which the Agency has approved a mixing zone or in which mixing is allowed under 35 Ill. Adm. Code 302.102. The samples used to demonstrate attainment or lack of attainment with a CS must be collected in a manner that assures an average representative of the sampling period. For the chemical constituents that have water quality based standards dependent upon hardness, the chronic water quality standard will be calculated according to subsection (e) using the hardness of the water body at the time the sample was collected. To calculate attainment status of chronic-standards, the concentration of the chemical constituent in each sample is divided by the calculated water quality standard for the sample to determine a quotient. The water quality standard is attained if the mean of the sample quotients is less than or equal to one for the duration of the averaging period.

- c) The human health standard (HHS) for the chemical constituents listed in subsection (f) must not be exceeded when the stream flow is at or above the harmonic mean flow under 35 Ill. Adm. Code 302.658 nor must an annual average, based on at least eight samples, collected in a manner representative of the sampling period, exceed the HHS except for those waters in which the Agency has approved a mixing zone or in which mixing is allowed under 35 Ill. Adm. Code 302.102.
- d) The standard for the chemical constituents of subsections (g) and (h) must not be exceeded at any time except for those waters in which the Agency has approved a mixing zone or in which mixing is allowed under 35 Ill. Adm. Code 302.102.
- e) Numeric Water Quality Standards for the Protection of Aquatic Organisms

Constituent	AS (µg/L)	CS (µg/L)
Arsenic (trivalent, dissolved)	$360 \times 1.0 = 360$	190 × 1.0* = 190
Boron (total)	40,100	7,600
Cadmium (dissolved)	$e^{A+B\ln(H)} \times $	$e^{A+B\ln(H)} \times \left\{ \frac{1.101672 - \left[(\ln(H))(0.041838) \right]}{\left[(\ln(H))(0.041838) \right]} \right\} *$
	where $A = -2.918$ and $B = 1.128$	where $A = -3.490$ and $B = 0.7852$

JCAR350302-2207052r01

Chromium (hexavalent, total)	16	11
Chromium	$e^{A+B\ln(H)}\times 0.316*$	$e^{A+B\ln(H)}\times 0.860*$
(trivalent, dissolved)	where $A = 3.688$ and $B = 0.8190$	where $A = 1.561$ and $B = 0.8190$
Copper (dissolved)	$e^{A+B\ln(H)}\times 0.960*$	$e^{A+B\ln(H)} \times 0.960$ *
(dissolved)	where $A = -1.464$ and $B = 0.9422$	where $A = -1.465$ and $B = 0.8545$
Cyanide**	22	5.2
Fluoride (total)	$e^{A+B\ln(H)}$	$e^{A+B\ln(H)}$, but must not
	where $A = 6.7319$ and $B = 0.5394$	exceed 4.0 mg/L where $A = 6.0445$ and $B = 0.5394$
Lead (dissolved)	$e^{A+B\ln(H)}$ ×	$e^{A+B\ln(H)} \times$
(dissolved)	$ \left\{ \frac{1.46203 - \left[(\ln(H))(0.145712) \right]}{\left[(\ln(H))(0.145712) \right]} \right\} * $	$\begin{cases} 1.46203 - \\ (1n(H))(0.145712) \end{cases} *$
	where $A = -1.301$ and $B = 1.273$	where $A = -2.863$ and $B = 1.273$
Manganese (dissolved)	$e^{A+B\ln(H)}\times 0.9812*$	$e^{A+B\ln(H)}\times 0.9812*$
	where $A = 4.9187$ and $B = 0.7467$	where $A = 4.0635$ and $B = 0.7467$
Mercury (dissolved)	2.6×0.85 * = 2.2	1.3×0.85 * = 1.1
Nickel (dissolved)	$e^{A+B\ln(H)} \times 0.998$ *	$e^{A+B\ln(H)} \times 0.997$ *
	where $A = 0.5173$ and $B = 0.8460$	where $A = -2.286$ and $B = 0.8460$

JCAR350302-2207052r01

TRC	19	11	
Zinc (dissolved)	$e^{A+B\ln(H)}\times 0.978*$	$e^{A+B\ln(H)}\times 0.986*$	
	where $A = 0.9035$ and $B = 0.8473$	where $A = -0.4456$ and $B = 0.8473$	
Benzene	4200	860	
Ethylbenzene	150	14	
Toluene	2000	600	
Xylene(s)	920	360	
ln(H) = natural l * = conversi ** = standard followin by refere Method Flow Inj Ampero EPA-82	natural logarithms raised to ogarithm of Hardness (in on factor multiplier for dicto be evaluated using eitling USEPA approved methence at 35 Ill. Adm. Code OIA-1677, DW: Available ection, Ligand Exchange, metry, January 2004, Doc 1-R-04-001 or Cyanide Aution, Standard Methods 4 (5.3)	mg/L as CaCO ₃) ssolved metals her of the ods, incorporated 301.106: le Cyanide by , and cument Number menable to 500-CN-G (40	
Constituent	$(\mu g/L)$		
Mercury (total)	0.012		
Benzene	310		
where: $\mu g/L = microgr$	ams per liter		
Single-value standards apply at the following concentrations for these substances:			

f)

g)

1st Notice

JCAR350302-2207052r01

Constituent	Unit	Standard
Barium (total)	mg/L	5.0
Chloride (total)	mg/L	500
Iron (dissolved)	mg/L	1.0
Phenols	mg/L	0.1
Selenium (total)	mg/L	1.0
Silver (total)	$\mu g/L$	5.0

871

where:

mg/L = milligram per liter and $\mu g/L = microgram per liter$

872 873

h) Water quality standards for sulfate are as follows:

874 875

876

877

At any point where water is withdrawn or accessed for purposes of 1) livestock watering, the average of sulfate concentrations must not exceed 2,000 mg/L when measured at a representative frequency over a 30 day period.

878 879 880

2) The results of the following equations provide sulfate water quality standards in mg/L for the specified ranges of hardness (in mg/L as CaCO₃) and chloride (in mg/L) and must be met at all times:

882 883 884

885

886

881

A) If the hardness concentration of receiving waters is greater than or equal to 100 mg/L but less than or equal to 500 mg/L, and if the chloride concentration of waters is greater than or equal to 25 mg/L but less than or equal to 500 mg/L, then:

887 888 889

$$C = [1276.7 + 5.508 \text{ (hardness)} - 1.457 \text{ (chloride)}] * 0.65$$

890 891

where:

893 894

892

C = sulfate concentration

895

B) If the hardness concentration of waters is greater than or equal to 100 mg/L but less than or equal to 500 mg/L, and if the chloride concentration of waters is greater than or equal to 5 mg/L but less than 25 mg/L, then:

899 900 C = [-57.478 + 5.79 (hardness) + 54.163 (chloride)] * 0.65901 902 where: 903 904 C = sulfate concentration905 906 3) The following sulfate standards must be met at all times when hardness (in 907 mg/L as CaCO₃) and chloride (in mg/L) concentrations other than specified in (h)(2) are present: 908 909 910 A) If the hardness concentration of waters is less than 100 mg/L or 911 chloride concentration of waters is less than 5 mg/L, the sulfate 912 standard is 500 mg/L. 913 914 B) If the hardness concentration of waters is greater than 500 mg/L 915 and the chloride concentration of waters is 5 mg/L or greater, the 916 sulfate standard is 2,000 mg/L. 917 918 C) If the combination of hardness and chloride concentrations of 919 existing waters are not reflected in subsection (h)(3)(A) or (B), the sulfate standard may be determined in a site-specific rulemaking 920 921 under section 303(c) of the Federal Water Pollution Control Act of 922 1972 (Clean Water Act), 33 U.S.C. 1313, and Federal Regulations 923 at 40 CFR 131.10(j)(2). 924 (Source: Amended at 46 Ill. Reg. _____, effective _____) 925 926 927 Section 302.209 Fecal Coliform 928 929 During the months May through October, based on a minimum of five samples a) 930 taken over not more than a 30 day period, fecal coliform must not exceed a 931 geometric mean of 200 per 100 milliliter (ml), nor must more than 10% of the 932 samples during any 30 day period exceed 400 per 100 ml in protected waters. 933 Protected waters are defined as waters which, due to natural characteristics, 934 aesthetic value or environmental significance are deserving of protection from 935 pathogenic organisms. Protected waters will meet one or both of the following 936 conditions: 937 938 1) presently support or have the physical characteristics to support primary 939 contact; 940 941 2) flow through or adjacent to parks or residential areas. 942

JCAR350302-2207052r01

943 944	b)	or geographic configuration and are located in areas unlikely to be frequented by
945		the public on a routine basis as determined by the Agency at 35 Ill. Adm. Code
946		309. Subpart A, are exempt from this standard.
947		1 / 1
948 949	c)	The Agency must apply this rule as required by 35 Ill. Adm. Code 304.121.
950	(Sour	ce: Amended at 46 Ill. Reg, effective)
951	(Sour	cc. Amended at 40 m. Reg, enective
952	Section 302.	210 Other Toxic Substances
953	XX . C.1	
954		e State must be free from any substances or combination of substances in
955		ns toxic or harmful to human health, or to animal, plant or aquatic life. Individual
956		stances or parameters for which numeric standards are specified in this Subpart are
957	not subject to	o this Section.
958	-)	Any substance on combination of substances must be desired to be touch an
959	a)	Any substance or combination of substances must be deemed to be toxic or
960		harmful to aquatic life if present in concentrations that exceed the following:
961 962		1) An Acute Aquatic Toxicity Criterion (AATC) validly derived and
963		correctly applied under procedures in 35 Ill. Adm. Code 302.612 through
964		302.618 or in 35 Ill. Adm. Code 302.621; or
965		302.018 of hi 33 hi. Adin. Code 302.021, of
966		2) A Chronic Aquatic Toxicity Criterion (CATC) validly derived and
967		correctly applied under procedures in 35 Ill. Adm. Code 302.627 or
968		302.630.
969		302.030.
970	b)	Any substance or combination of substances must be deemed to be toxic or
971	9)	harmful to wild or domestic animal life if present in concentrations that exceed
972		any Wild and Domestic Animal Protection Criterion (WDAPC) validly derived
973		and correctly applied under 35 Ill. Adm. Code 302.633.
974		
975	c)	Any substance or combination of substances must be deemed to be toxic or
976	,	harmful to human health if present in concentrations that exceed criteria, validly
977		derived and correctly applied, based on either of the following:
978		
979		1) Disease or functional impairment due to a physiological mechanism for
980		which there is a threshold dose below which no damage occurs calculated
981		under 35 Ill. Adm. Code 302.642 through 302.648 (Human Threshold
982		Criterion); or
983		
984		2) Disease or functional impairment due to a physiological mechanism for
985		which any dose may cause some risk of damage calculated under 35 Ill.
986		Adm. Code 302.651 through 302.658 (Human Nonthreshold Criterion).

- d) The most stringent criterion of subsections (a), (b), and (c) applies at all points outside of any waters within which, mixing is allowed under 35 Ill. Adm. Code 302.102. In addition, the AATC derived under subsection (a)(1) applies in all waters except that it must not apply within a ZID that is prescribed in compliance with 35 Ill. Adm. Code 302.102.
- e) The procedures of Subpart F set forth minimum data requirements, appropriate test protocols and data assessment methods for establishing criteria under subsections (a), (b), and (c). No other procedures may be used to establish such criteria unless approved by the Board in a rulemaking or adjusted standards proceeding under Title VII of the Act. The validity and applicability of the Subpart F procedures may not be challenged in any proceeding brought under Titles VIII or X of the Act, although the validity and correctness of application of the numeric criteria derived under Subpart F may be challenged in such proceedings under subsection (f).
- f) Challenges to application of criteria
 - A permittee may challenge the validity and correctness of application of a criterion derived by the Agency under this Section only at the time such criterion is first applied in an NPDES permit under 35 Ill. Adm. Code 309.152 or in an action under Title VIII of the Act for violation of the toxicity water quality standard. Failure of a person to challenge the validity of a criterion at the time of its first application will constitute a waiver of such challenge in any subsequent proceeding involving application of the criterion to that person.
 - 2) Consistent with subsection (f)(1), if a criterion is included as, or is used to derive, a condition of an NPDES discharge permit, a permittee may challenge the criterion in a permit appeal under Section 40 of the Act and 35 Ill. Adm. Code 309.181.
 - 3) Consistent with subsection (f)(1), in an action where alleged violation of the toxicity water quality standard is based on alleged excursion of a criterion, the person bringing such action will have the burdens of going forward with proof and of persuasion regarding the general validity and correctness of application of the criterion.
- g) Subsections (a) through (e) do not apply to USEPA registered pesticides approved for aquatic application and applied under the following conditions:
 - 1) Application must be made in strict compliance with label directions;

1st Notice

JCAR350302-2207052r01

1031 2) Applicator must be properly certified under the provisions of the Federal 1032 Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq. (1972)); 1033 1034 3) Applications of aquatic pesticides must be in compliance with the laws, 1035 regulations and guidelines of all state and federal agencies authorized by law to regulate, use or supervise pesticide applications. 1036 1037 1038 4) Aquatic pesticide must not be applied to waters affecting public or food 1039 processing water supplies unless a permit to apply the pesticide has been 1040 obtained from the Agency. All permits must be issued so as not to cause a 1041 violation of the Act or of any of the Board's rules or regulations. To aid 1042 applicators in determining their responsibilities under this subsection, a list of waters affecting public water supplies will be published and maintained 1043 1044 by the Agency's Division of Public Water Supplies. 1045 (Source: Amended at 46 Ill. Reg. _____, effective _____) 1046 1047 1048 **Section 302.211 Temperature** 1049 1050 There must not be abnormal temperature changes that may adversely affect a) 1051 aquatic life unless caused by natural conditions. 1052 1053 b) The normal daily and seasonal temperature fluctuations which existed before the addition of heat due to other than natural causes must be maintained. 1054 1055 1056 c) The maximum temperature rise above natural temperatures must not exceed 2.8 1057 °C (5 °F).

d) In addition, the water temperature at representative locations in the main river must not exceed the maximum limits in the following table during more than one percent of the hours in the 12-month period ending with any month. Moreover, the water temperature at such locations must never exceed the maximum limits in the following table by more than 1.7 °C (3 °F).

	°C	°F		°C	°F	
JAN	16	60	JUL.	32	90	
FEB.	16	60	AUG.	32	90	
MAR.	16	60	SEPT.	32	90	
APR.	32	90	OCT.	32	90	
MAY	32	90	NOV.	32	90	
JUNE	32	90	DEC.	16	60	

1066

1058 1059

1060

1061

1062 1063

1064

1065

e) The owner or operator of a source of heated effluent which discharges 150

1067 megawatts (0.5 billion British thermal units per hour) or more must demonstrate 1068 in a hearing before the Board in the case of new sources, after the commencement 1069 of operation, that discharges from that source have not caused and cannot be 1070 reasonably expected to cause significant ecological damage to the receiving 1071 waters. If the demonstration is not made to the satisfaction of the Board, the 1072 Board must order appropriate corrective measures to be implemented within a reasonable time as determined by the Board. 1073 1074 1075 f) Permits for heated effluent discharges, whether issued by the Board or the Illinois 1076 Environmental Protection Agency (Agency), can be revised if reasonable future 1077 development creates a need for reallocation of the assimilative capacity of the 1078 receiving stream as defined in the regulation above. 1079 1080 The owner or operator of a source of heated effluent must maintain records and g) 1081 conduct studies of the effluents from the sources and of their effects as may be 1082 required by the Agency or in any permit granted under the Act. 1083 1084 h) Appropriate corrective measures will be required if, upon complaint filed in 1085 compliance with Board rules, it is found at any time that any heated effluent 1086 causes significant ecological damage to the receiving stream. 1087 1088 i) All effluents to an artificial cooling lake must comply with the applicable 1089 provisions of the thermal water quality standards in this Section and 35 Ill. Adm. 1090 Code 303, except when all of the following requirements are met: 1091 All discharges from the artificial cooling lake to other waters of the State 1092 1) 1093 comply with the applicable provisions of subsections (a) through (d). 1094 1095 2) The heated effluent discharged to the artificial cooling lake complies with 1096 all other applicable provisions of this Chapter, except subsections (a) 1097 through (d). 1098 1099 3) At an adjudicative hearing the discharger must satisfactorily demonstrate 1100 to the Board that the artificial cooling lake receiving the heated effluent 1101 will be environmentally acceptable, and within the intent of the Act, 1102 including: 1103 1104 A) providing conditions capable of supporting shellfish, fish and 1105 wildlife, and recreational uses consistent with good management 1106 practices, and 1107 1108 controlling the thermal component of the discharger's effluent by a B) 1109 technologically feasible and economically reasonable method.

JCAR350302-2207052r01

1111 1112 1113	4)	accept	quired demonstration in subsection (j)(3) may take the form of an able final environmental impact statement or pertinent provisions of nmental assessments used in the preparation of the final
1114			nmental impact statement, or may take the form of a demonstration
1115			Section 316(a) of the Clean Water Act (CWA)(33 U.S.C. 1251 et
1116			which addresses the requirements of subsection (j)(3).
1117		1 //	1 4/(-)
1118	5)	If the I	Board finds the demonstration to be adequate as provided in
1119	- /		tion (i)(3), the Board must promulgate specific thermal standards to
1120			lied to the discharge to that artificial cooling Lake.
1121		11	
1122	(Source: Ame	nded at	t 46 Ill. Reg, effective)
1123			
1124	Section 302.212 Total	al Amn	nonia Nitrogen
1125			6
1126	a) Total a	mmoni	a nitrogen must in no case exceed 15 mg/L.
1127	,		
1128	b) The tot	al amm	nonia nitrogen acute, chronic, and sub-chronic standards are
1129			the equations given in subsections (b)(1) and (b)(2). Attainment of
1130		-	must be determined by subsections (c) and (d) in mg/L.
1131			, , , , ,
1132	1)	The ac	eute standard (AS) is calculated using the following equation:
1133	,		· /
		AS	$= \frac{0.411}{1 + 10^{7.204 - pH}} + \frac{58.4}{1 + 10^{pH-7.204}}$
1134			
1135	2)	The ch	aronic standard (CS) is calculated using the following equations:
1136			
1137		A)	During the Early Life Stage Present period, as defined in
1138			subsection (e):
1139			N. W
1140			i) When water temperature is less than or equal to 14.51 °C:
1141			$CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right\} (2.85)$
1142			
1143			ii) When water temperature is above 14.51 °C:
1144			
			$CS = \left\{ \frac{0.0577}{1 + 10^{7.688 \text{-pH}}} + \frac{2.487}{1 + 10^{\text{pH-7.688}}} \right\} (1.45*10^{0.028*(25-T)})$
1145			
1146			Where $T = Water Temperature$, degrees Celsius
1147			
1148		B)	During the Early Life Stage Absent period, as defined in

JCAR350302-2207052r01

1149		subsection (e):
1150		
1151		i) When water temperature is less than or equal to 7 °C:
1152		
		$CS = \left\{ \frac{0.0577}{1 + 10^{7.688 \text{-pH}}} + \frac{2.487}{1 + 10^{\text{pH-7.688}}} \right\} (1.45*10^{0.504})$
1153		
1154		ii) When water temperature is greater than 7 °C:
1155		
1156		$CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH-7.688}}} \right\} (1.45 * 10^{0.028 * (25 - T)})$
1156		**** *** * * * * * * * * * * * *
1157		Where $T = Water Temperature$, degrees Celsius
1158		
1159		3) The sub-chronic standard is equal to 2.5 times the chronic standard.
1160		
1161	c)	Attainment of the Total Ammonia Nitrogen Water Quality Standards
1162		
1163		1) The acute standard of total ammonia nitrogen (in mg/L) must not be
1164		exceeded at any time except in those waters for which the Agency has
1165		approved a ZID under 35 Ill. Adm. Code 302.102.
1166		
1167		2) The 30-day average concentration of total ammonia nitrogen (in mg/L
1168		must not exceed the chronic standard (CS) except in those waters in which
1169		mixing is allowed under 35 Ill. Adm. Code 302.102. Attainment of the
1170		chronic standard (CS) is evaluated under subsection (d) by averaging at
1171		least four samples collected at weekly intervals or at other sampling
1172		intervals that statistically represent a 30-day sampling period. The
1173		samples must be collected in a manner that assures a representative
1174		sampling period.
1175		
1176		3) The 4-day average concentration of total ammonia nitrogen (in mg/L)
1177		must not exceed the sub-chronic standard except in those waters in which
1178		mixing is allowed under 35 Ill. Adm. Code 302.102. Attainment of the
1179		sub-chronic standard is evaluated pursuant to subsection (d) by averaging
1180		daily sample results collected over a period of four consecutive days
1181		within the 30-day averaging period. The samples must be collected in a
1182		manner that assures a representative sampling period.
1183		
1184	d)	The water quality standard for each water body must be calculated based on the
1185	,	temperature and pH of the water body measured at the time of each ammonia
1186		sample. The concentration of total ammonia in each sample must be divided by
1187		the calculated water quality standard for the sample to determine a quotient. The
1188		water quality standard is attained if the mean of the sample quotients is less than

1189	or equal to one for the duration of the averaging period.
1190	
1191	e) The Early Life Stage Present period occurs from March through October. In
1192	addition, during any other period when early life stages are present, and where the
1193	water quality standard does not provide adequate protection for these organisms,
1194	the water body must meet the Early Life Stage Present water quality standard. All
1195	other periods are subject to the Early Life Stage Absent period.
1196	DOADD NOTE: A second of the se
1197	BOARD NOTE: Acute and chronic standard concentrations for total ammonia nitrogen
1198	(in mg/L) for different combinations of pH and temperature are shown in Appendix C.
1199	
1200	(Source: Amended at 46 Ill. Reg, effective)
1201	CLIDBART C. DUDLIC AND FOOD BROCECODIC WATER CLIDBLY CTANDARDS
1202	SUBPART C: PUBLIC AND FOOD PROCESSING WATER SUPPLY STANDARDS
1203	C / 202 201 C 1 A P 1 P 1
1204	Section 302.301 Scope and Applicability
1205	
1206	Subpart C contains the public and food processing water supply standards. These are cumulative
1207	with the general use standards of Subpart B and must be met in all waters designated in Part 303
1208	at any point at which water is withdrawn for treatment and distribution as a potable supply or for
1209	food processing. Waters of the State are generally designated for public and food processing use
1210	(35 Ill. Adm. Code 303.202).
1211	(Correct Amondal at 46 III Day officialize
1212	(Source: Amended at 46 Ill. Reg, effective)
1213	Section 202 202 Algicide Downite
1214 1215	Section 302.302 Algicide Permits
1213	The water quality standards of Subparts B and C may be exceeded if the occurrence results from
1217	applying an algicide under an algicide permit issued by the Agency under 35 Ill. Adm. Code 602.
1217	(Source: Amended at 46 Ill. Reg, effective)
1219	(Source: Amended at 40 m. Reg, effective)
1219	Section 302.303 Finished Water Standards
1221	Section 302.303 Philished Water Standards
1222	Water must be of such quality that with treatment consisting of coagulation, sedimentation,
1223	filtration, storage and chlorination, or other equivalent treatment processes, the treated water
1224	meets all requirements of 35 Ill. Adm. Code 611.
1225	meets an requirements of 35 m. ram. Code 611.
1226	(Source: Amended at 46 Ill. Reg, effective)
1227	(Source: Amended at 10 m. Reg, effective)
1228	Section 302.304 Chemical Constituents
1229	STATE OF THE STATE
1230	The following levels of chemical constituents must not be exceeded:
1231	6 · · ·
	CONCENTRATION

CONSTITUENT	(mg/L)
A	0.05
Arsenic (total)	0.05
Barium (total)	1.0
Boron (total)	1.0
Cadmium (total)	0.010
Chloride (total)	250
Chromium	0.05
Fluoride (total)	1.4
Iron (dissolved)	0.3
Lead (total)	0.05
Manganese (total)	1.0
Nitrate-Nitrogen	10
Oil (hexane-solubles	0.1
or equivalent)	
Organics	
Pesticides	
Chlorinated Hydro-	
carbon Insecticides	
Aldrin	0.001
Chlordane	0.003
DDT	0.05
Dieldrin	0.001
Endrin	0.0002
Heptachlor	0.0001
Heptachlor Expoxide	0.0001
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.0005
Organophosphate	
Insecticides	
Parathion	0.1
Chlorophenoxy Herbicides	VVI
2,4-Dichlorophenoxy-	
acetic acid (2,4-D)	0.1
2-(2,4,5-Trichloro-	011
phenoxy)-propionic	
acid (2,4,5-TP	
or Silvex)	0.01
Phenols	0.001
Selenuim (total)	0.001
Sulphates	250
Total Dissolved Solids	500
Total Dissolved Solids	300

233	(Sour	rce: Amended at 46 Ill. Reg, effective)
234	G 202	
235 236	Section 302.	305 Other Contaminants
237	Other center	ainants which will not be adequately reduced by the treatment processes in 25 III
		ninants which will not be adequately reduced by the treatment processes in 35 III.
238	Aum. Code S	302.303 must not be present in concentrations hazardous to human health.
239 240	(Sour	rce: Amended at 46 Ill. Reg, effective)
241	(Sour	cc. Amended at 40 m. Reg, encetive
242	Section 302	306 Fecal Coliform
243	Section 502.	ovo i cem comorni
244	Notwithstand	ling the provisions of 35 Ill. Adm. Code 302.209, at no time shall the geometric
245		on five samples taken over not more than a 30 day period, of fecal coliform
246	exceed 2000	· · · · · · · · · · · · · · · · · · ·
247		1
248	(Sour	rce: Amended at 46 Ill. Reg, effective)
249		S
250	Section 302.	307 Radium 226 and 228
251		
252	Radium 226	and 228 combined concentration must not exceed 5 picocuries per liter (pCi/L) at
253	any time.	
254		
255	(Sour	rce: Amended at 46 Ill. Reg, effective)
256		
257		SUBPART D: CHICAGO AREA WATERWAY SYSTEM
258	AND	LOWER DES PLAINES RIVER WATER QUALITY STANDARDS AND
259		INDIGENOUS AQUATIC LIFE STANDARDS
260	G 202	404 G
261	Section 302.	401 Scope and Applicability
262	,	
263	a)	Subpart D contains the standards that must be met only by the South Fork of the
264 265		South Branch of the Chicago River (Bubbly Creek). The Subpart B general use
266		and Subpart C public and food processing water supply standards do not apply to Bubbly Creek.
267		Buooly Cleek.
268	b)	Subpart D also contains the Chicago Area Waterway System and Lower Des
269	0)	Plaines River water quality standards. Except for the Chicago River, these
270		standards must be met only by waters specifically designated in 35 Ill. Adm. Code
271		303. The Subpart B general use and Subpart C public and food processing water
272		supply standards of this Part do not apply to waters described in 35 Ill. Adm.
273		Code 303.204 as the Chicago Area Waterway System or Lower Des Plaines River
274		and listed in 35 Ill. Adm. Code 303.220 through 303.240, except that waters
275		designated as Primary Contact Recreation Waters in 35 Ill. Adm. Code 303.220
276		must meet the numeric water quality standard for bacteria applicable to protected

1277	waters in 35 Ill. Adm. Code 302.209. The Chicago River must meet the general
1278	use standards, including the numeric water quality standard for fecal coliform
1279	bacteria applicable to protected waters in 35 Ill. Adm. Code 302.209.
1280	
1281	(Source: Amended at 46 Ill. Reg, effective)
1282	
1283	Section 302.402 Purpose
1284	The second of th
1285	The Chicago Area Waterway System and Lower Des Plaines River standards protect primary
1286	contact, incidental contact or non-contact recreational uses (except when designated as non-
1287	recreational waters); commercial activity, including navigation and industrial water supply uses;
1288	and the highest quality aquatic life and wildlife that is attainable, limited only by the physical
1289	condition of these waters and hydrologic modifications to these waters. The numeric and
1290	narrative standards in this Part will assure the protection of the aquatic life, wildlife, human
1291	health, and recreational uses of the Chicago Area Waterway System and Lower Des Plaines
1292	River as those uses are defined in 35 Ill. Adm. Code 301 and designated in 35 Ill. Adm. Code
1293	303. Indigenous aquatic life standards are intended for the South Fork of the South Branch of the
1294	Chicago River (Bubbly Creek), which is capable of supporting an indigenous aquatic life limited
1295	only by the physical configuration of the body of water, characteristics and origin of the water
1296	and the presence of contaminants in amounts that do not exceed the water quality standards listed
1297	in this Subpart D. However, the Chicago River is required to meet the general use standard,
1298	including the water quality standard for fecal coliform bacteria applicable to protected waters in
1299	35 Ill. Adm. Code 302.209.
1300	
1301	(Source: Amended at 46 Ill. Reg, effective)
1302	(= = =================================
1303	Section 302.403 Unnatural Sludge
1304	
1305	Waters subject to this subpart must be free from unnatural sludge or bottom deposits, floating
1306	debris, visible oil, odor, unnatural plant or algal growth, or unnatural color or turbidity.
1307	
1308	(Source: Amended at 46 Ill. Reg, effective)
1309	
1310	Section 302.404 pH
1311	
1312	pH must be within the range of 6.5 to 9.0 except for natural causes, except for the South Fork of
1313	the South Branch of the Chicago River (Bubbly Creek) for which pH must be within the range of
1314	6.0 to 9.0 except for natural causes.
1315	1
1316	(Source: Amended at 46 Ill. Reg, effective)
1317	·
1318	Section 302.405 Dissolved Oxygen
1319	
1320	Dissolved oxygen concentrations must not be less than the applicable values in subsections (a),

1321	(b), (c), and (d).	
1322	-)	Eartha Carr	th Fouls of the Court Dunch of the Chicago Divisi (Duhhler Court)
1323 1324	a)		th Fork of the South Branch of the Chicago River (Bubbly Creek), kygen concentrations must not be less than 4.0 mg/L at any time.
1325 1326	b)	For the Unn	er Dresden Island Pool Aquatic Life Use waters listed in 35 Ill. Adm
1327	0)	Code 303.23	<u> </u>
1328		Code 303.2.	50.
1329		1) durii	ng the period of March through July:
1330		,	
1331		A)	6.0 mg/L as a daily mean averaged over 7 days; and
1332		,	
1333		B)	5.0 mg/L at any time; and
1334			
1335		2) durii	ng the period of August through February:
1336			5.5 7 1.11
1337		A)	5.5 mg/L as a daily mean averaged over 30 days;
1338		D)	4.0 /T 1.1 · · · 1 / 7.1 · 1
1339		B)	4.0 mg/L as a daily minimum averaged over 7 days; and
1340 1341		C)	2.5 mg/L at any time
1341		C)	3.5 mg/L at any time.
1342	c)	For the Chic	cago Area Waterway System Aquatic Life Use A waters listed in 35
1344	C)		ode 303.235:
1345		III. Adili. Co	de 505.255.
1346		1) durii	ng the period of March through July, 5.0 mg/L at any time; and
1347		i) duiii	is the period of Maren through vary, 5.0 mg L at any time, and
1348		2) durii	ng the period of August through February:
1349		,	
1350		A)	4.0 mg/L as a daily minimum averaged over 7 days; and
1351		,	
1352		B)	3.5 mg/L at any time.
1353			-
1354	d)	For the Chic	cago Area Waterway System and Brandon Pool Aquatic Life Use B
1355		waters listed	l in 35 Ill. Adm. Code 303.240:
1356			
1357		1) 4.0 r	ng/L as a daily minimum averaged over 7 days; and
1358			
1359		2) 3.5 r	mg/L at any time.
1360			
1361	e)	Assessing a	ttainment of dissolved oxygen mean and minimum values.
1362			
1363			y mean is the arithmetic mean of dissolved oxygen concentrations in
1364		24 c	onsecutive hours.

1365			
1366		2)	Daily minimum is the minimum dissolved oxygen concentration in 24
1367		,	consecutive hours.
1368			
1369		3)	The measurements of dissolved oxygen used to determine attainment or
1370		,	lack of attainment with any of the dissolved oxygen standards in this
1371			Section must assure daily minima and daily means that represent the true
1372			daily minima and daily means.
1373			
1374		4)	The dissolved oxygen concentrations used to determine a daily mean or
1375			daily minimum should not exceed the air-equilibrated concentration.
1376			
1377		5)	"Daily minimum averaged over 7 days" means the arithmetic mean of
1378			daily minimum dissolved oxygen concentrations in 7 consecutive 24-hour
1379			periods.
1380			
1381		6)	"Daily mean averaged over 7 days" means the arithmetic mean of daily
1382			mean dissolved oxygen concentrations in 7 consecutive 24-hour periods.
1383			
1384		7)	"Daily mean averaged over 30 days" means the arithmetic mean of daily
1385			mean dissolved oxygen concentrations in 30 consecutive 24-hour periods.
1386			
1387	(Sour	ce: Am	ended at 46 Ill. Reg, effective)
1388	~		
1389	Section 302.4	107 Ch	emical Constituents
1390	,	TTI.	
1391	a)		cute standard (AS) for the chemical constituents listed in subsection (e) must
1392		not be	exceeded at any time except as provided in subsection (d).
1393	1.)	The al	enonic standard (CS) for the shamical constituents listed in subsection (a)
1394 1395	b)		nronic standard (CS) for the chemical constituents listed in subsection (e)
1393			not be exceeded by the arithmetic average of at least four consecutive
1390		-	es collected over any period of four days, except as provided in subsection
1397			The samples used to demonstrate attainment or lack of attainment with a CS be collected in a manner that assures an average representative of the
1399			ing period. For the chemical constituents that have water quality based
1400		-	ards dependent upon hardness, the chronic water quality standard will be
TUU		standa	ras acpendent apon naturess, the emonie water quarity standard will be

calculated according to subsection (e) using the hardness of the water body at the

standards, the concentration of the chemical constituent in each sample is divided by the calculated water quality standard for the sample to determine a quotient.

The water quality standard is attained if the mean of the sample quotients is less

time the sample was collected. To calculate attainment status of chronic

than or equal to one for the duration of the averaging period.

1401

1402

1403

1404 1405

1406

1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1 4 1 0
1418
1418 1419
1419
1419 1420
1419 1420 1421
1419 1420 1421 1422
1419 1420 1421 1422 1423
1419 1420 1421 1422 1423 1424

- c) The human health standard (HHS) for the chemical constituents listed in subsection (f) must not be exceeded, on a 12-month rolling average based on at least eight samples, collected in a manner representative of the sampling period, except as provided in subsection (d).
- d) In waters where mixing is allowed under 35 Ill. Adm. Code 302.102, the following apply:
 - 1) The AS must not be exceeded in any waters except for those waters for which a zone of initial dilution (ZID) applies under 35 Ill. Adm. Code 302.102.
 - 2) The CS must not be exceeded outside of waters in which mixing is allowed under 35 Ill. Adm. Code 302.102.
 - 3) The HHS must not be exceeded outside of waters in which mixing is allowed under 35 Ill. Adm. Code 302.102.
- e) Numeric Water Quality Standards for the Protection of Aquatic Organisms

	AS	CS	
Constituent	(µg/L)	(μg/L)	
Arsenic	340 X 1.0*=340	150 X 1.0*=150	
(trivalent, dissolved)			
Benzene	4200	860	
Cadmium	$e^{A+B \ln(H)} X \{1.138672-$	$e^{A+B \ln(H)} X \{1.101672-$	
(dissolved)	[(ln(H))(0.041838)]*,	[(ln(H))(0.041838)]}*,	
	where A=-2.918 and	where $A = -3.490$ and	
	B=1.128	B=0.7852	
Chromium	16	11	
(hexavalent, total)			
Chromium (trivalent,	$e^{A+B \ln(H)} X 0.316*,$	$e^{A+B \ln(H)} X 0.860*,$	
dissolved)	where A=3.7256 and	where A=0.6848 and	
	B=0.8190	B=0.8190	
Copper	$e^{A+B \ln(H)} X 0.960*,$	$e^{A+B \ln(H)} X 0.960*,$	
(dissolved)	where A=-1.645 and	where A=-1.646 and	
	B=0.9422	B=0.8545	
Cyanide**	22	10	
Ethylbenzene	150	14	
Fluoride (total)	$e^{A+B \ln(H)}$,	$e^{A+B \ln(H)}$, but must not	
	where A=6.7319	exceed 4.0 mg/L,	
	and B=0.5394	where $A=6.0445$ and	
		B=0.5394	

Lead	$e^{A+B \ln(H)} X \{1.46203-$	$e^{A+B \ln(H)} X \{1.46203-$	
(dissolved)	[(ln(H))(0.145712)]*,	$[(\ln(H))(0.145712)]$ *,	
	where A=-1.301 and	where A=-2.863 and	
	B=1.273	B=1.273	
Manganese	$e^{A+B \ln(H)} \times 0.9812*,$	$e^{A+B \ln(H)} X 0.9812*,$	
(dissolved)	where <i>A</i> =4.9187	where $A = 4.0635$	
	and <i>B</i> =0.7467	and <i>B</i> =0.7467	
Mercury (dissolved)	1.4 X 0.85*=1.2	0.77 X 0.85*=0.65	
Nickel (dissolved)	$e^{A+B \ln(H)} X 0.998*,$	$e^{A+B \ln(H)} \times 0.997*,$	
	where A=0.5173 and	where A=-2.286 and	
	B=0.8460	B=0.8460	
Toluene	2000	600	
TRC	19	11	
Xylene(s)	920	360	
Zinc (dissolved)	$e^{A+B \ln(H)} \times 0.978*,$	$e^{A+B \ln(H)} X 0.986*,$	
	where A=0.9035 and	where A=-0.4456 and	
	B=0.8473	B=0.8473	

1428

1429

1430

where:

 $\mu g/L$ = microgram per liter

H = Hardness concentration of receiving water in mg/L as CaCO₃

 e^{x} = base of natural logarithms raised to the x-power

ln(H) = natural logarithm of Hardness in mg/L as CaCO₃

* = conversion factor multiplier for dissolved metals

** = standard to be evaluated using either of the following USEPA

approved methods, incorporated by reference at 35 Ill. Adm. Code 301.106: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide

Amenable to Chlorination, Standard Methods 4500-CN-G (40

CFR 136.3)

1431 1432

f) Numeric Water Quality Standard for the Protection of Human Health

1433

1	
Constituent	HHS (μg/L)
Benzene	310
Mercury (total)	0.012
Phenols	860,000

1434

1435 where:

JCAR350302-2207052r01

 $\mu g/L$ = microgram per liter

- Numeric Water Quality Standards for Other Chemical Constituents g)
 - 1) Concentrations of the following chemical constituents must not be exceeded except in waters for which mixing is allowed under 35 Ill. Adm. Code 302.102.

Constituent	Unit	Standard
Iron (dissolved)	mg/L	1.0
Selenium (total)	mg/L	1.0
Silver (dissolved)	μg/L	$e^{A+B \ln(H)} \times 0.85^*$, where
		A=-6.52 and B=1.72
Sulfate (where H is ≥ 100 but \leq	mg/L	[1276.7+5.508(H)-
500 and C is \ge 25 but \le 500)		1.457(C)] X 0.65
Sulfate (where H is ≥ 100 but \leq	mg/L	[-57.478 + 5.79(H) +
500 and C is \ge 5 but < 25)		54.163(C)] X 0.65
Sulfate (where $H > 500$ and $C \ge$	mg/L	2,000
5)		

1445 1446 where:

milligram per liter mg/L = microgram per liter μg/L

Н = Hardness concentration of receiving water in mg/L as

 \mathbf{C} = Chloride concentration of receiving water in mg/L

 e^{x} base of natural logarithms raised to the x-power

natural logarithm of Hardness in milligrams per liter ln(H)

conversion factor multiplier for dissolved metals

1447	
1448	2)

1st Notice

JCAR350302-2207052r01

Beginning July 1, 2018, the following concentration for Chloride must not be exceeded except in waters for which mixing is allowed under 35 Ill. Adm. Code 302.102:

Constituent	Unit	Standard
Chloride	mg/L	500

 where:

mg/L = milligram per liter

h) Concentrations of other chemical constituents in the South Fork of the South Branch of the Chicago River (Bubbly Creek) must not exceed the following standards:

CONSTITUENT	CONCENTRATION (mg/L)
Ammonia Un-ionized (as N*)	0.1
Arsenic (total)	1.0
Barium (total)	5.0
Cadmium (total)	0.15
Chromium (total hexavalent)	0.3
Chromium (total trivalent)	1.0
Copper (total)	1.0
Cyanide (total)	0.10
Fluoride (total)	15.0
Iron (total)	2.0
Iron (dissolved)	0.5
Lead (total)	0.1
Manganese (total)	1.0
Mercury (total)	0.0005
Nickel (total)	1.0

1st Notice

JCAR350302-2207052r01

Oil, fats and grease	15.0**
Phenols	0.3
Selenium (total)	1.0
Silver	1.1
Zinc (total)	1.0
Total Dissolved Solids	1500

1461

1462 1463

1464

1465

1466

1467

1468

For purposes of this Section, the concentration of un-ionized ammonia must be computed according to the following equation:

$$U = \frac{N}{\left[0.94412\left(1+10^{x}\right)+0.0559\right]}$$

where:

$$X = 0.09018 + \frac{2729.92 - pH}{(T + 273.16)}$$

U = Concentration of un-ionized ammonia as N in mg/L

= Concentration of ammonia nitrogen as N in mg/L

= Temperature in degrees Celsius

1469 1470

1471

** Oil must be analytically separated into polar and non-polar components if the total concentration exceeds 15 mg/L. In no case shall either of the components exceed 15 mg/L (i.e., 15 mg/L polar materials and 15 mg/L non-polar materials).

1472 1473

1474

1475

1476

1477 1478

1479 1480

1481

1482 1483

1485 1486 1487

1484

(Source: Amended at 46 Ill. Reg. , effective)

Section 302.408 Temperature

- For the South Fork of the South Branch of the Chicago River (Bubbly Creek), a) temperature must not exceed 34 °C (93 °F) more than 5% of the time, or 37.8 °C (100 °F) at any time.
- The temperature standards in subsections (c) through (i) will become applicable b) beginning July 1, 2018. Starting July 1, 2015, the waters designated at 35 III. Adm. Code 303 as Chicago Area Waterway System Aquatic Life Use A, Chicago Area Waterway System and Brandon Pool Aquatic Life Use B, and Upper Dresden Island Pool Aquatic Life Use must not exceed temperature of 34 °C (93 °F) more than 5% of the time, or 37.8 °C (100 °F) at any time.

- c) There must not be abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.
- d) The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes must be maintained.
- e) The maximum temperature rise above natural temperatures must never exceed 2.8 °C (5 °F).
- f) Water temperature at representative locations in the main river must never exceed the maximum limits in the applicable table in subsections (g), (h) and (i), during more than one percent of the hours in the 12-month period ending with any month. The water temperature must not exceed the maximum limits in the applicable table that follows by more than 1.7 °C (3.0 °F).
- g) Water temperature in the Chicago Area Waterway System Aquatic Life Use A waters listed in 35 Ill. Adm. Code 303.235 must not exceed the limits in the following table in compliance with subsection (f):

	Daily		
Months	Maximum		
	(° C)	(° F)	
January	16	60	
February	16	60	
March	16	60	
April	32	90	
May	32	90	
June	32	90	
July	32	90	
August	32	90	
September	32	90	
October	32	90	
November	32	90	
December	16	60	

h) Water temperature in the Chicago Area Waterway System and Brandon Pool Aquatic Life Use B waters listed in 35 Ill. Adm. Code 303.240 must not exceed the limits in the following table in compliance with subsection (f):

Months	Daily
IVIOIIIIS	Maximum

1st Notice

	(° C)	(° F)
January	16	60
February	16	60
March	16	60
April	32	90
May	32	90
June	32	90
July	32	90
August	32	90
September	32	90
October	32	90
November	32	90
December	16	60

1513

1514 1515

1516

1517

i) Water temperature for the Upper Dresden Island Pool Aquatic Life Use waters, as defined in 35 Ill. Adm. Code 303.230, must not exceed the limits in the following table in compliance with subsection (f):

	Daily	
Months	Maximum	
	(° C)	(° F)
January	16	60
February	16	60
March	16	60
April	32	90
May	32	90
June	32	90
July	32	90
August	32	90
September	32	90
October	32	90
November	32	90
December	16	60

15181519

(Source: Amended at 46 Ill. Reg. _____, effective _____)

1520 1521

Section 302.409 Cyanide for the South Fork of the South Branch of the Chicago River (Bubbly Creek)

15221523

1524 Cyanide (total) must not exceed 0.10 mg/L in the South Fork of the South Branch of the Chicago 1525 River (Bubbly Creek).

1526			
1527	(Sour	ce: Am	ended at 46 Ill. Reg. , effective)
1528	(2332		
1529	Section 302.4	410 Otl	her Toxic Substances
1530			
1531	Any substance	e or cor	mbination of substances toxic to aquatic life not listed in Section 302.407
1532	•		half of the 96-hour median tolerance limit (96-hour TL _m) for native fish or
1533			ganisms in the South Fork of the South Branch of the Chicago River
1534			other Chicago Area Waterway System and Lower Des Plaines River waters
1535	•		ll. Adm. Code 303 must be free from any substances or combination of
1536	_		trations toxic or harmful to human health, or to animal, plant or aquatic life.
1537			substances or parameters for which numeric standards are specified in this
1538			ect to this Section.
1539	1	3	
1540	a)	Any s	ubstance or combination of substances will be deemed to be toxic or
1541	,	•	ful to aquatic life if present in concentrations that exceed the following:
1542			
1543		1)	An Acute Aquatic Toxicity Criterion (AATC) validly derived and
1544		,	correctly applied under procedures in 35 Ill. Adm. Code 302.612 through
1545			302.618 or in 35 Ill. Adm. Code 302.621; or
1546			
1547		2)	A Chronic Aquatic Toxicity Criterion (CATC) validly derived and
1548			correctly applied under procedures in 35 Ill. Adm. Code 302.627 or
1549			302.630.
1550			
1551	b)	Any s	ubstance or combination of substances will be deemed to be toxic or
1552		harmf	ful to wild or domestic animal life if present in concentrations that exceed
1553		any W	Vild and Domestic Animal Protection Criterion (WDAPC) validly derived
1554		and co	orrectly applied under 35 Ill. Adm. Code 302.633.
1555			
1556	c)	Any s	ubstance or combination of substances will be deemed to be toxic or
1557			ful to human health if present in concentrations that exceed criteria, validly
1558		derive	ed and correctly applied, based on either of the following:
1559			
1560		1)	Disease or functional impairment due to a physiological mechanism for
1561			which there is a threshold dose below which no damage occurs calculated
1562			under 35 Ill. Adm. Code 302.642 through 302.648 (Human Threshold
1563			Criterion); or
1564			
1565		2)	Disease or functional impairment due to a physiological mechanism for
1566			which any dose may cause some risk of damage calculated under 35 Ill.
1567			Adm. Code 302.651 through 302.658 (Human Nonthreshold Criterion).

1568

1569 d) The most stringent criterion of subsections (a), (b) and (c) applies at all points 1570 outside of any waters within which, mixing is allowed under 35 Ill. Adm. Code 302.102. In addition, the AATC derived under subsection (a)(1) applies in all 1571 waters except that it must not apply within a ZID that is prescribed in compliance 1572 1573 with 35 Ill. Adm. Code 302.102. 1574 1575 e) The procedures of Subpart F set forth minimum data requirements, appropriate 1576 test protocols, and data assessment methods for establishing criteria under subsections (a), (b) and (c). No other procedures may be used to establish such 1577 1578 criteria unless approved by the Board in a rulemaking or adjusted standard 1579 proceeding under Title VII of the Act. The validity and applicability of the 1580 Subpart F procedures may not be challenged in any proceeding brought under Title VIII or X of the Act, although the validity and correctness of application of 1581 1582 the numeric criteria derived under Subpart F may be challenged in the 1583 proceedings under subsection (f). 1584 Agency derived criteria may be challenged as follows: 1585 f) 1586 1587 1) A permittee may challenge the validity and correctness of application of a criterion derived by the Agency under this Section only at the time the 1588 1589 criterion is first applied in an NPDES permit under 35 Ill. Adm. Code 1590 309.152 or in an action under Title VIII of the Act for violation of the 1591 toxicity water quality standard. Failure of a person to challenge the 1592 validity of a criterion at the time of its first application constitutes a waiver 1593 of the challenge in any subsequent proceeding involving application of the 1594 criterion to that person. 1595 1596 2) Consistent with subsection (f)(1), if a criterion is included as, or is used to 1597 derive, a condition of an NPDES discharge permit, a permittee may 1598 challenge the criterion in a permit appeal under Section 40 of the Act and 1599 35 Ill. Adm. Code 309.181. In any such action, the Agency must include in the record all information upon which it has relied in developing and 1600 1601 applying the criterion, whether that information was developed by the 1602 Agency or submitted by the Petitioner. The burden of proof is on the 1603 Petitioner to demonstrate that the criterion-based condition is not 1604 necessary to accomplish the purposes of subsection (f)(1) (see Section 1605 40(a)(1) of the Act), but there is no presumption in favor of the general validity and correctness of the application of the criterion as reflected in 1606 1607 the challenged condition. 1608 1609 3) Consistent with subsection (f)(1), in an action in which alleged violation 1610 of the toxicity water quality standard is based on alleged excursion of a 1611 criterion, the person bringing the action has the burdens of going forward

1st Notice

JCAR350302-2207052r01

1612		with proof and of persuasion regarding the general validity and correctness
1613		of application of the criterion.
1614	`	
1615	g)	Subsections (a) through (e) do not apply to USEPA registered pesticides approved
1616		for aquatic application and applied under the following conditions:
1617		
1618		1) Application must be made in strict compliance with label directions;
1619		
1620		2) Applicator must be properly certified under the provisions of the Federal
1621		Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq. (1972));
1622		and
1623		
1624		3) Applications of aquatic pesticides must comply with the laws, regulations
1625		and guidelines of all state and federal agencies authorized by law to
1626		regulate, use or supervise pesticide applications.
1627		
1628	(Source	ce: Amended at 46 Ill. Reg, effective)
1629		
1630	Section 302.4	112 Total Ammonia Nitrogen
1631		
1632	a)	This Section does not apply to the South Fork of the South Branch of the Chicago
1633		River (Bubbly Creek).
1634		
1635	b)	For the Chicago Area Waterway System and the Lower Des Plaines River
1636		described in 35 Ill. Adm. Code 303.204 and listed in 35 Ill. Adm. Code 303.220
1637		through 303.240, total ammonia nitrogen must in no case exceed 15 mg/L.
1638		
1639	c)	The total ammonia nitrogen acute, chronic, and sub-chronic standards are
1640	•	determined in compliance with the equations in subsections $(c)(1)$ and $(c)(2)$.
1641		Attainment of each standard must be determined in compliance with subsections
1642		(d) and (e) in mg/L.
1643		
1644		1) The acute standard (AS) is calculated using the following equation:
1645		
1646		$AS = \frac{0.411}{1 + 10^{7.204 - pH}} + \frac{58.4}{1 + 10^{pH - 7.204}}$
10.0		$1+10^{7.204-pH}$ $1+10^{pH-7.204}$
1647		
1648		2) The chronic standard (CS) is calculated using the following equations:
1649		
1650		A) During the Early Life Stage Present period, as defined in
1651		subsection (f):
1652		
1653		i) When water temperature is less than or equal to 14.51 °C:

1st Notice

JCAR350302-2207052r01

1654 $CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right\} (2.85)$ 1655 1656 1657 ii) When water temperature is above 14.51 °C: 1658 $CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right\} \left(1.45 * 10^{0.028*(25 - T)} \right)$ 1659 1660 1661 where: 1662 T = Water Temperature, degrees Celsius 1663 1664 B) During the Early Life Stage Absent period, as defined in 1665 subsection (f): 1666 1667 i) When water temperature is less than or equal to 7 °C: 1668 $CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right\} \left(1.45 * 10^{0.504} \right)$ 1669 1670 When water temperature is greater than 7 °C: 1671 ii) 1672 $CS = \left\{ \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right\} \left(1.45 * 10^{0.028(25 - T)} \right)$ 1673 1674 Where: 1675 1676 T = Water Temperature, degrees Celsius 1677 1678 3) The sub-chronic standard is equal to 2.5 times the chronic standard. 1679 1680 d) Attainment of the Total Ammonia Nitrogen Water Quality Standards 1681 1682 1) The acute standard for total ammonia nitrogen (in mg/L) must not be exceeded at any time except in those waters for which the Agency has 1683 approved a ZID under 35 Ill. Adm. Code 302.102. 1684 1685 1686 2) The 30-day average concentration of total ammonia nitrogen (in mg/L) 1687 must not exceed the chronic standard (CS) except in those waters in which mixing is allowed under 35 Ill. Adm. Code 302.102. Attainment of the 1688

1689 chronic standard (CS) is determined in compliance with subsection (e) by 1690 averaging at least four samples collected at weekly intervals or at other 1691 sampling intervals that statistically represent a 30-day sampling period. The samples must be collected in a manner that assures a representative 1692 1693 sampling period. 1694 1695 3) The 4-day average concentration of total ammonia nitrogen (in mg/L) 1696 must not exceed the sub-chronic standard except in those waters in which 1697 mixing is allowed under 35 Ill. Adm. Code 302.102. Attainment of the 1698 sub-chronic standard is determined in compliance with subsection (e) by 1699 averaging daily sample results collected over a period of four consecutive 1700 days within the 30-day averaging period. The samples must be collected in a manner that assures a representative sampling period. 1701 1702 1703 e) The water quality standard for each water body must be calculated based on the 1704 temperature and pH of the water body measured at the time of each ammonia sample. The concentration of total ammonia in each sample must be divided by 1705 1706 the calculated water quality standard for the sample to determine a quotient. The 1707 water quality standard is attained if the mean of the sample quotients is less than 1708 or equal to one for the duration of the averaging period. 1709 1710 f) The Early Life Stage Present period occurs from March through October. All 1711 other periods are subject to the Early Life Stage Absent period, except that waters 1712 listed in 35 Ill. Adm. Code 303.240 are not subject to Early Life Stage Present 1713 ammonia limits at any time. 1714 1715 BOARD NOTE: Acute and chronic standard concentrations for total ammonia nitrogen 1716 (in mg/L) for different combinations of pH and temperature are shown in Appendix C. 1717 (Source: Amended at 46 Ill. Reg. _____, effective _____) 1718 1719 1720 SUBPART E: LAKE MICHIGAN BASIN WATER QUALITY STANDARDS 1721 1722 Section 302.501 Scope, Applicability, and Definitions 1723 1724 Subpart E contains the Lake Michigan Basin water quality standards. These must a) 1725 be met in the waters of the Lake Michigan Basin as designated in 35 Ill. Adm. Code 303.443. 1726 1727 1728 b) In addition to the definitions provided at 35 Ill. Adm. Code 301.200 through 301.444, and in place of conflicting definitions at 35 Ill. Adm. Code 302.100, the 1729 1730 following terms have the meanings specified for the Lake Michigan Basin: 1731 1732 "Acceptable daily exposure" or "ADE" means an estimate of the

1st Notice

JCAR350302-2207052r01

maximum daily dose of a substance that is not expected to result in adverse noncancer effects to the general human population, including sensitive subgroups.

"Acceptable endpoints", for the purpose of deriving wildlife criteria, means acceptable subchronic and chronic endpoints that affect reproductive or developmental success, organismal viability or growth, or any other endpoint that is, or is directly related to, parameters that influence population dynamics.

"Acute to chronic ratio" or "ACR" is the standard measure of the acute toxicity of a material divided by an appropriate measure of the chronic toxicity of the same material under comparable conditions.

"Acute toxicity" means adverse effects that result from an exposure period that is a small portion of the life span of the organism.

"Adverse effect" means any deleterious effect to organisms due to exposure to a substance. This includes effects that are or may become debilitating, harmful or toxic to the normal functions of the organism, but does not include non-harmful effects such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

"Baseline BAF" for organic chemicals, means a BAF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; for inorganic chemicals, a BAF is based on the wet weight of the tissue.

"Baseline BCF" for organic chemicals, means a BCF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; for inorganic chemicals, a BAF is based on the wet weight of the tissue.

"Bioaccumulative chemical of concern" or "BCC" is any chemical that has the potential to cause adverse effects and that, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1,000, after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation, in compliance with the methodology in 35 Ill. Adm. Code 302.570. In addition, the half life of the chemical in the water column, sediment or biota must be greater than eight weeks. BCCs include the following substances:

Chlordane

1777	
1778	4,4'-DDD; p,p'-DDD; 4,4'-TDE; p,p'-TDE
1779	ч,ч-шы, р,р-шы, ч,ч-тыс, р,р-тыс
1780	4,4'-DDE; p,p'-DDE
1781	1, 1 BBE, p,p BBE
1782	4,4'-DDT; p,p'-DDT
1783	,,, 221, p,p 221
1784	Dieldrin
1785	
1786	Hexachlorobenzene
1787	
1788	Hexachlorobutadiene; Hexachloro-1,3-butadiene
1789	
1790	Hexachlorocyclohexanes; BHCs
1791	
1792	alpha-Hexachlorocyclohexane; alpha-BHC
1793	
1794	beta-Hexachlorocyclohexane; beta-BHC
1795	
1796	delta-Hexachlorocyclohexane; delta-BHC
1797	
1798	Lindane; gamma-Hexachlorocyclohexane; gamma-BHC
1799	
1800	Mercury
1801	N.
1802	Mirex
1803	Octocl-lancetymen
1804 1805	Octachlorostyrene
1806	PCBs; polychlorinated biphenyls
1807	r CBs, poryemormated orphenyrs
1808	Pentachlorobenzene
1809	1 Chtachiologenzene
1810	Photomirex
1811	Thousand
1812	2,3,7,8-TCDD; Dioxin
1813	2,0,1,0 1 0 2 2 , 2 10 1111
1814	1,2,3,4-Tetrachlorobenzene
1815	
1816	1,2,4,5-Tetrachlorobenzene
1817	
1818	Toxaphene
1819	
1820	"Bioaccumulation" is the net accumulation of a substance by an organism

1821 as a result of uptake from all environmental sources. 1822 1823 "Bioaccumulation factor" or "BAF" is the ratio (in L/kg) of a substance's 1824 concentration in the tissue of an aquatic organism to its concentration in 1825 the ambient water, in situations where both the organism and its food are 1826 exposed and the ratio does not change substantially over time. 1827 1828 "Bioconcentration" means the net accumulation of a substance by an 1829 aquatic organism as a result of uptake directly from the ambient water 1830 through gill membranes or other external body surfaces. 1831 1832 "Bioconcentration Factor" or "BCF" is the ratio (in L/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in 1833 1834 the ambient water, in situations where the organism is exposed through the 1835 water only and the ratio does not change substantially over time. 1836 "Biota-sediment accumulation factor" or "BSAF" means the ratio (in kg of 1837 organic carbon/kg of lipid) of a substance's lipid-normalized concentration 1838 1839 in the tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment, in situations where the ratio does not 1840 1841 change substantially over time, both the organism and its food are exposed, and the surface sediment is representative of average surface 1842 1843 sediment in the vicinity of the organism. 1844 1845 "Carcinogen" means a substance that causes an increased incidence of benign or malignant neoplasms, or substantially decreases the time to 1846 1847 develop neoplasms, in animals or humans. The classification of carcinogens is determined by the procedures in Section II.A of Appendix 1848 1849 C to 40 CFR 132, incorporated by reference in 35 Ill. Adm. Code 301.106. 1850 1851 "Chronic effect" means an adverse effect that is measured by assessing an 1852 acceptable endpoint, and results from continual exposure over several 1853 generations, or at least over a significant part of the test species' projected 1854 life span or life stage. 1855 1856 "Chronic toxicity" means adverse effects that result from an exposure 1857 period that is a large portion of the life span of the organism. 1858 1859 "Dissolved organic carbon" or "DOC" means organic carbon that passes 1860 through a 1 µm pore size filter. 1861 1862 "Dissolved metal" means the concentration of a metal that will pass 1863 through a 0.45 µm pore size filter. 1864

1865 "Food chain" means the energy stored by plants is passed along through 1866 the ecosystem through trophic levels in a series of steps of eating and 1867 being eaten, also known as a food web. 1868 1869 "Food chain multiplier" or "FCM" means the ratio of a BAF to an 1870 appropriate BCF. 1871 1872 "Linearized multi-stage model" means a mathematical model for cancer 1873 risk assessment. This model fits linear dose-response curves to low doses. 1874 It is consistent with a no-threshold model of carcinogenesis. 1875 1876 "Lowest observed adverse effect level" or "LOAEL" means the lowest tested dose or concentration of a substance that results in an observed 1877 1878 adverse effect in exposed test organisms when all higher doses or concentrations result in the same or more severe effects. 1879 1880 "No observed adverse effect level" or "NOAEL" means the highest tested 1881 1882 dose or concentration of a substance that results in no observed adverse 1883 effect in exposed test organisms where higher doses or concentrations result in an adverse effect. 1884 1885 "Octanol water partition coefficient" or "Kow" is the ratio of the 1886 concentration of a substance in the n-octanol phase to its concentration in 1887 1888 the aqueous phase in an equilibrated two-phase octanol water system. For 1889 log Kow, the log of the octanol water partition coefficient is a base 10 1890 logarithm. 1891 1892 "Open Waters of Lake Michigan" means all of the waters within Lake 1893 Michigan in Illinois jurisdiction lakeward from a line drawn across the 1894 mouth of tributaries to Lake Michigan, but not including waters enclosed 1895 by constructed breakwaters. 1896 1897 "Particulate organic carbon" or "POC" means organic carbon that is 1898 retained by a 1 µm pore size filter. 1899 1900 "Relative source contribution" or "RSC" means the percent of total 1901 exposure that can be attributed to surface water through water intake and 1902 fish consumption. 1903 1904 "Resident or indigenous species" means species that currently live a 1905 substantial portion of their life cycle, or reproduce, in a given body of 1906 water, or that are native species whose historical range includes a given 1907 body of water. 1908

_	1100100	
1909 1910		"Risk associated dose" or "RAD" means a dose of a known or presumed carcinogenic substance in mg/kg/day which, over a lifetime of exposure, is
1910		estimated to be associated with a plausible upper bound incremental
1911		<u> </u>
1912		cancer risk equal to one in 100,000.
1913		"Slope factor" or "q ₁ *" is the incremental rate of cancer development
1914		calculated through use of a linearized multistage model or other
1915		appropriate model. It is expressed in mg/kg/day of exposure to the
1910		chemical in question.
1918		enemical in question.
1919		"Standard Methods" means "Standard Methods for the Examination of
1920		Water and Wastewater", available from the American Public Health
1921		Association.
1922		ASSOCIATION.
1923		"Subchronic effect" means an adverse effect, measured by assessing an
1924		acceptable endpoint, resulting from continual exposure for a period of
1925		time less than that deemed necessary for a chronic test.
1926		time less than that declined necessary for a chrome test.
1927		"Target species" is a species to be protected by the criterion.
1928		ingerspecies is a species to so provided by the continue.
1929		"Target species value" is the criterion value for the target species.
1930		
1931		"Test species" is a species that has test data available to derive a criterion.
1932		
1933		"Test dose" or "TD" is a LOAEL or NOAEL for the test species.
1934		·
1935		"Tier I criteria" are numeric values derived by use of the Tier I
1936		methodologies that either have been adopted as numeric criteria into a
1937		water quality standard or are used to implement narrative water quality
1938		criteria.
1939		
1940		"Tier II values" are numeric values derived by use of the Tier II
1941		methodologies that are used to implement narrative water quality criteria.
1942		They are applied as criteria, have the same effect, and subject to the same
1943		appeal rights as criteria.
1944		
1945		"Trophic level" means a functional classification of taxa within a
1946		community that is based on feeding relationships. For example, aquatic
1947		green plants and herbivores comprise the first and second trophic levels in
1948		a food chain.
1949		NTT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1950		"Toxic unit acute" or "TU _a " is the reciprocal of the effluent concentration
1951		that causes 50 percent of the test organisms to die by the end of the acute
1952		exposure period, which is 48 hours for invertebrates and 96 hours for

1953	vertebrates.
1954	
1955	"Toxic unit chronic" or "TU _c " is the reciprocal of the effluent
1956	concentration that causes no observable effect on the test organisms by the
1957	end of the chronic exposure period, which is at least seven days for
1958	Ceriodaphnia, fathead minnow and rainbow trout.
1959	•
1960	"Uncertainty factor" or "UF" is one of several numeric factors used in
1961	deriving criteria from experimental data to account for the quality or
1962	quantity of the available data.
1963	
1964	"USEPA" means United States Environmental Protection Agency.
1965	
1966	(Source: Amended at 46 Ill. Reg, effective)
1967	·
1968	Section 302.502 Dissolved Oxygen
1969	
1970	Dissolved oxygen must not be less than 90% of saturation, except due to natural causes, in the
1971	Open Waters of Lake Michigan as defined at 35 Ill. Adm. Code 302.501. The other waters of the
1972	Lake Michigan Basin must not be less than 6.0 mg/L during at least 16 hours of any 24 hour
1973	period, nor less than 5.0 mg/L at any time.
1974	
1975	(Source: Amended at 46 Ill. Reg, effective)
1976	·
1977	Section 302.503 pH
1978	•
1979	pH must be within the range of 7.0 to 9.0, except for natural causes, in the Open Waters of Lake
1980	Michigan as defined at 35 Ill. Adm. Code 302.501. Other waters of the Basin must be within the
1981	range of 6.5 to 9.0, except for natural causes.
1982	, 1
1983	(Source: Amended at 46 Ill. Reg, effective)
1984	
1985	Section 302.504 Chemical Constituents
1986	
1987	The following concentrations of chemical constituents must not be exceeded, except as provided
1988	in 35 Ill. Adm. Code 302.102 and 302.530:
1989	
1990	a) The following standards must be met in all waters of the Lake Michigan Basin.
1991	Acute aquatic life standards (AS) must not be exceeded at any time except for
1992	those waters for which the Agency has approved a zone of initial dilution (ZID)
1993	under 35 Ill. Adm. Code 302.102 and 302.530. Chronic aquatic life standards
1994	(CS) and human health standards (HHS) must not be exceeded outside of waters
1995	in which mixing is allowed under 35 Ill. Adm. Code 302.102 and 302.530 by the
1996	arithmetic average of at least four consecutive samples collected over a period of
-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

at least four days. The samples used to demonstrate compliance with the CS or HHS must be collected in a manner which assures an average representation of the sampling period.

Constituent	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>
Arsenic (Trivalent, dissolved)	μg/L	$340 \times 1.0^* = 340$	148 x 1.0*=148	NA
Boron (total)	mg/L	40.1	7.6	NA
Cadmium (dissolved)	μg/L	$\exp[A + B1n(H)] \times $ {1.138672 - [(1nH) (0.041838)]}*	$\exp[A + B1n(H)] \times $ {1.101672 - [(1nH) (0.041838)]}*	NA
		where $A = -3.6867$ and $B = 1.128$	where $A = -2.715$ and $B = 0.7852$	
Chromium (Hexavalent, total)	μg/L	16	11	NA
Chromium (Trivalent,	μg/L	$\exp[A + B\ln(H)] \times 0.316*$	$\exp[A + B1n(H)] \times 0.860*$	NA
dissolved)		where $A = 3.7256$ and $B = 0.819$	where $A = 0.6848$ and $B = 0.819$	
Copper (dissolved)	μg/L	$\exp[A + B\ln(H)] \times 0.960*$	$\exp[A + B1n(H)] \times 0.960*$	NA
		where $A = -1.700$ and $B = 0.9422$	where $A = -1.702$ and $B = 0.8545$	
Cyanide**	μg/L	22	5.2	NA
Fluoride (total)	μg/L	$\exp[A + B1n(H)]$ where $A = 6.7319$ and $B = 0.5394$	exp $[A + B1n(H)]$, but must not exceed 4.0 mg/L	NA
			where $A = 6.0445$ and $B = 0.5394$	

1st Notice

JCAR350302-2207052r01

Lead (dissolved)	μg/L	$\exp[A + B1n(H)] \times $ $\{1.46203 - [(1nH)$ $(0.145712)]\}*$	$\exp[A + B1n(H)] \times $ {1.46203 - [(1nH) (0.145712)]}*	NA
		where $A = -1.055$ and $B = 1.273$	where $A = -4.003$ and $B = 1.273$	
Manganese (dissolved)	μg/L	$\exp[A + B\ln(H)] \times $ 0.9812*	$\exp[A + B1n(H)] \times $ $0.9812*$	NA
		where $A = 4.9187$ and $B = 0.7467$	where $A = 4.0635$ and $B = 0.7467$	
Nickel (dissolved)	μg/L	$\exp[A + B\ln(H)] \times $ 0.998*	$\exp[A + B1n(H)] \times 0.997*$	NA
		where $A = 2.255$ and $B = 0.846$	where $A = 0.0584$ and $B = 0.846$	
Selenium (dissolved)	μg/L	NA	5.0	NA
TRC	μg/L	19	11	NA
Zinc (dissolved)	μg/L	$\exp[A + B\ln(H)] \times 0.978*$	$\exp[A + B\ln(H)] \times 0.986*$	NA
		where $A = 0.884$ and $B = 0.8473$	where $A = 0.884$ and $B = 0.8473$	
Benzene	$\mu g/L$	3900	800	310
Chlorobenzene	mg/L	NA	NA	3.2
2.4-Dimethylphenol	mg/L	NA	NA	8.7
2,4-Dinitrophenol	mg/L	NA	NA	2.8
Endrin	μg/L	0.086	0.036	NA
Ethylbenzene	μg/L	150	14	NA

1st Notice

JCAR350302-2207052r01

Hexachloroethane	$\mu g/L$	NA	NA	6.7
Methylene chloride	mg/L	NA	NA	2.6
Parathion	μg/L	0.065	0.013	NA
Pentachlorophenol	μg/L	$\exp B([pH]+A)$	$\exp B([pH] + A)$	NA
		where $A = -4.869$ and $B = 1.005$	where $A = -5.134$ and $B = 1.005$	
Toluene	μg/L	2000	610	51.0
Trichloroethylene	μg/L	NA	NA	370
Xylene(s)	μg/L	1200	490	NA

2001

where:

NA Not Applied

base of natural logarithms raised to the x-power $\exp[x] =$

natural logarithm of Hardness in mg/L as CaCO₃ ln(H)

conversion factor multiplier for dissolved metals

** standard to be evaluated using either of the following USEPA approved methods, incorporated by reference at 35 Ill. Adm. Code 301.106: Method OIA-1677, DW: Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry, January 2004, Document Number EPA-821-R-04-001 or Cyanide Amenable to Chlorination, Standard Methods 4500-CN-G (40 CFR 136.3).

The following water quality standards must not be exceeded at any time in any b) waters of the Lake Michigan Basin, unless a different standard is specified under subsection (c).

<u>Constituent</u>		<u>Unit</u>	Water Quality Standard
Barium (total)	01007	mg/L	5.0
Chloride (total)		mg/L	500
Iron (dissolved)		mg/L	1.0

1st Notice

JCAR350302-2207052r01

Phenols	mg/L	0.1
Sulfate	mg/L	500
Total Dissolved Solids	mg/L	1000

c) In addition to the standards specified in subsections (a) and (b), the following standards must not be exceeded at any time in the Open Waters of Lake Michigan as defined in Section 302.501.

Constituent	<u>Unit</u>	Water Quality Standard
Arsenic (total)	$\mu g/L$	50.0
Boron (total)	mg/L	1.0
Barium (total)	mg/L	1.0
Chloride (total)	mg/L	12.0
Fluoride (total)	mg/L	1.4
Iron (dissolved)	mg/L	0.30
Lead (total)	$\mu g/L$	50.0
Manganese (total)	mg/L	0.15
Nitrate-Nitrogen	mg/L	10.0
Phosphorus	$\mu g/L$	7.0
Selenium (total)	$\mu g/L$	10.0
Sulfate	mg/L	24.0
Total Dissolved Solids	mg/L	180.0
Oil (hexane solubles or equivalent)	mg/L	0.10
Phenols	$\mu g/L$	1.0

d) In addition to the standards specified in subsections (a), (b) and (c), the following human health standards (HHS) must not be exceeded in the Open Waters of Lake Michigan as defined in Section 302.501 by the arithmetic average of at least four consecutive samples collected over a period of at least four days. The samples used to demonstrate compliance with the HHS must be collected in a manner which assures an average representation of the sampling period.

2019

<u>Unit</u>	Water Quality Standard
$\mu g/L$	12.0
$\mu g/L$	470.0
$\mu g/L$	450.0
$\mu g/L$	55.0
$\mu g/L$	5.30
$\mu g/L$	0.47
$\mu g/L$	47.0
$\mu g/L$	29.0
	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L

2020

For the following bioaccumulative chemicals of concern (BCCs), acute aquatic e) life standards (AS) must not be exceeded at any time in any waters of the Lake Michigan Basin and chronic aquatic life standards (CS), human health standards (HHS), and wildlife standards (WS) must not be exceeded in any waters of the Lake Michigan Basin by the arithmetic average of at least four consecutive samples collected over a period of at least four days subject to the limitations of 35 Ill. Adm. Code 302.520 and 302.530. The samples used to demonstrate compliance with the HHS and WS must be collected in a manner that assures an average representation of the sampling period.

Constituent	<u>Unit</u>	<u>AS</u>	<u>CS</u>	<u>HHS</u>	$\underline{\text{WS}}$
Mercury (total)	ng/L	1,700	910	3.1	1.3
Chlordane	ng/L	NA	NA	0.25	NA
DDT and metabolites	pg/L	NA	NA	150	11.0
Dieldrin	ng/L	240	56	0.0065	NA
Hexachlorobenzene	ng/L	NA	NA	0.45	NA
Lindane	$\mu g/L$	0.95	NA	0.5	NA
PCBs (class)	pg/L	NA	NA	26	120
2,3,7,8-TCDD	fg/L	NA	NA	8.6	3.1
Toxaphene	pg/L	NA	NA	68	NA

1st Notice

JCAR350302-2207052r01

	W	rnere:
		mg/L = milligrams per liter (10 ⁻³ grams per liter)
		$\mu g/L$ = micrograms per liter (10 ⁻⁶ grams per liter)
		ng/L = nanograms per liter (10 ⁻⁹ grams per liter)
		$pg/L = picograms per liter (10^{-12} grams per liter)$
		fg/L = femtograms per liter (10 ⁻¹⁵ grams per liter)
		NA = Not Applied
2032	(2	
2033 2034	(Source	ce: Amended at 46 Ill. Reg, effective)
2035	Section 302.5	505 Fecal Coliform
2036	D 1	
2037		inimum of five samples taken over not more than a 30-day period, fecal coliform
2038		ged a geometric mean of 20 per 100 ml in the Open Waters of Lake Michigan as
2039		Ill. Adm. Code 302.501. The remaining waters of the Lake Michigan Basin must
2040		geometric mean of 200 per 100 ml, nor shall more than 10% of the samples during
2041	any 30 day pe	eriod exceed 400 per 100 ml.
2042	(9	1 1 1 4 CM D
2043	(Source	ce: Amended at 46 Ill. Reg, effective)
2044	a	
2045	Section 302.5	06 Temperature
2046		
2047	a)	The owner or operator of a source of heated effluent must maintain such records
2048		and conduct such studies of the effluents from the source and its effects as may be
2049		required by the Agency or in any permit granted under the Act.
2050	4.5	
2051	b)	Backfitting of alternative cooling facilities will be required if, upon complaint
2052		filed in compliance with Board rules, it is found at any time that any heated
2053		effluent causes significant ecological damage to the Lake.
2054	(9	1 1 1 4 CM D
2055	(Sourc	ce: Amended at 46 Ill. Reg, effective
2056	a	
2057	Section 302.5	Thermal Standards for Existing Sources on January 1, 1971
2058	A 11	01 . 1 00
2059		f heated effluents in existence as of January 1, 1971, must meet the following
2060		atside of a mixing zone which must be no greater than a circle with a radius of 305
2061	m (1000 feet)	or an equal fixed area of simple form.
2062		
2063	a)	There must be no abnormal temperature changes that may affect aquatic life.
2064		

1st Notice

JCAR350302-2207052r01

2065 2066	b)		al daily and a		emperature floned.	uctuations	that existed	before the
2067 2068 2069 2070 2071	c)	exceed 1.7	7 °C (3 °F).	In addition	at any time ab n, the water te e following ta	mperature	1	
20/1			° C	° F	<u> </u>		° C	° F
		JAN.	7	45		JUL.	27	80
		FEB.	7	45		AUG.	27	80
		MAR.	7	45		SEPT.	27	80
		APR.	13	55		OCT.	18	65
		MAY	16	60		NOV.	16	60
		JUN.	21	70		DEC.	10	50
2072		0011.	21	70		DEC.	10	20
2073	(Sour	ce: Amende	ed at 46 III I	Reo	, effective)	
2074	(Sour	cc. / timena	2a at 10 m. i					
2075	Section 302	508 Therm	al Standard	ls for Sou	rces Under (onstructi	ion But Not	In Operation
2076	on January		ai Standard	15 101 500	rees onder c	onsti ucti	on Dut 110t	in Operation
2077	on bandary	1, 17/1						
2078	Any affluent	cource unde	r constructio	on but not	in operation	n Ioniiom	, 1 1071 mus	st meet all the
2079					l in addition n			
2080	requirements	01 33 III. A	um. Code 30	12.307 and	i iii additioii ii	iust inect	ine following	g resurenous.
2080	2)	The better	m tha shara	the brine	limnian and s	ha tharma	alina must n	at he affected
	a)				illillilloli, aliu	ne memic	cime must m	ot be affected
2082		by any nea	ated effluent	•				
2083	1)	II . 1 C	or ,	, CC ,		1 ~	1	,
2084	b)	Heated en	fluent must r	not affect s	spawning gro	ands or IIs	sn migration i	routes.
2085	`	D: 1		. 1 1				1.1
2086	c)	_			•		rt-term mixir	ng and thus to
2087		reduce the	area signifi	cantly rais	sed in tempera	iture.		
2088								
2089	d)	Discharge	must not ex	ceed amb	ient temperatı	ares by mo	ore than 11 °C	C (20 °F).
2090								
2091	e)	Heated eff	fluents from	more than	n one source n	nust not ir	iteract.	
2092								
2093	f)	All reason	able steps m	ust be tak	en to reduce t	he numbe	r of organisn	ns drawn into
2094		or against	the intakes.				_	
2095		2						
2096	(Sour	ce: Amende	ed at 46 Ill. I	Reg.	, effective)	
2097	`			<u> </u>				

Section 302.509 Other Sources

2098 2099 2100

A source of heated effluent which was not in operation or under construction as of a)

2101			•	71, must not discharge more than a daily average of 29 megawatts
2102		(0.1 bi	llion B	critish thermal units per hour).
2103				
2104	b)			eated effluents which discharge less than a daily average of 29
2105				1.1 billion British thermal units per hour) not in operation or under
2106				as of January 1, 1971, must meet all requirements of 35 Ill. Adm.
2107		Code 3	302.50	7 and 302.508.
2108				
2109	(Sour	rce: Ame	ended a	nt 46 Ill. Reg, effective)
2110				
2111	Section 302.	.510 Inc	orpora	ntions by Reference (Repealed)
2112				
2113	(Sou	rce: Rep	ealed a	t 46 Ill. Reg, effective)
2114				
2115	Section 302.	.515 Off	ensive	Conditions
2116				
2117	Waters of the	e Lake M	lichiga	n Basin must be free from sludge or bottom deposits, floating debris
2118	visible oil, o	dor, plan	t or alg	gal growth, color or turbidity of other than natural origin. The
2119				of 35 Ill. Adm. Code 302.102 must not be used to comply with the
2120	provisions of			1 7
2121	1			
2122	(Sou	rce: Ame	ended a	at 46 Ill. Reg, effective)
2123	(200)			,
2124	Section 302.	520 Reg	rulatio	n and Designation of Bioaccumulative Chemicals of Concern
2125	(BCCs)		,	in the Besignation of Biotecumulative Chemicals of Concern
2126	(B CCs)			
2127	a)	For rec	oulatin	g BCCs in compliance with 35 Ill. Adm. Code 302.521 and 302.530,
2128	u)		_	s chemicals must be considered as BCCs:
2129		1110 101	10 11 111 2	continuals must be considered as Bees.
2130		1)	any c	hemical or class of chemicals listed as a BCC in 35 Ill. Adm. Code
2131		1)	•	01; and
2132			302.3	or, and
2132		2)	any c	hemical or class of chemicals that the Agency has determined meets
2134		2)	-	naracteristics of a BCC as defined in 35 Ill. Adm. Code 302.501 as
2135				ated by:
2136			marca	acd by.
2130			A)	publication in the Illinois Register; or
2137			A)	publication in the filmois register, of
			D)	natification to a nameittee on annicent, on
2139			B)	notification to a permittee or applicant; or
2140			C	filing a matition with the Doord to well filed the about 1
2141			C)	filing a petition with the Board to verify that the chemical must be
2142				designated a BCC.
2143	1 \	NT .	.1	
2144	b)	Notw1	tnstanc	ling subsections (a)(2)(A) and (B), a chemical must not be regulated

2145 as a BCC if the Agency has not filed a petition, within 60 days after such 2146 publication or notification, with the Board in compliance with Section 28.2 of the 2147 Act to verify that the chemical must be designated a BCC. 2148 2149 c) Under subsection (b) and 35 Ill. Adm. Code 302.570, if the Board verifies that a 2150 chemical has a human health bioaccumulation factor greater than 1,000 and is 2151 consistent with the definition of a BCC in 35 Ill. Adm. Code 302.501, the Board 2152 must designate the chemical as a BCC and list the chemical in 35 Ill. Adm. Code 2153 302.501. If the Board fails to verify the chemical as a BCC in its final action on 2154 the verification petition, the chemical must not be listed as a BCC and must not be regulated as a BCC in compliance with 35 Ill. Adm. Code 302.521 and 302.530. 2155 2156 (Source: Amended at 46 Ill. Reg. _____, effective _____) 2157 2158 2159 Section 302.521 Supplemental Antidegradation Provisions for BCCs 2160 2161 a) Notwithstanding the provisions of 35 Ill. Adm. Code 302.105, waters within the 2162 Lake Michigan Basin must not be lowered in quality due to new or increased 2163 loading of substances defined as BCCs in 35 Ill. Adm. Code 302.501 from any source or activity subject to the NPDES permitting, Section 401 water quality 2164 2165 certification provisions of the Clean Water Act (P.L. 92-100, as amended), or joint permits from the Agency and the Illinois Department of Natural Resources 2166 2167 under Section 39(n) of the Act [415 ILCS 5/39(n)] until and unless it can be 2168 affirmatively demonstrated that such change is necessary to accommodate 2169 important economic or social development. 2170 2171 1) Where ambient concentrations of a BCC are equal to or exceed an 2172 applicable water quality criterion, no increase in loading of that BCC is 2173 allowed. 2174 2175 2) Where ambient concentrations of a BCC are below the applicable water 2176 quality criterion, a demonstration to justify increased loading of that BCC 2177 must include the following: 2178 2179 A) Pollution Prevention Alternatives Analysis. Identify any cost-2180 effective reasonably available pollution prevention alternatives and 2181 techniques that would eliminate or significantly reduce the extent 2182 of increased loading of the BCC. 2183 2184 B) Alternative or Enhanced Treatment Analysis. Identify alternative or enhanced treatment techniques that are cost effective and 2185 2186 reasonably available to the entity that would eliminate or significantly reduce the extent of increased loading of the BCC. 2187

2188

2189			C)	Important Social or Economic Development Analysis. Identify the
2190				social or economic development and the benefits that would be
2191				forgone if the increased loading of the BCC is not allowed.
2192 2193		3)	In no	case will increased loading of BCCs result in exceeding applicable
2194		3)		quality criteria or concentrations exceeding the level of water
2195				ty necessary to protect existing uses.
2196			quarr	y necessary to protect existing uses.
2197		4)	Chan	ges in loadings of any BCC within the existing capacity and
2198		1)		esses of an existing NPDES authorized discharge, certified activity
2199			-	Section 401 of the Clean Water Act, or joint permits from the
2200				cy and the Illinois Department of Natural Resources under Section
2201			_	of the Act are not subject to the antidegradation review of subsection
2202				These changes include:
2203			(u). 1	nese changes merade.
2204			A)	normal operational variability, including intermittent increased
2205			11)	discharges due to wet weather conditions;
2206				discharges due to wet weather conditions,
2207			B)	changes in intake water pollutants;
2208			D)	changes in make water pontatants,
2209			C)	increasing the production hours of the facility; or
2210			C)	mercusing the production hours of the facility, of
2211			D)	increasing the rate of production.
2212			D)	mercusing the rate of production.
2213		5)	Anv	determination to allow increased loading of a BCC based on a
2214		3)	-	Instration of important economic or social development need must
2215				by the public participation requirements of 40 CFR 25 prior to final
2216				nce of the NPDES permit, Section 401 water quality certification, or
2217				permits from the Agency and the Illinois Department of Natural
2218				urces under Section 39(n) of the Act.
2219			TC500	dives under section 37(n) of the rec.
2220	b)	The f	allowin	g actions are not subject to the provisions of subsection (a), unless
2221	U)			letermines the circumstances of an individual situation warrant
2222			_ ,	f those provisions to adequately protect water quality:
2223		аррис	ation o	T those provisions to adequatery protect water quanty.
2224		1)	Short	-term, temporary (i.e., weeks or months) lowering of water quality;
2225		1)	Short	-term, temporary (i.e., weeks of months) lowering of water quality,
2226		2)	Ryna	sses that are not prohibited at 40 CFR 122.41(m), incorporated by
2227		2)		ence in 35 Ill. Adm. Code 301.106; or
2228			TCTCTC	siec iii 55 iii. Adiii. Code 501.100, 01
2229		3)	Resno	onse actions under the Comprehensive Environmental Response,
2230		3)		pensation and Liability Act (CERCLA), as amended, or similar
2230			-	al or State authority, undertaken to alleviate a release into the
2232				onment of hazardous substances, pollutants or contaminants that pose
<i></i>			CHVIII	omnem of nazardous substances, pondiants of contaminants that posc

2233	danger to public health or welfare.						
2234	4						
2235	(Source: Amended at 46 Ill. Reg, effective)						
2236	G 4: 202	FAF D. 1 2 42 44					
2237 2238	Section 302.	525 Radioactivity					
2239	Eveent of nr	ovided in 35 Ill. Adm. Code 302.102, all waters of the Lake Michigan Basin must					
2240		owing concentrations:					
2241	meet the fon	owing concentrations.					
2242	a)	Gross beta concentrations must not exceed 100 picocuries per liter (pCi/L).					
2243							
2244 2245	b)	Strontium 90 concentration must not exceed 2 picocuries per liter (pCi/L).					
2246	c)	The annual average radium 226 and 228 combined concentration must not exceed					
2247	C)	3.75 picocuries per liter (pCi/L).					
2248							
2249	(Sour	rce: Amended at 46 Ill. Reg, effective)					
2250							
2251	Section 302.	530 Supplemental Mixing Provisions for Bioaccumulative Chemicals of					
2252	Concern (Bo	CCs)					
2253							
2254		Mixing, Mixing Zones, and ZIDs provisions of 35 Ill. Adm. Code 302.102 apply					
2255		ake Michigan Basin except as otherwise provided for substances defined as BCCs in					
2256	35 Ill. Adm.	Code 302.501:					
2257							
2258	a)	Mixing is not allowed for BCCs for new discharges commencing on or after					
2259		December 24, 1997.					
2260							
2261	b)	Discharges of BCCs existing as of December 24, 1997 are eligible for mixing					
2262		allowance consistent with 35 Ill. Adm. Code 302.102 until March 23, 2007. After					
2263		March 23, 2007 mixing for BCCs will not be allowed except as provided in					
2264		subsections (c) and (d).					
2265							
2266	c)	Mixing allowance for a source in existence on December 24, 1997 may continue					
2267		beyond March 23, 2007 where it can be demonstrated on a case by case basis that					
2268		continuation of mixing allowance is necessary to achieve water conservation					
2269		measures that result in overall reduction of BCC mass loading to the Lake					
2270		Michigan Basin.					
2271							
2272	d)	Mixing allowance for a source in existence on December 24, 1997 will only					
2273		continue if necessitated by technical and economic factors. Any mixing allowance					
2274		continued beyond March 23, 2007 based on technical and economic factors must					
2275		be limited to not more than one NPDES permit term, and must reflect the					
2276		maximum achievable BCC loading reduction within the identified technical and					

2312

2277 economic considerations necessitating the exception. The continued mixing 2278 allowance must not be renewed beyond that permit term unless a new 2279 determination of technical and economic necessity is made. 2280 (Source: Amended at 46 Ill. Reg. _____, effective _____) 2281 2282 Section 302.535 Ammonia Nitrogen 2283 2284 2285 The Open Waters of Lake Michigan as defined in 35 Ill. Adm. Code 302.501 must not exceed 2286 0.02 mg/L total ammonia. The remaining waters of the Lake Michigan Basin are subject to the 2287 following: 2288 2289 Total ammonia nitrogen must in no case exceed 15 mg/L. a) 2290 2291 b) Un-ionized ammonia nitrogen must not exceed the acute and chronic standards 2292 given below subject to the provisions of 35 Ill. Adm. Code 302.208(a) and (b): 2293 2294 1) From April through October, the Acute Standard (AS) must be 0.33 mg/L 2295 and the chronic standard (CS) must be 0.057 mg/L. 2296 2297 2) From November through March, the AS must be 0.14 mg/L and the CS 2298 must be 0.025 mg/L. 2299 2300 c) For this Section, the concentration of un-ionized ammonia nitrogen as N and total 2301 ammonia as N must be computed according to the following equations: 2302 $U = \frac{N}{[0.94412(1+10^{x})+0.0559]}$ 2303 and N = $U[0.94412(1 + 10^{x}) + 0.0559]$ 2304 2305 2306 Where: 2307 $X = 0.09018 + \frac{2729.92}{(T + 273.16)} - pH$ U = Concentration of un-ionized ammonia as N in mg/L N = Concentration of ammonia nitrogen as N in mg/L T = Temperature in degrees Celsius. 2308 (Source: Amended at 46 Ill. Reg. _____, effective _____) 2309 2310 2311 Section 302.540 Other Toxic Substances

2313 Waters of the Lake Michigan Basin must be free from any substance or any combination of 2314 substances in concentrations toxic or harmful to human health, or to animal, plant or aquatic life. The numeric standards protective of particular uses specified for individual chemical substances 2315 2316 in 35 Ill. Adm. Code 302.504 are not subject to recalculation by this Section, however, where no 2317 standard applies to a category, a numeric value may be calculated. 2318 2319 a) Any substance will be deemed toxic or harmful to aquatic life if present in 2320 concentrations that exceed the following: 2321 2322 1) A Tier I Lake Michigan Basin Acute Aquatic Life Toxicity Criterion 2323 (LMAATC) or Tier II Lake Michigan Basin Acute Aquatic Life Toxicity 2324 Value (LMAATV) derived under procedures in 35 Ill. Adm. Code 2325 302.555, 302.560 or 302.563 at any time; or 2326 2327 2) A Tier I Lake Michigan Basin Chronic Aquatic Life Toxicity Criterion (LMCATC) or Tier II Lake Michigan Basin Chronic Aquatic Life 2328 Toxicity Value (LMCATV) derived under procedures in 35 III. Adm. 2329 2330 Code 302.565 as an average of four samples collected on four different 2331 days. 2332 2333 **b**) Any combination of substances, including effluents, will be deemed toxic to 2334 aquatic life if present in concentrations that exceed either subsection (b)(1) or (2): 2335 2336 1) A sample of water from the Lake Michigan Basin collected outside of a 2337 designated zone of initial dilution must not exceed 0.3 TU_a as determined 2338 for the most sensitive species tested using acute toxicity testing methods. 2339 2340 2) A sample of water from the Lake Michigan Basin collected outside a 2341 designated mixing zone must not exceed 1.0 TU_c as determined for the 2342 most sensitive species tested using chronic toxicity testing methods. 2343 2344 3) To demonstrate compliance with subsections (1) and (2), at least two 2345 resident or indigenous species must be tested. The rainbow trout must be 2346 used to represent fishes for the Open Waters of Lake Michigan and the 2347 fathead minnow must represent fishes for the other waters of the Lake 2348 Michigan Basin. Ceriodaphnia must represent invertebrates for all waters 2349 of the Lake Michigan Basin. Other common species may be used if listed in Table I (a) of 40 CFR 136, incorporated by reference at 35 Ill. Adm. 2350 2351 Code 301.106, and approved by the Agency. 2352 2353 Any substance must be deemed toxic or harmful to wildlife if present in c)

concentrations that exceed a Tier I Lake Michigan Basin Wildlife Criterion

(LMWLC) derived under procedures in 35 Ill. Adm. Code 302.575 as an

arithmetic average of four samples collected over four different days.

2354

2355

2356

- d) For any substance that is a threat to human health through drinking water exposure only, the resulting criterion or value must apply to only the Open Waters of Lake Michigan. For any substance that is determined to be a BCC, the resulting criterion must apply in the entire Lake Michigan Basin. These substances must be deemed toxic or harmful to human health if present in concentrations that exceed either of the following:
 - 1) A Tier I Lake Michigan Basin Human Health Threshold Criterion (LMHHTC) or Tier II Lake Michigan Basin Human Health Threshold Value (LMHHTV) based on disease or functional impairment due to a physiological mechanism for which there is a threshold dose below which no damage occurs as derived under procedures in 35 Ill. Adm. Code 302.585 as an arithmetic average of four samples collected over four different days; or
 - 2) A Tier I Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or Tier II Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV) based on disease or functional impairment due to a physiological mechanism for which any dose may cause some risk of damage as derived under procedures in 35 Ill. Adm. Code 302.590 as an arithmetic average of four samples collected over four different days.
- e) The derived criteria and values apply at all points outside of any waters in which mixing is allowed under 35 Ill. Adm. Code 302.102 or 302.530.
- f) The procedures of this Subpart E set forth minimum data requirements, appropriate test protocols and data assessment methods for establishing criteria or values under subsections (b), (c), and (d). No other procedures may be used to establish such criteria or values unless approved by the Board in a rulemaking or adjusted standards proceeding under Title VII of the Act. The validity and applicability of these procedures may not be challenged in any proceeding brought under Title VIII or X of the Act, although the validity and correctness of application of the numeric criteria or values derived under this Subpart may be challenged in such proceedings under subsection (g).
- g) Challenges to application of criteria and values.
 - A permittee may challenge the validity and correctness of application of a criterion or value derived by the Agency under this Section only at the time such criterion or value is first applied in its NPDES permit under 35 Ill. Adm. Code 309.152 or in an action under Title VIII of the Act for violation of the toxicity water quality standard. Failure of a person to challenge the validity of a criterion or value at the time of its first

2 4 01			application to that person's facility constitutes a waiver of a challenge in
2402			any subsequent proceeding involving application of the criterion or value
2403			to that person.
2404			
2405		2)	Consistent with subsection $(g)(1)$, if a criterion or value is included as, or
2406			is used to derive, a condition of an NPDES discharge permit, a permittee
2407			may challenge the criterion or value in a permit appeal under 35 Ill. Adm.
2408			Code 309.181.
2409			
2410		3)	Consistent with subsection (g)(1), in an action where alleged violation of
2411			the toxicity water quality standard is based on alleged excursion of a
2412			criterion or value, the person bringing the action has the burdens of going
2413			forward with proof and persuasion regarding the general validity and
2414			correctness of application of the criterion or value.
2415			
2416	h)	Subs	ections (a) through (e) do not apply to USEPA registered pesticides approved
2417	,		quatic application and applied under the following conditions:
2418			
2419		1)	Application must be made in strict compliance with label directions;
2420		,	
2421		2)	Applicator must be properly certified under the provisions of the Federal
2422		,	Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq. (1972));
2423			
2424		3)	Applications of aquatic pesticides must comply with the laws, regulations
2425		,	and guidelines of all State and federal agencies authorized by law to
2426			regulate, use or supervise pesticide applications;
2427			
2428		4)	Aquatic pesticide must not be applied to waters affecting public or food
2429		,	processing water supplies unless a permit to apply the pesticide has been
2430			obtained from the Agency. All permits must be issued so as not to cause a
2431			violation of the Act or of any of the Board's rules. To aid applicators in
2432			determining their responsibilities under this subsection (h), a list of waters
2433			affecting public water supplies will be published and maintained by the
2434			Agency's Division of Public Water Supplies.
2435			5 ,
2436	(Sour	rce: Ar	mended at 46 Ill. Reg, effective)
2437	(~ 5 6.		

Section 302.545 Data Requirements

The Agency must review, for validity, applicability and completeness the data used in calculating criteria or values. To the extent available, and to the extent not otherwise specified, testing procedures, selection of test species and other aspects of data acquisition must be according to methods published by USEPA or nationally recognized standards of organizations, including those methods found in Standard Methods, incorporated by reference in 35 Ill. Adm.

2445 2446	Code 301.10 301.106.	6, or re	commended in 40 CFR	132, incorporated by i	eference in 35 III. Adr	n. Code
2447	301.100.					
2448	(Sour	ce: An	nended at 46 Ill. Reg	effective)	
2449	(2011	7 111		, •		
2450	Section 302.	550 Aı	nalytical Testing			
2451	~ C C C C C C C C C C C C C C C C C C C					
2452	All methods	of sami	ple collection, preservati	on, and analysis used	in applying any of the	;
2453			Subpart must be consist	•		
2454	-		ed standards of organizat		•	
2455	Methods, inc	orporat	ted by reference in 35 Ill	. Adm. Code 301.106	, or recommended in 4	0 CFR
2456	132 and inco	rporate	d by reference in 35 Ill.	Adm. Code 301.106.		
2457						
2458	(Sour	ce: An	nended at 46 Ill. Reg	, effective		
2459						
2460			etermining the Lake M	ichigan Aquatic Tox	icity Criteria or Valu	ies –
2461	General Pro	cedure	es			
2462						
2463		_	Aquatic Life Criteria an			
2464			aquatic life is protected f	from adverse effects re	esulting from short or l	long term
2465	exposure in v	vater.				
2466	,		r '. ' 1m' rr 1			
2467	a)		I criteria and Tier II valu	1 0		
2468		_	nisms will be calculated	O 1		
2469			555, 302.560 and 302.56			
2470			be used as necessary to		-	•
2471 2472			acteristics such as hardne es to protect against chro			
2472			rding to the procedures li	*	· ·	Culated
2473		accor	runig to the procedures h	isted at 33 III. Adiii. C	Jule 302.303.	
2475	b)	Mini	mum data requirements.	In order to derive a	Fier Lacute or chronic	criterion
2476	0)		must be available for at 1			
2477			different families such t	*		Cust
2478		015110	different lamines saen t	and the folio wing take	vare interaction.	
2479		1)	The family Salmonida	ae in the class Osteich	thves:	
2480		-/	<i>,</i>		j ,	
2481		2)	One other family in the	ne class Osteichthyes;		
2482		,	J	, ,		
2483		3)	A third family in the p	ohylum Chordata;		
2484		,	, 1	. •		
2485		4)	A planktonic crustace	an;		
2486		,	•			
2487		5)	A benthic crustacean;			
2488						

2489		6) An insect;
2490		
2491		7) A family in a phylum other than Arthropoda or Chordata; and
2492		
2493		8) A family from any order of insect or any phylum not already represented.
2494		
2495	c)	Data for tests with plants, if available, must be included in the data set.
2496		
2497	d)	If data for acute effects are not available for all the eight families listed above, but
2498		are available for the family Daphnidae, a Tier II value must be derived according
2499		to procedures in 35 Ill. Adm. Code 302.563. If data for chronic effects are not
2500		available for all the eight families, but there are acute and chronic data available
2501		according to 35 Ill. Adm. Code 302.565(b) so that three acute to chronic ratios
2502		(ACRs) can be calculated, then a Tier I chronic criterion can be derived according
2503		to procedures in 35 Ill. Adm. Code 302.565. If three ACRs are not available, then
2504		a Tier II chronic value can be derived according to procedures in 35 Ill. Adm.
2505		Code 302.565(b).
2506		
2507	e)	Data must be obtained from species that have reproducing wild populations in
2508	,	North America except that data from salt water species can be used in the
2509		derivation of an ACR.
2510		
2511	(Source	e: Amended at 46 Ill. Reg, effective)
2512		<u> </u>
2513	Section 302.5	555 Determining the Tier I Lake Michigan Acute Aquatic Toxicity Criterion
2514		Independent of Water Chemistry
2515	,	ı v
2516	If the acute to	xicity of the chemical has not been shown to be related to a water quality
2517		including hardness, pH, or temperature, the Tier I LMAATC is calculated using
2518	the procedure	
2519	F	
2520	a)	For each species for which more than one acute value is available, the Species
2521)	Mean Acute Value (SMAV) is calculated as the geometric mean of the acute
2522		values from all tests.
2523		
2524	b)	For each genus for which one or more SMAVs are available, the Genus Mean
2525	0)	Acute Value (GMAV) is calculated as the geometric mean of the SMAVs
2526		available for the genus.
2527		available for the genus.
	c)	The GMAVs are ordered from high to low in numerical order.
2528	•)	The Givin visite ordered from high to low in numerical order.
2528 2529	,	<u> </u>
2528	d)	Ranks (R) are assigned to the GMAVs from "1" for the lowest to "N" for the highest. If two or more GMAVs are identical, successive ranks are arbitrarily

2533		
2534	e)	The cumulative probability, P, is calculated for each GMAV as R/(N+1).
2535		
2536	f)	The GMAVs to be used in the calculations of subsection (g) must be those with
2537		cumulative probabilities closest to 0.05. If there are fewer than 59 GMAVs in the
2538		total data set, the values utilized must be the lowest four obtained through the
2539		ranking procedures of subsections (c) and (d).
2540		
2541	g)	Using the GMAVs identified under subsection (f) and the Ps calculated under
2542		subsection (e), the Final Acute Value (FAV) and the LMAATC are calculated as:
2543		
2544		FAV = exp(A) and
2545		LMAATC = FAV/2
2546		
2547		Where:
2548		
		A = L + 0.2236 S
		$L = [\Sigma(\ln GMAV) - S(\Sigma(P(0.5)))]/4$
		$S = [[\Sigma((\ln GMAV)^2) - ((\Sigma(\ln GMAV))^2)/4] / [\Sigma(P) - ((\Sigma(P^{0.5}))^2)/4]]^{0.5}$
2549		
2550	h)	If a resident or indigenous species, whose presence is necessary to sustain
2551		commercial or recreational activities, will not be protected by the calculated
2552		FAV, then the SMAV for that species is used as the FAV.
2553		
2554	(Source	e: Amended at 46 Ill. Reg, effective)
2555		
2556	Section 302.5	60 Determining the Tier I Lake Michigan Basin Acute Aquatic Life Toxicity

Section 302.560 Determining the Tier I Lake Michigan Basin Acute Aquatic Life Toxicity Criterion (LMAATC): Dependent on Water Chemistry

If data are available to show that a relationship exists between a water quality characteristic (WQC) and acute toxicity to two or more species, a Tier I LMAATC must be calculated using procedures in this Section. Although the relationship between hardness and acute toxicity is typically non-linear, it can be linearized by a logarithmic transformation (i.e., for any variable, K, f(K) = logarithm of K) of the variables and plotting the logarithm of hardness against the logarithm of acute toxicity. Similarly, relationships between acute toxicity and other water quality characteristics, such as pH or temperature, may require a transformation, including no transformation (i.e., for any variable, K, f(K) = K) for one or both variables to obtain least squares linear regression of the transformed acute toxicity values on the transformed values of the water quality characteristic. An LMAATC is calculated using the following procedures.

a) For each species for which acute toxicity values are available at two or more different values of the water quality characteristic, a linear least squares regression of the transformed acute toxicity (TAT) values on the transformed

2573 water quality characteristic (TWQC) values is performed to obtain the slope of the 2574 line describing the relationship. 2575 2576 b) Each of the slopes determined under subsection (a) is evaluated as to whether it is 2577 statistically valid, considering the range and number of tested values of the water 2578 quality characteristic and the degree of agreement within and between species. If 2579 slopes are not available for at least one fish and one invertebrate species, or if the 2580 available slopes are too dissimilar or if too few data are available to define the relationship between acute toxicity and the water quality characteristic, then the 2581 LMAATC must be calculated using the procedures in 35 Ill. Adm. Code 302.555. 2582 2583 2584 c) Normalize the TAT values for each species by subtracting W, the arithmetic mean of the TAT values of a species, from each of the TAT values used in the 2585 2586 determination of the mean, such that the arithmetic mean of the normalized TAT 2587 values for each species individually or for any combination of species is zero 2588 (0.0). 2589 2590 d) Normalize the TWQC values for each species using X, the arithmetic mean of the 2591 TWQC values of a species, in the same manner as in subsection (c). 2592 2593 e) Group all the normalized data by treating them as if they were from a single 2594 species and perform a least squares linear regression of all the normalized TAT 2595 values on the corresponding normalized TWQC values to obtain the pooled acute 2596 slope, V. 2597 2598 f) For each species, the graphical intercept representing the species TAT intercept, 2599 f(Y), at a specific selected value, Z, of the WQC is calculated using the equation: 2600 2601 f(Y) = W - V(X - g(Z))2602 2603 Where: 2604

- f() is the transformation used to convert acute toxicity values to TAT values
- Y is the species acute toxicity intercept or species acute intercept
- W is the arithmetic mean of the TAT values as specified in subsection (c)
- V is the pooled acute slope as specified in subsection (e)
- X is the arithmetic mean of the TWQC values as specified in subsection (c)
- g() is the transformation used to convert the WQC values to TWQC values
- Z is a selected value of the WQC

1st Notice

JCAR350302-2207052r01

2605			
2606	g)	For each species, determine the species acute interce	ept, Y, by carrying out an
2607		inverse transformation of the species TAT value, f(Y	
2608		of a logarithmic transformation, Y = antilogarithm of	of $(f(Y))$; or in the case where
2609		no transformation is used, $Y = f(Y)$.	
2610			
2611	h)	The Final Acute Intercept (FAI) is derived by using	the species acute intercepts,
2612		obtained from subsection (f), in compliance with the	e procedures described in 35
2613		Ill. Adm. Code 302.555(b) through (g), with the wor	rd "value" replaced by the
2614		word "intercept". Note that in this procedure geome	etric means and natural
2615		logarithms are always used.	
2616			
2617	i)	The Aquatic Acute Intercept (AAI) is obtained by d	ividing the FAI by two. If, for
2618		a commercially or recreationally important species,	the geometric mean of the
2619		acute values at Z is lower than the FAV at Z, then the	ne geometric mean of that
2620		species must be used as the FAV.	_
2621		•	
2622	j)	The LMAATC at any value of the WQC, denoted by	y WQCx, is calculated using
2623		the terms defined in subsection (f) and the equation:	·
2624		•	
2625		$LMAATC = \exp[V(g(WQCx) - g(Z))]$	f(AAI)
2626			,
2627	(Source	ee: Amended at 46 Ill. Reg, effective)
2628	`	<u> </u>	
2629	Section 302.5	663 Determining the Tier II Lake Michigan Basin	Acute Aquatic Life Toxicity
2630	Value (LMA		·
2631	`	,	
2632	If all eight mi	nimum data requirements for calculating a FAV using	g Tier I procedures are not
2633	met, a Tier II	LMAATV must be calculated for a substance as follows:	ows:
2634	•		
2635	a)	The lowest GMAV in the database is divided by the	Secondary Acute Factor
2636	,	(SAF) corresponding to the number of satisfied min	•
2637		in the Tier I methodology (35 Ill. Adm. Code 302.53	
2638		Tier II LMAATV, the data base must contain, at a n	
2639		the following three genera in the family Daphnidae	•
2640		sp., or <i>Simocephalus</i> sp. The Secondary Acute Fact	
2641		1) which is a second of the s	
		Number of Minimum data requirements satisfied (required taxa)	Secondary Acute Factor
		1	43.8
		2	26.0

				3		16.0
				4		14.0
				5		12.2
				6		10.4
				7		8.6
2642 2643 2644 2645	b)	-		-	ty characteristic, the Adm. Code 302.5	ne Tier II LMAATV must be 60.
2646	(Sour	ce: Ame	nded a	ıt 46 Ill. Reg	, effective)
2647 2648 2649 2650 2651		MCATC		_	_	ronic Aquatic Life Toxicity Aquatic Life Toxicity Value
2652 2653	a)	Determ	nining	Tier I LMCATO		
2654 2655 2656 2657 2658 2659 2660 2661		1)	indige freshv LMC. 302.5 acute,	enous species frowater organisms ATC is derived 55 or 302.560 b SMCV (Specie	om eight different as specified in 35 in the same manne y substituting LMG	for at least eight resident or North American genera of Ill. Adm. Code 302.553, a Tier I r as the FAV in 35 Ill. Adm. Code CATC for FAV or FAI, chronic for alue) for SMAV, and GMCV V.
2662 2663 2664 2665 2666 2667		2)	If data are not available to meet the requirements of subsection (a), a Tier I LMCATC is calculated by dividing the FAV by the geometric mean of the acute-chronic ratios (ACRs) obtained from at least one species of aquatic animal from at least three different families provided that of the three species:			
2668 2669			A)	At least one is	a fish;	
2670 2671			B)	At least one is	an invertebrate; a	nd
2672 2673 2674			C)		pecies is an acutely saltwater species.	sensitive freshwater species if the
2675 2676		3)				cies equals the acute toxicity er 35 Ill. Adm. Code 302.555 or

2677			302.5	560, divided by the chronic toxicity concentration.
2678				
2679		4)	If a r	esident or indigenous species whose presence is necessary to sustain
2680			comr	nercial or recreational activities will not be protected by the
2681			calcu	lated LMCATC, then the SMCV for that species is used as the
2682			CAT	C.
2683				
2684	b)	Dete	rmining	the Tier II LMCATV
2685	,		Č	
2686		1)	If all	eight minimum data requirements for calculating a FCV using Tier I
2687		,		edures are not met, or if there are not enough data for all three ACRs,
2688			-	r II Lake Michigan Chronic Aquatic Life Toxicity Value must be
2689				lated using a secondary acute chronic ratio (SACR) determined as
2690			follo	· · · · · · · · · · · · · · · · · · ·
2691			10110	
2692			A)	If fewer than three valid experimentally determined ACRs are
2693			11)	available:
2694				uvulluole.
2695				i) Use sufficient ACRs of 18 so that the total number of
2696				ACRs equals three; and
2697				Teres equals tinee, and
2698				ii) Calculate the Secondary Acute-Chronic Ratio as the
2699				geometric mean of the three ACRs; or
2700				geometric mean of the three ACRS, of
2701			B)	If no experimentally determined ACRs are available, the SACR is
2702			D)	18.
2702				10.
2704		2)	Calc	alate the Tier II LMCATV using one of the following equations:
2705		2)	Carc	dide the field Elvicative using one of the following equations.
2706			A)	Tier II LMCATV = FAV / SACR
2707			A)	TICH II LIVICAT V - TAV / SACK
2708			B)	Tier II LMCATV = SAV / FACR
2709			D)	TICH EWICKI V SAV / TACK
2710			C)	Tier II LMCATV = SAV / SACR
2711			C)	THE IT ENTERTY SHOW SHOW
2712				Where:
2713				W Here.
2714				the SAV equals 2 times the value of the Tier II LMAATV
2715				calculated in 35 Ill. Adm. Code 302.563
2716				calculated in 33 iii. Adiii. Code 302.303
		2)	If fo	r a commercially or recreationally important angles, the SMCV is
2717 2718		3)		r a commercially or recreationally important species, the SMCV is
				r than the calculated Tier II LMCATV, then the SMCV must be used a Tier II LMCATV.
2719			as in	ETIELILLIVICATV.
2720				

(Source: Amended at 46 Ill. Reg. , effective) 2721 2722 2723 Section 302.570 Procedures for Deriving Bioaccumulation Factors for the Lake Michigan 2724 Basin 2725 2726 A bioaccumulation factor (BAF) is used to relate the concentration of a substance in an aquatic 2727 organism to the concentration of the substance in the waters in which the organism resides when 2728 all routes of exposure (ambient water and food) are included. A BAF is used in the derivation of water quality criteria to protect wildlife and criteria and values to protect human health. 2729 2730 Selection of data. BAFs can be obtained or developed from one of the following 2731 a) 2732 methods, listed in order of preference. 2733 2734 Field-measured BAF. 1) 2735 2736 Field-measured biota-sediment accumulation factor (BSAF). 2) 2737 2738 3) Laboratory-measured bioconcentration factor (BCF). 2739 The concentration of particulate organic carbon (POC) and dissolved organic carbon (DOC) in the test solution must be either measured or 2740 2741 reliably estimated. 2742 2743 4) Predicted BCF. 2744 2745 Predicted baseline BCF = Kow. 2746 2747 b) Calculation of baseline BAFs for organic chemicals. The most preferred BAF or BCF from above is used to calculate a baseline BAF 2748 which in turn is utilized to derive a human health or wildlife specific BAF. 2749 2750 2751 1) Procedures for determining the necessary elements of baseline calculation. 2752 2753 A) Lipid normalization. The lipid-normalized concentration, C₁, of a 2754 chemical in tissue is defined using the following equation: 2755 $C_1 = C_b / f_1$ 2756 2757 2758 Where: 2759 C_b = concentration of the organic chemical in the tissue of aquatic biota (either whole organism or specified tissue) ($\mu g/g$) f_1 = fraction of the tissue that is lipid

2761 2762 2763 2764 2765		B)	Bioavailability. The fraction of the total chemical in the ambient water that is freely dissolved, f_{fd} , must be calculated using the following equation:
2766 2767			$f_{fd} = 1 / \{1 + [(DOC)(Kow)/10] + [(POC)(Kow)]\}$
2768 2769			Where:
			DOC = concentration of dissolved organic carbon, kg of dissolved organic carbon/L of water Kow = octanol-water partition coefficient of the chemical
			POC = concentration of particulate organic carbon, kg of particulate organic carbon/L of water
2770			
2771		C)	Food Chain Multiplier (FCM). For an organic chemical, the FCM
2772			used must be taken from Table B-1 in Appendix B of 40 CFR 132
2773			incorporated by reference at 35 Ill. Adm. Code 301.106.
2774			
2775	2)	Calcul	ation of baseline BAFs.
2776			
2777		A)	From field-measured BAFs:
2778			
2779			Baseline BAF = $\{ [measured BAF_{tT} / f_{fd}] - 1 \} \{ 1 / f_1 \}$
2780			
2781			Where:
2782			
			$BAF_{tT} = BAF$ based on total concentration in tissue and water of study organism and site
			f ₁ = fraction of the tissue of study organism that is lipid
			f _{fd} = fraction of the total chemical that is freely dissolved in the ambient water
2783			
2784		B)	From a field measured biota-sediment accumulation factor
2785		,	(BSAF):
2786			(= 3.2.2).
2787			$(Baseline\ BAF)_i = (baseline\ BAF)_r (BSAF)_i (Kow)_i /$
2788			(BSAF) _r (Kow) _r
2789			(2212)1 (12011)1
2790			Where:
2791			
_,,,			(BSAF) _i = BSAF for chemical "i"

2502	 (BSAF)_r = BSAF for the reference chemical "_r" (KOW)_i = octanol-water partition coefficient for chemical "_i" (KOW)r = octanol-water partition coefficient for the reference chemical "_r"
2792 2793 2794	i) A BSAF must be calculated using the following equation:
2795 2796	$BSAF = C_1 / C_{soc}$
2797 2798	Where:
2500	 C₁ = the lipid-normalized concentration of the chemical in tissue C_{soc} = the organic carbon-normalized concentration of the chemical in sediment
2799 2800 2801 2802	ii) The organic carbon-normalized concentration of a chemical in sediment, C_{soc} , must be calculated using the following equation:
2803 2804 2805	$C_{soc} = C_s / f_{oc}$
2806 2807	Where:
	C_s = concentration of chemical in sediment ($\mu g/g$ sediment)
2000	f_{oc} = fraction of the sediment that is organic carbon
2808 2809 C) 2810	From a laboratory-measured BCF:
2811 2812	baseline BAF = (FCM) { [measured BCF $_{tT}$ / f_{fd}] - 1 } { 1 / f_1 }
2813 2814	Where:
	$BCF_{tT} = BCF$ based on total concentration in tissue and water.
	f_1 = fraction of the tissue that is lipid
	f_{fd} = fraction of the total chemical in the test water that is freely dissolved
	FCM = the food-chain multiplier obtained from Table B-1 in Appendix B of 40 CFR 132, incorporated by reference at 35 Ill. Adm. Code 301.106, by linear

JCAR350302-2207052r01

interpolation for trophic level 3 or 4, as necessary

2815				
2816			D)	From a predicted BCF:
2817				1 and 1 and DAE (ECM) (and 1 at 11 and 1 and DCE) (ECM)(Warra)
2818 2819				baseline $BAF = (FCM)$ (predicted baseline BCF) = $(FCM)(Kow)$
2820				Where:
2821				Where.
2021				FCM = the food-chain multiplier obtained from Table B-1 in Appendix B of 40 CFR 132, incorporated by reference at 35 Ill. Adm. Code 301.106 302.510, by linear interpolation for trophic level 3 or 4, as necessary Kow = octanol-water partition coefficient
2822				
2823	c)	Hum	an healt	h and wildlife BAFs for organic chemicals:
2824				
2825		1)		ion freely dissolved (f_{fd}). By using the equation in subsection
2826)(B), the f _{fd} to be used to calculate human health and wildlife BAFs
2827				n organic chemical must be calculated using a standard POC
2828			conce	entration of 0.00000004 kg/L and a standard DOC concentration of
2829			0.000	0002 kg/L:
2830				
2831				$f_{fd} = 1 / [1 + (0.00000024 \text{ kg/L})(\text{Kow})]$
2832				
2833		2)		an health BAF. The human health BAFs for an organic chemical
2834			must	be calculated using the following equations:
2835				
2836			A)	For trophic level 3:
2837				
2838				Human Health BAF _{HHTL3} = [(baseline BAF)(0.0182) + 1] (f_{fd})
2839				
2840			B)	For trophic level 4:
2841				Y
2842				Human Health BAF _{HHTL4} = [(baseline BAF) $(0.0310) + 1$] (f _{fd})
2843				****
2844				Where:
2845				
2846				0.0182 and 0.0310 are the standardized fraction lipid values
2847				for trophic levels 3 and 4, respectively, that are used to
2848				derive human health criteria and values
2849		2)	TT7'1 1	
2850		3)	W1ld	life BAF. The wildlife BAFs for an organic chemical must be

1st Notice JCAR350302-2207052r01

2851		calcu	lated using the following equations:
2852			
2853		A)	For trophic level 3:
2854			
2855			Wildlife $BAF_{WLTL3} = [(baseline BAF)(0.0646) + 1] (f_{fd})$
2856			
2857		B)	For trophic level 4:
2858			
2859			Wildlife BAF _{WLTL4} = [(baseline BAF)(0.1031) + 1] (f_{fd})
2860			
2861			Where:
2862			
2863			0.0646 and 0.1031 are the standardized fraction lipid values
2864			for trophic levels 3 and 4, respectively, that are used to
2865			derive wildlife criteria
2866			
2867	d)	Human healt	h and wildlife BAFs for inorganic chemicals. For inorganic
2868		chemicals the	e baseline BAFs for trophic levels 3 and 4 are both assumed to equal
2869		the BCF dete	ermined for the chemical with fish.
2870			
2871		1) Huma	an health. Measured BAFs and BCFs used to determine human
2872		health	BAFs for inorganic chemicals must be based on concentration in
2873		edible	e tissue (e.g., muscle) of freshwater fish.
2874			
2875		2) Wildl	life. Measured BAFs and BCFs used to determine wildlife BAFs for
2876		inorg	anic chemicals must be based on concentration in the whole body of
2877		fresh	water fish and invertebrates.
2878			
2879	(Sour	rce: Amended a	at 46 Ill. Reg, effective)
2880			

Section 302.575 Procedures for Deriving Tier I Water Quality Criteria and Values in the Lake Michigan Basin to Protect Wildlife

 The Lake Michigan Basin Wildlife Criterion (LMWC) is the concentration of a substance which if not exceeded protects Illinois wild mammal and bird populations from adverse effects resulting from ingestion of surface waters of the Lake Michigan Basin and from ingestion of aquatic prey organisms taken from surface waters of the Lake Michigan Basin. Wildlife criteria calculated under this Section protect against long-term effects and are therefore considered chronic criteria. The methodology involves utilization of data from test animals to derive criteria to protect representative or target species: bald eagle, herring gull, belted kingfisher, mink and river otter. The lower of the geometric mean of species specific criteria for bird species or mammal species is chosen as the LMWC to protect a broad range of species.

a) This method must also be used for non-BCCs when appropriately modified to

2895		consid	ler the f	following factors:	
2896		1)	Salaat	ion of accentifically instified towart anguing.	
2897 2898		1)	Selection of scientifically justified target species;		
2899		2)	Releva	ant routes of chemical exposure;	
2900		2)	iccieva	unit Toutes of enemieur exposure,	
2901		3)	Pertin	ent toxicity endpoints.	
2902		- /			
2903	b)	Minin	num dat	a requirements:	
2904	,			1	
2905		1)	Test d	ose (TD). In order to calculate a LMWC the following minimal data	
2906				s required:	
2907				•	
2908			A)	There must be at least one data set showing dose-response for oral,	
2909				subchronic, or chronic exposure of 28 days for one bird species;	
2910				and	
2911					
2912			B)	There must be at least one data set showing dose-response for oral,	
2913				subchronic, or chronic exposure of 90 days for one mammal	
2914				species.	
2915					
2916		2)	Bioac	cumulation Factor (BAF) data requirements:	
2917					
2918			A)	For any chemical with a BAF of less than 125 the BAF may be	
2919				obtained by any method; and	
2920					
2921			B)	For chemicals with a BAF of greater than 125 the BAF must come	
2922				from a field measured BAF or Biota-Sediment Accumulation	
2923				Factor (BSAF).	
2924					
2925	c)	Princi	ples for	development of criteria	
2926					
2927		1)		standardization. The data for the test species must be expressed as,	
2928				verted to, the form mg/kg/d utilizing the guidelines for drinking and	
2929				g rates and other procedures in 40 CFR 132, incorporated by	
2930			refere	nce in 35 Ill. Adm. Code 301.106.	
2931					
2932		2)		tainty factors (UF) for utilizing test dose data in the calculation of	
2933			the tar	get species value (TSV);	
2934					
2935			A)	Correction for intermittent exposure. If the animals used in a study	
2936				were not exposed to the toxicant each day of the test period, the no	
2937				observed adverse effect level (NOAEL) must be multiplied by the	
2938				ratio of days of exposure to the total days in the test period.	

2939			
2940		B)	Correction from the lowest observed adverse effect level (LOAEL)
2941		,	to NOAEL (UF ₁). For those substances for which a LOAEL has
2942			been derived, the UF ₁ must not be less than one and should not
2943			exceed 10.
2944			
2945		C)	Correction for subchronic to chronic extrapolation (UF _s). In
2946		,	instances where only subchronic data are available, the TD may be
2947			derived from subchronic data. The value of the UF _s must not be
2948			less than one and should not exceed 10.
2949			
2950		D)	Correction for interspecies extrapolations (UF _a). For the derivation
2951		,	of criteria, a UF _a must not be less than one and should not exceed
2952			100. The UF _a must be used only for extrapolating toxicity data
2953			across species within a taxonomic class. A species specific UF _a
2954			must be selected and applied to each target species, consistent with
2955			the equation in subsection (d).
2956			1
2957	d)	Calculation of	f TSV. The TSV, measured in milligrams per liter (mg/L), is
2958	,		cording to the equation:
2959			
2960		$TSV = \{[TD]\}$	$x Wt] / [UF_a x UF_s x UF_1] \} / \{W + \Sigma [F_{TLi} x BAF_{WLTLi}] \}$
2961		(L	3, ([]
		Where:	
		TSV	= target species value in milligrams of substance per liter (mg/L).
		TD	= test dose that is toxic to the test species, either NOAEL or
		110	LOAEL.
		UF_a	= the uncertainty factor for extrapolating toxicity data across
		OT a	species (unitless). A species-specific UF _a must be selected
			and applied to each target species, consistent with the
			equation.
		$\mathrm{Uf_{s}}$	= the uncertainty factor for extrapolating from subchronic to
		OIs	chronic exposures (unitless).
		Uf_1	= the uncertainty factor for extrapolation from LOAEL to
		OH	NOAEL (unitless).
		Wt	= average weight in kilograms (kg) of the target species.
		W	= average daily volume of water in liters consumed per day
		v v	(L/d) by the target species.
		F_{TLi}	= average daily amount of food consumed by the target species
		TTL1	in kilograms (kg/d) for trophic level i.
		BAF_{WLTLi}	
		DATWLTLi	
			kilogram (L/kg), as derived from 35 Ill. Adm. Code 302.570

JCAR350302-2207052r01

for trophic level i.

2962				
2963	e)	Calcu	ılation of	The Lake Michigan Basin Wildlife Criterion. TSVs are obtained
2964	,			t species. The geometric mean TSVs of all mammal species is
2965				also of all bird species. The LMWC is the lower of the bird or
2966				netric mean TSV.
2967			υ	
2968	(Sour	ce: An	nended at	: 46 Ill. Reg, effective)
2969				<u> </u>
2970	Section 302.5	580 Pr	ocedure	s for Deriving Water Quality Criteria and Values in the Lake
2971				Human Health - General
2972	9			
2973	a)	The I	Lake Mic	higan Basin human health criteria or values for a substance are
2974	,			rations at which humans are protected from adverse effects resulting
2975				al exposure to, or ingestion of, the waters of Lake Michigan and
2976				of aquatic organisms taken from the waters of Lake Michigan. A
2977			_	n Human Health Threshold Criterion (LMHHTC) or Lake Michigan
2978			_	Threshold Value (LMHHTV) will be calculated for all substances
2979				5 Ill. Adm. Code 302.585, if data is available. Water quality
2980			_	nes for substances which are, or may be, carcinogenic to humans
2981				lculated according to procedures for the Lake Michigan Human
2982				reshold Criterion (LMHHNC) or the Lake Michigan Human Health
2983		Nont	nreshold	Value (LMHHNV) in 35 Ill. Adm. Code 302.590.
2984				•
2985	b)	Minii	num data	a requirements for BAFs for Lake Michigan Basin human health
2986	ŕ	criter	ia:	•
2987				
2988		1)	Tier I.	
2989				
2990			A)	For all organic chemicals, either a field-measured BAF or a BAF
2991				derived using the BSAF methodology is required unless the
2992				chemical has a BAF less than 125, then a BAF derived by any
2993				methodology is required; and
2994				
2995			B)	For all inorganic chemicals, including organometals such as
2996				mercury, either a field-measured BAF or a laboratory-measured
2997				BCF is required.
2998				
2999		2)		. Any bioaccumulation factor method in 35 Ill. Adm. Code
3000			302.57	0(a) may be used to derive a Tier II criterion.
3001				
3002	(Source	ce: An	nended at	46 Ill. Reg, effective)
3003				
3004	Section 302.5	585 Pr	ocedures	s for Determining the Lake Michigan Basin Human Health

Section 302.585 Procedures for Determining the Lake Michigan Basin Human Health

1st Notice JCAR350302-2207052r01

3005 Threshold Criterion (LMHHTC) and the Lake Michigan Basin Human Health Threshold 3006 Value (LMHHTV) 3007 3008 The LMHHTC or LMHHTV is derived for all toxic substances from the most sensitive end point 3009 for which there exists a dosage or concentration below which no adverse effect or response is 3010 likely to occur. 3011 3012 a) Minimum data requirements: 3013 Tier I. The minimum data set sufficient to derive a Tier I LMHHTC must 3014 1) 3015 include at least one epidemiological study or one animal study of greater 3016 than 90 days duration; or 3017 3018 Tier II. When the minimum data for deriving Tier I criteria are not 2) available, a more limited database consisting of an animal study of greater 3019 3020 than 28 days duration must be used. 3021 3022 b) Principles for development of Tier I criteria and Tier II values: 3023 3024 1) The experimental exposure level representing the highest level tested at which no adverse effects were demonstrated (NOAEL) must be used for 3025 3026 calculation of a criterion or value. In the absence of a NOAEL, a LOAEL 3027 must be used if it is based on relatively mild and reversible effects; 3028 3029 2) Uncertainty factors (UFs) must be used to account for the uncertainties in predicting acceptable dose levels for the general human population based 3030 3031 upon experimental animal data or limited human data: 3032 3033 A) A UF of 10 must be used when extrapolating from experimental 3034 results of studies on prolonged exposure to average healthy 3035 humans; 3036 3037 B) A UF of 100 must be used when extrapolating from results of long-3038 term studies on experimental animals; 3039 3040 A UF of up to 1000 must be used when extrapolating from animal C) 3041 studies for which the exposure duration is less than chronic, but 3042 greater than subchronic; 3043 3044 D) A UF of up to 3000 must be used when extrapolating from animal studies for which the exposure duration is less than subchronic; 3045 3046 3047 An additional UF of between one and ten must be used when E)

3048

deriving a criterion from a LOAEL. The level of additional

3049			uncerta	inty applied will depend upon the severity and the
3050			inciden	ce of the observed adverse effect;
3051				
3052				itional UF of between one and ten must be applied when
3053			there ar	e limited effects data or incomplete sub-acute or chronic
3054			toxicity	data;
3055				
3056		3)		tainty (\sum of the uncertainty factors) must not exceed 10,000
3057			for Tier I criter	ion and 30,000 for Tier II value; and
3058				
3059		4)	All study result	ts must be converted to the standard unit for acceptable
3060			daily exposure	of milligrams of toxicant per kilogram of body weight per
3061			day (mg/kg/day	y). Doses must be adjusted for continuous exposure.
3062				
3063	c)	Tier 1	I criteria and Tier	II value derivation.
3064				
3065		1)	Determining th	e Acceptable Daily Exposure (ADE)
3066			_	• • • • • • • • • • • • • • • • • • • •
3067			ADE = test val	ue / \sum of the UFs from subsection (b)(2)
3068				
3069			Where:	
3070				
3071			accepta	ble daily exposure is in milligrams toxicant per kilogram
3072			-	eight per day (mg/kg/day)
3073			J	
3074		2)	Determining th	e Lake Michigan Basin Human Health Threshold Criterion
3075		,	_	the Lake Michigan Basin Human Health Threshold Value
3076			(LMHHTV)	C
3077			,	
3078			LMHHTC or I	MHHTV =
3079				
3080				{ADE x BW x RSC } /
3081				(12212)
3082			7}	$WC + [(FC_{TL3} \times BAF_{HHTL3}) + (FC_{TL4} \times BAF_{HHTL4})]$
3083			(
3084			Where:	
3085			Where.	
3003			LMHH	TC or LMHHTV is in milligrams per liter (mg/L)
			ADE	= acceptable daily intake in milligrams toxicant per kilogram body weight per day (mg/kg/day)
			RSC	= relative source contribution factor of 0.8
			BW	= weight of an average human (BW = 70 kg)

1st Notice JCAR350302-2207052r01

WC = per capita water consumption (both drinking and incidental exposure) for surface waters classified as public water supplies = two liters/day; or per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01liters/day FCTL3 = mean consumption of trophic level 3 fish by regional sport fishers of regionally caught freshwater fish = 0.0036 kg/day = mean consumption of trophic level 4 fish by regional FC_{TI.4} sport fishers of regionally caught freshwater fish = 0.0114 kg/day BAF_{HHTL3} = human health bioaccumulation factor for edible portion of trophic level 3 fish, as derived using the BAF methodology in 35 Ill. Adm. Code 302.570 BAF_{HHTL4} = human health bioaccumulation factor for edible portion of trophic level 4 fish, as derived using the BAF methodology in 35 Ill. Adm. Code 302.570

(Source, Timenaca at 40 m. Reg. , effective	(Source:	Amended at 46 Ill. Reg.	, effective)
---	----------	-------------------------	-------------	---

3090

3091

3092 3093

3094

3095

3096

3097 3098

3099

3100 3101

3102 3103

3104 3105

3106 3107

3108

3109

3110

Section 302.590 Procedures for Determining the Lake Michigan Basin Human Health Nonthreshold Criterion (LMHHNC) or the Lake Michigan Basin Human Health Nonthreshold Value (LMHHNV)

A LMHHNC or LMHHNV must be derived for those toxic substances for which any exposure, regardless of extent, carries some risk of damage from cancer or a nonthreshold toxic mechanism. For single or combinations of substances, a risk level of 1 in 100,000 (or 10⁻⁵) must be used for the purpose of determination of a LMHHNC or LMHHNV.

- a) Minimum data requirements. Minimal experimental or epidemiological data requirements are incorporated in the cancer classification determined by USEPA at Appendix C II A to 40 CFR 132, incorporated by reference at 35 Ill. Adm. Code 301.106.
- b) Principles for development of criteria or values:
 - Animal data are fitted to a linearized multistage computer model (Global 1986 in "Mutagenicity and Carcinogenicity Assessment for 1, 3-Butadiene" September 1985 EPA/600/8-85/004A, incorporated by reference at 35 Ill. Adm. Code 301.106 or scientifically justified equivalents). The upper-bound 95 percent confidence limit on risk at the 1 in 100,000 risk level must be used to calculate a risk associated dose

1st Notice JCAR350302-2207052r01

3111		(RAD); and					
3112 3113 3114 3115 3116 3117 3118		2) A species scaling factor must be used to account for differences between test species and humans. Milligrams per surface area per day is an equivalent dose between species. All doses presented in mg/kg bodyweight will be converted to an equivalent surface area dose by raisir the mg/kg dose to the 3/4 power.Determining the risk associated dose (RAD). The RAD must be calculated using the following equation:					
3119 3120 3121	c)						
3122 3122 3123		$RAD = 0.00001 / q_1$	*				
3124 3125		Where:					
		RAD	 risk associated dose in milligrams of toxicant or combinations of toxicants per kilogram body weight per day (mg/kg/day) 				
		0.00001 (1 X 10 ⁻⁵)	= incremental risk of developing cancer equal to 1 in 100,000				
		q_1 *	= slope factor (mg/kg/day) ⁻¹				
		RAD	 risk associated dose in milligrams of toxicant or combinations of toxicants per kilogram body weight per day (mg/kg/day) 				
		0.00001 (1 X 10(-5)) = incremental risk of developing cancer equal to 1 in 100,000				
		q_1^*	= slope factor (mg/kg/day) ⁻¹				
3126 3127 3128 3129	d)	_	igan Basin Human Health Nonthreshold Criterion chigan Basin Human Health Nonthreshold Value				
3130 3131			LMHHNC or LMHHNV =				
3132 3133 3134		{ RAD x BW } / { W	$VC + [(FC_{TL3} \times BAF_{HHTL3}) + (FC_{TL4} \times BAF_{HHTL4})] \}$				
3135 3136		Where:					
		LMHHNC or LMH	IHNV is in milligrams per liter (mg/L)				

		RAD	= risk associated dose of a substance or combination of substances in milligrams per day (mg/d) which is associated with a lifetime cancer risk level equal to a ratio of 1 to 100,000
		BW	= weight of an average human (BW = 70 kg)
		WC	 per capita water consumption for surface waters classified as public water supplies = two liters/day, or per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01 liters/day
		FC_{TL3}	= mean consumption of trophic level 3 of regionally caught freshwater fish = 0.0036 kg/day
		FC_{TL4}	= mean consumption of trophic level 4 of regionally caught freshwater fish = 0.0114 kg/day
		BAF _{HHTL3} BAF _{HHTL4}	= bioaccumulation factor for trophic levels 3 and 4 as derived in 35 Ill. Adm. Code 302.570
3137			
3138	(Sour	ce: Amended at 46 I	ll. Reg, effective)
3139			
3140	Section 302.	595 Listing of Bioa	ccumulative Chemicals of Concern, Derived Criteria and
3141	Values		
3142			
3143	a)	The Agency must i	naintain a listing of toxicity criteria and values derived under
3144		this Subpart. This	list must be made available to the public and updated whenever
3145		a new criterion or	value is derived and must be published when updated in the
3146		Illinois Register.	
3147		_	
3148	b)	A criterion or value	e published under subsection (a) may be proposed to the Board
3149		for adoption as a n	umeric water quality standard.
3150		-	•
3151	c)	The Agency must i	maintain for inspection all information including, assumptions,
3152	,		alculations used in the derivation of any toxicity criterion or
3153		value listed pursua	nt to subsection (a) until adopted by the Board as a numeric
3154		water quality stand	· · · · · · · · · · · · · · · · · · ·
3155		1 ,	
3156	(Sour	ce: Amended at 46 I	ll. Reg, effective)
3157	`		<u> </u>
3158	SUBPA	RT F: PROCEDURI	ES FOR DETERMINING WATER QUALITY CRITERIA
3159			~
3160	Section 302.	601 Scope and App	licability
3161			
3162	This Subpart	contains the procedu	res for determining the water quality criteria in 35 Ill. Adm.

3163 Code 302.210(a), (b) and (c) and 302.410(a), (b) and (c). 3164 (Source: Amended at 46 Ill. Reg. _____, effective _____) 3165 3166 3167 Section 302.603 Definitions 3168 3169 As used in this Subpart, the following terms have the meanings specified. 3170 3171 "Bioconcentration" means an increase in concentration of a chemical and its metabolites in an organism (or its specified tissues) relative to the concentration 3172 of the chemical in the ambient water acquired through contact with the water 3173 3174 alone. 3175 3176 "Carcinogen" means a chemical which causes an increased incidence of benign or malignant neoplasms, or a statistically significant decrease in the latency period 3177 3178 between exposure and onset of neoplasms in at least one mammalian species or 3179 man through epidemiological or clinical studies. 3180 3181 "EC-50" means the concentration of a substance or effluent which causes a given effect to 50% of the exposed organisms in a given time period. 3182 3183 3184 "LC-50" means the concentration of a toxic substance or effluent which is lethal 3185 to 50% of the exposed organisms in a given time period. 3186 3187 "LOAEL" or "Lowest Observable Adverse Effect Level" means the lowest tested concentration of a chemical or substance which produces a statistically significant 3188 increase in frequency or severity of non-overt adverse effects between the 3189 3190 exposed population and its appropriate control. 3191 3192 "MATC" or "Maximum Acceptable Toxicant Concentration" means the value 3193 obtained by calculating the geometric mean of the lower and upper chronic limits 3194 from a chronic test. A lower chronic limit is the highest tested concentration 3195 which did not cause the occurrence of a specified adverse effect. An upper 3196 chronic limit is the lowest tested concentration which did cause the occurrence of 3197 a specified adverse effect and above which all tested concentrations caused such 3198 an occurrence. 3199 3200 "NOAEL" or "No Observable Adverse Effect Level" means the highest tested 3201 concentration of a chemical or substance which does not produce a statistically significant increase in frequency or severity of non-overt adverse effects between 3202 3203 the exposed population and its appropriate control. 3204 3205 "Resident or Indigenous Species" means species which currently live a substantial

portion of their lifecycle or reproduce in a given body of water, or which are

3206

3207	native species whose historical range includes a given body of water.
3208	
3209	(Source: Amended at 46 Ill. Reg, effective)
3210	
3211	Section 302.604 Mathematical Abbreviations
3212	
3213 3214	This Subpart uses the following mathematical abbreviations:
	exp x base of the natural logarithm, e, raised to x-power ln x natural logarithm of x
	log x logarithm to the base 10 of x
	A**B A raised to the B-power SUM(x) summation of the values of x
3215	SOM(x) Summation of the values of x
3216	(Source: Amended at 46 Ill. Reg, effective)
3217	
3218	Section 302.606 Data Requirements
3219	
3220	The Agency must review, for validity, applicability and completeness, data used in calculating
3221	criteria. To the extent available, and to the extent not otherwise specified, testing procedures,
3222	selection of test species and other aspects of data acquisition must be according to methods
3223	published by USEPA or nationally recognized standards organizations, including methods found
3224	in "Standard Methods", incorporated by reference in 35 Ill. Adm. Code 301.106.
3225	
3226	(Source: Amended at 46 Ill. Reg, effective)
3227	
3228	Section 302.612 Determining the Acute Aquatic Toxicity Criterion for an Individual
3229	Substance - General Procedures
3230	
3231	a) A chemical specific Acute Aquatic Toxicity Criterion (AATC) is calculated using
3232	procedures specified in 35 Ill. Adm. Code 302.615 and 302.618 if acute toxicity
3233	data are available for at least five resident or indigenous species from five
3234	different North American genera of freshwater organisms including
3235	representatives of the following taxa:
3236	
3237	1) Representatives of two families in the Class Osteichthyes (Bony Fishes).
3238	-,
3239	2) The family Daphnidae.
3240	-/
3241	3) A benthic aquatic macroinvertebrate.
3242	<i>5)</i>
3243	4) A vascular aquatic plant or a third family in the Phylum Chordata which
3244	may be from the Class Osteichthyes.
3245	may be from the class obtaining as.

3246	b)	If data are not available for resident or indigenous species, data for non-resident
3247	ŕ	species may be used if the non-resident species is of the same family or genus and
3248		has a similar habitat and environmental tolerance. The procedures of 35 Ill. Adm.
3249		Code 302.615 must be used to obtain an AATC for individual substances whose
3250		toxicity is unaffected by ambient water quality characteristics. The procedures of
3251		35 Ill. Adm. Code 302.618 must be used if the toxicity of a substance is
3252		dependent upon some other water quality characteristic.
3253		
3254	c)	If data are not available that meet the requirements of subsection (a), an AATC is
3255	,	calculated by obtaining at least one EC-50 or LC-50 value from both a daphnid
3256		species and either fathead minnow or bluegill. If there are data available for any
3257		other North American freshwater species, they must also be included. An AATC
3258		is calculated by dividing the lowest Species Mean Acute Value (SMAV), as
3259		determined according to 35 Ill. Adm. Code 302.615, by 10.
3260		g - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
3261	(Sour	rce: Amended at 46 Ill. Reg, effective)
3262	(
3263	Section 302.	615 Determining the Acute Aquatic Toxicity Criterion – Toxicity Independent
3264	of Water Ch	
3265	01 ((0001 01	
3266	If the acute to	oxicity of the chemical has not been shown to be related to a water quality
3267		e, including hardness, pH, temperature, etc., the AATC is calculated by using the
3268	procedures b	• • • • • • • • • • • • • • • • • • • •
3269	procedures	
3270	a)	For each species for which more than one acute value is available, the Species
3271	u)	Mean Acute Value (SMAV) is calculated as the geometric mean of the acute
3272		values from all tests.
3272		values from an tests.
3274	b)	For each genus for which one or more SMAVs are available, the Genus Mean
3275	0)	Acute Value (GMAV) is calculated as the geometric mean of the SMAVs
3276		available for the genus.
3277		available for the genus.
3278	c)	The GMAVs are ordered from high to low.
3279	c)	The Givin v's are ordered from high to low.
3280	d)	Ranks (R) are assigned to the GMAVs from "l" for the lowest to "N" for the
3281	u)	highest. If two or more GMAVs are identical, successive ranks are arbitrarily
3282		assigned.
3283		assigned.
3284	<u>a)</u>	The cumulative probability, P, is calculated for each GMAV as $R/(N+1)$.
3285	e)	The cumulative probability, 1, is calculated for each GiviA v as R/(N + 1).
3285 3286	f)	The GMAVs to be used in the calculations of subsection (g) must be those with
3280 3287	1)	cumulative probabilities closest to 0.05. If there are less than 59 GMAVs in the
3288		total data set, the values utilized must be the lowest obtained through the ranking
3289		procedures of subsections (c) and (d). "T" is the number of GMAV's which are to

3290		be used in the calculations of subsection (g). T is equal to 4 when the data set
3291		includes at least one representative from each of the five taxa in 35 Ill. Adm.
3292		Code 302.612 and a representative from each of the three taxa listed below. T is
3293		equal to 3 when the data includes at least one representative from each of the five
3294		taxa in 35 Ill. Adm. Code 302.612 and from one or two of the taxa listed below.
3295		T is equal to 2 when the data set meets the minimum requirements of 35 Ill. Adm.
3296		Code 302.612 but does not include representatives from any of the three taxa
3297		listed below. When toxicity data on any of the three taxa listed below are
3298		available, they must be used along with the minimum data required pursuant to 35
3299		Ill. Adm. Code 302.612.
3300		
3301		1) A benthic crustacean, unless one was used under 35 Ill. Adm. Code
3302		302.612(a)(3), in which case an insect must be used.
3303		
3304		2) A member of a phylum not used in subsections (a), (b) or (f)(1).
3305		
3306		3) An insect from an order not already represented.
3307		, J 1
3308	g)	Using the GMAVs and T-value identified under subsection (f) and the Ps
3309	2)	calculated under subsection (e), the Final Acute Value (FAV) and the AATC are
3310		calculated as:
3311		
		FAV = exp(A) and
		AATC = FAV/2
3312		
3313		Where:
3314		
		A = L + 0.2236 S;
		$L = [SUM(1n GMAV) - S(SUM(P^{**}0.5))]/T; and$
		$S = \left[\left[SUM((1n GMAV)^{**2}) - ((SUM(1n GMAV)^{**2}) \right] \right]$
		GMAV))**2)/T]/[SUM(P) -
		$((SUM(P^{**}0.5))^{**}2)/T]]^{**}0.5$
3315		((====(===(============================
3316	h)	If a resident or indigenous species, whose presence is necessary to sustain
3317	/	commercial or recreational activities, or prevent disruptions of the waterbody's
3318		ecosystem, including loss of species diversity or a shift to a biotic community
3319		dominated by pollution-tolerant species, will not be protected by the calculated
3320		FAV, then the EC-50 or LC-50 for that species is used as the FAV.
3321		Tite, when the de co et de co ter that appears to decar at the tite.
3322	(Sour	ce: Amended at 46 Ill. Reg, effective)
3323	(Sour	, 511001110 00 10 111 1008
3324	Section 302.0	618 Determining the Acute Aquatic Toxicity Criterion - Toxicity Dependent or
3325	Water Chem	
3326	, attraction	~ J

If data are available to show that a relationship exists between a water quality characteristic (WQC) and acute toxicity to two or more species, an Acute Aquatic Toxicity Criterion (AATC) may be calculated. The best documented relationship is that between the water quality characteristic, hardness and acute toxicity of metals. Although this relationship between hardness and acute toxicity is typically non-linear, it can be linearized by a logarithmic transformation (i.e. for any variable, K, f(K) = logarithm of K) of the variables and plotting the logarithm of hardness against the logarithm of acute toxicity. Similarly, relationships between acute toxicity and other water quality characteristics, such as pH or temperature, may require a transformation, including no transformation (i.e. for any variable, K, f(K) = K) for one or both variables to obtain least squares linear regression of the transformed acute toxicity values on the transformed values of the water quality characteristic. An AATC is calculated using the following procedures:

a) For each species for which acute toxicity values are available at two or more different values of the water quality characteristic, a linear least squares regression of the transformed acute toxicity (TAT) values on the transformed water quality characteristic (TWQC) values is performed to obtain the slope of the line describing the relationship.

b) Each of the slopes determined pursuant to subsection (a) is evaluated as to whether or not it is statistically valid, taking into account the range and number of tested values of the water quality characteristic and the degree of agreement within and between species. If slopes are not available for at least one fish and one invertebrate species, or if the available slopes are too dissimilar, or if too few data are available to define the relationship between acute toxicity and the water quality characteristic, then the AATC must be calculated using the procedures in 35 Ill. Adm. Code 302.615.

c) Normalize the TAT values for each species by subtracting W, the arithmetic mean of the TAT values of a species from each of the TAT values used in the determination of the mean, such that the arithmetic mean of the normalized TAT values for each species individually or for any combination of species is zero (0.0).

d) Normalize the TWQC values for each species using X, the arithmetic mean of the TWQC values of a species, in the same manner as in subsection (c).

 e) Group all the normalized data by treating them as if they were from a single species and perform at least squares linear regression of all the normalized TAT values on the corresponding normalized TWQC values to obtain the pooled acute slope, V.

f) For each species, the graphical intercept representing the species TAT intercept, f(Y), at a specific selected value, Z, of the WQC is calculated using the equation:

JCAR350302-2207052r01

3371		f(Y) = W - V(X - g(Z))
3372		W/I
3373		Where:
3374		
3375		f() is the transformation used to convert acute toxicity values to TAT
3376		values;
3377		
3378		Y is the species acute toxicity intercept or species acute intercept;
3379		
3380		W is the arithmetic mean of the TAT values as specified in subsection (c):
3381		
3382		
3383		V is the pooled acute slope as specified in subsection (e);
3384		
3385		X is the arithmetic mean of the TWQC values as specified in subsection
3386		(d);
3387		
3388		g() is the transformation used to convert the WQC values to TWQC
3389		values; and
3390		
3391		Z is a selected value of the WQC.
3392		
3393	g)	For each species, determine the species acute intercept, Y, by carrying out an
3394	2)	inverse transformation of the species TAT value, $f(Y)$. For example, in the case
3395		of a logarithmic transformation, $Y = \text{antilogarithm of } (f(Y))$; or in the case where
3396		no transformation is used, $Y = f(Y)$.
3397		10 11 11 11 11 11 11 11 11 11 11 11 11 1
3398	h)	The Final Acute Intercept (FAI) is derived by using the species acute intercepts,
3399	11)	obtained from subsection (g), in compliance with the procedures described in 35
3400		Ill. Adm. Code 302.615(b) through (g), with the word "value" replaced by the
3401		word "intercept". Note that in this procedure geometric means and natural
3402		logarithms are always used.
3403		logarithms are arways used.
3404	i)	The Aquatic Acute Intercept (AAI) is obtained by dividing the FAI by two.
3405	1)	The Aquatic Acute intercept (AAI) is obtained by dividing the IAI by two.
3406	:)	The AATC at any value of the WQC, denoted by WQCx, is calculated using the
3407	j)	terms defined in subsection (f) and the equation:
3407		terms defined in subsection (1) and the equation.
3409		$AATC = \exp[V(\alpha(W)C_Y) - \alpha(7)) + f(AAT)]$
		$AATC = \exp[V (g(WQCx) - g(Z)) + f (AAI)].$
3410	(C - :	Amondod at 46 III Dog
3411	(Sourc	ce: Amended at 46 Ill. Reg, effective)
3412	Continu 202 (21 Determining the Acute Aquetic Towisite Cuitaries December 6
3413		521 Determining the Acute Aquatic Toxicity Criterion - Procedure for
3414	Combination	as of Substances

3415 3416 An AATC for any combination of substances (including effluent mixtures) must be determined 3417 by the following toxicity testing procedures: 3418 3419 Not more than 50% of test organisms from the most sensitive species tested may a) exhibit mortality or immobility after a 48-hour test for invertebrate or a 96-hour 3420 test for fishes. 3421 3422 3423 b) Three resident or indigenous species of ecologically diverse taxa must be tested 3424 initially. If resident or indigenous species are not available for testing, non-3425 resident species may be used if the non-resident species is of the same family or 3426 genus and has a similar habitat and environmental tolerance. 3427 (Source: Amended at 46 Ill. Reg., effective) 3428 3429 3430 Section 302.627 Determining the Chronic Aquatic Toxicity Criterion for an Individual 3431 **Substance - General Procedures** 3432 3433 a) A chemical-specific Chronic Aquatic Toxicity Criterion (CATC) is calculated 3434 using procedures specified in subsection (b) when chronic toxicity data are 3435 available for at least five species from five different North American genera of 3436 freshwater organisms, including representatives from the following taxa: 3437 3438 1) Representatives of two families in the Class Osteichthyes (Bony Fishes). 3439 3440 2) The family Daphnidae. 3441 3442 3) A benthic aquatic macroinvertebrate. 3443 3444 4) An alga (96-hour test) or a vascular aquatic plant. 3445 3446 b) A CATC is derived in the same manner as the FAV in 35 Ill. Adm. Code 302.615 3447 or 302.618 by substituting CATC for FAV or FAI, chronic for acute, MATC for 3448 LC-50, SMCV (Species Mean Chronic Value) for SMAV, and GMCV (Genus 3449 Mean Chronic Value) for GMAV. 3450 3451 c) If data are not available to meet the requirements of subsection (a), a CATC is calculated by dividing the FAV by the highest acute-chronic ratio obtained from 3452 3453 at least one fish and one invertebrate species. The acute-chronic ratio for a 3454 species equals the acute toxicity concentration from data considered under 35 Ill. Adm. Code 302.612 through 302.618, divided by the chronic toxicity 3455 3456 concentration from data calculated under subsections (a) and (b) subject to the 3457 following conditions: 3458

3439		1)	If the toxicity of a substance is related to any water quality characteristic
3460			(WQC), the acute-chronic ratio must be based on acute and chronic
3461			toxicity data obtained from organisms exposed to test water with WQC
3462			values that are representative of the WQC values of the waterbody under
3463			consideration. Preference under this subsection must be given to data from
3464			acute and chronic tests done by the same author or in the same reference in
3465			order to increase the likelihood of comparable test conditions.
3466			
3467		2)	If the toxicity of a substance is unrelated to water quality parameters, the
3468			acute-chronic ratio may be derived from any acute and chronic test on a
3469			species regardless of the similarity in values of those water quality
3470			parameters. Preference under this subsection must be given to data from
3471			acute and chronic tests done on the same organisms or their descendants.
3472			_
3473		3)	If there is more than one acute-chronic ratio for a species, a geometric
3474			mean of the ratio is calculated, corrected for the relationship of toxicity to
3475			water quality parameters.
3476			. , .
3477		4)	If the acute and chronic toxicity data indicate that the acute-chronic ratio
3478			varies with changes in water quality parameters, the acute-chronic ratio
3479			used over specified values of the water quality parameters must be based
3480			on the ratios at water quality parameter values closest to those specified.
3481			1 71
3482		5)	If acute and chronic toxicity data are unavailable to determine an acute-
3483			chronic ratio for at least two North American freshwater species, a ratio of
3484			25 must be used.
3485			
3486	d)	If a re	esident or indigenous species whose presence is necessary to sustain
3487	ŕ	comn	nercial or recreational activities, or prevent disruptions of the waterbody's
3488			ystem, including but not limited to loss of species diversity or a shift to a
3489		biotic	c community dominated by pollution-tolerant species, will not be protected
3490			e calculated CATC, then the MATC for that species is used as the CATC.
3491		•	
3492	(Sour	ce: An	nended at 46 Ill. Reg, effective)
3493	`		<u> </u>
3494	Section 302.0	530 De	etermining the Chronic Aquatic Toxicity Criterion - Procedure for
3495	Combination		
3496			
3497	A CATC for	any coi	mbination of substances (including effluent mixtures) may be determined by

toxicity testing procedures pursuant to the following:

A combination of substances must not exceed concentrations greater than a

a) A combination of substances must not exceed concentrations greater than a NOAEL as determined for the most sensitive of the species tested.

1st Notice

3543 3544

3545

3546

3503 b) Three resident or indigenous species of ecologically diverse taxa must be tested 3504 initially. If resident or indigenous species are not available for testing, non-3505 resident species may be used if the non-resident species is of the same family or genus and has a similar habitat and environmental tolerance. 3506 3507 (Source: Amended at 46 Ill. Reg., effective) 3508 3509 3510 Section 302.633 The Wild and Domestic Animal Protection Criterion 3511 3512 The Wild and Domestic Animal Protection Criterion (WDAPC) is the concentration of a 3513 substance which if not exceeded protects Illinois wild and domestic animals from adverse 3514 effects, such as functional impairment or pathological lesions, resulting from ingestion of surface 3515 waters of the State and from ingestion of aquatic organisms taken from surface waters of the 3516 State. 3517 3518 For those substances for which a NOAEL has been derived from studies of a) 3519 mammalian or avian species exposed to the substance via oral routes including 3520 gavage, the lowest NOAEL among species must be used in calculating the 3521 WDAPC. Additional considerations in selecting NOAEL include: 3522 3523 1) If the NOAEL is given in milligrams of toxicant per liter of water 3524 consumed (mg/L), prior to calculating the WDAPC, the NOAEL must be 3525 multiplied by the daily average volume of water consumed by the test 3526 animals in liters per day (L/d) and divided by the average weight of the 3527 test animals in kilograms (kg). 3528 3529 2) If the NOAEL is given in milligrams of toxicant per kilogram of food 3530 consumed (mg/kg), prior to calculating the WDAPC, the NOAEL must be 3531 multiplied by the average amount of food in kilograms consumed daily by 3532 the test animals (kg/d) and divided by the average weight of the test 3533 animals in kilograms (kg). 3534 3535 3) If the animals used in a study were not exposed to the toxicant each day of 3536 the test period, the NOAEL must be multiplied by the ratio of days of 3537 exposure to the total days in the test period. 3538 3539 4) If more than one NOAEL is available for the same animal species, the geometric mean of the NOAELs must be used to calculate the WDAPC. 3540 3541 3542 b) For those substances for which a NOAEL is not available but the lowest observed

adverse effect level (LOAEL) has been derived from studies of animal species

exposed to the substance via oral routes including gavage, one-tenth of the

LOAEL must be substituted for the NOAEL.

1st Notice JCAR350302-2207052r01

3547 3548	c)		The LOAEL must be selected in the same manner as that specified for the NOAEL in subsection (a).				
3549							
3550	d)	The W	The WDAPC, measured in milligrams per liter (mg/L), is calculated according to				
3551	ŕ	the equ	the equation:				
3552		-					
3553			WDAP	C = [0.1 NOAEL x Wt]/[W + (F x BCF)]			
3554				, , , , , , , , , , , , , , , , , , , ,			
3555		Where	:				
3556							
			subsect	L is derived from mammalian or avian studies as specified in ions (a) and (b), and is measured in units of milligrams of ice per kilogram of body weight per day (mg/kg-d); = Average weight in kilograms (kg) of the test animals;			
			W	 Average daily volume of water in liters consumed per day (l/d) by the test animals; 			
			F	= Average daily amount of food consumed by the test animals in kilograms (kg/d);			
			BCF	= Aquatic life Bioconcentration Factor with units of liter per kilogram (L/kg), as derived in 35 Ill. Adm. Code 302.660 through 302.666; and			
3557			The 0.1	represents an uncertainty factor to account for species variability.			
3558	e)	If no s	tudies pe	ertaining to the toxic substance in question can be found by the			
3559	,		-	terion can be determined.			
3560 3561	(Sour	ce: Ame	ended at	46 Ill. Reg, effective)			
3562 3563	Section 302.	645 Det	erminin	g the Acceptable Daily Intake			
3564 3565	The Asserta	hla Daile	· Intoles ((ADI) is the maximum amount of a substance which, if ingested			
3566	-	•		no adverse effects to humans. Subsections (a) through (e) list, in			
3567	•			ods for determining the acceptable daily intake.			
3568	the order or p	reference	c, meme	dis for determining the acceptable daily intake.			
3569	a)	The lo	west of t	he following ADI values:			
3570	a)	1110 10	west of t	ne following 11D1 values.			
3571		1)	For sub	stances listed with a maximum contaminant level in 40 CFR 141,			
3572		1)		brated by reference in 35 Ill. Adm. Code 301.106, or in 35 Ill. Adm.			
3573				11, the ADI equals the product of multiplying the maximum			
3574				inant level given in milligrams per liter (mg/L) by 2 liters per day			
3575			(L/d).				
3576			(_, _,				
3577		2)	For sub	stances which are listed with a maximum allowable concentration			
		— ,					

1st Notice JCAR350302-2207052r01

3578 standard in 35 Ill. Adm. Code Subtitle F, the acceptable daily intake 3579 equals the product of multiplying the public health enforcement standard given in milligrams per liter (mg/L) by 2 liters per day (L/d). 3580 3581 3582 b) For substances for which a no observed adverse effect level (NOAEL-H) for 3583 humans exposed to the substance in drinking water has been derived, the acceptable daily intake equals the product of multiplying one-tenth of the 3584 3585 NOAEL-H given in milligrams of toxicant per liter of water consumed (mg/L), by 2 liters per day (L/d). The lowest NOAEL-H must be used in the calculation of 3586 the acceptable daily intake. 3587 3588 3589 c) For substances for which the lowest observed adverse effect level (LOAEL-H) for 3590 humans exposed to the substance in drinking water has been derived, one-3591 hundredth of the LOAEL-H may be substituted for the NOAEL-H in subsection 3592 (b). 3593 3594 d) For substances for which a no observed adverse effect level (NOAEL-A) has been 3595 derived from studies of mammalian test species exposed to the substance via oral 3596 routes including gavage, the acceptable daily intake equals the product of 3597 multiplying 1/100 of the NOAEL-A given in milligrams toxicant per day per 3598 kilogram of test species weight (mg/kg-d) by the average weight of an adult 3599 human of 70 kilograms (kg). The lowest NOAEL-A among animal species must 3600 be used in the calculation of the acceptable daily intake. Additional 3601 considerations in selecting the NOAEL-A include: 3602 If the NOAEL-A is given in milligrams of toxicant per liter of water 3603 1) 3604 consumed (mg/L) then, prior to calculating the acceptable daily intake, the 3605 NOAEL-A must be multiplied by the daily average volume of water consumed by the mammalian test species in liters per day (L/d) and 3606 3607 divided by the average weight of the mammalian test species in kilograms 3608 (kg). 3609 3610 2) If the NOAEL-A is given in milligrams of toxicant per kilogram of food 3611 consumed (mg/kg), prior to calculating the acceptable daily intake the 3612 NOAEL-A must be multiplied by the average amount in kilograms of food 3613 consumed daily by the mammalian test species (kg/d) and divided by the 3614 average weight of the mammalian test species in kilograms (kg). 3615 3616 3) If the mammalian test species were not exposed to the toxicant each day of 3617 the test period, the NOAEL-A must be multiplied by the ratio of days of 3618 exposure to the total days of the test period. 3619 3620 4) If more than one NOAEL-A is available for the same mammalian test 3621 species, the geometric mean of the NOAEL-As must be used.

3622			
3623	,		nces for which a NOAEL-A is not available but the lowest observed
3624			fect level (LOAEL-A) has been derived from studies of mammalian test
3625	-		posed to the substance via oral routes including gavage, one-tenth of the
3626			may be substituted for the NOAEL-A in subsection (d). The LOAEL-
3627			selected in the same manner as that specified for the NOAEL-A in
3628	su	bsection	ı (d).
3629			
3630			es pertaining to the toxic substance in question can be found by the
3631	Aş	gency, n	o criterion can be determined.
3632			
3633	(Source:	Amende	ed at 46 Ill. Reg, effective)
3634	C4 202 (40	D-4	delice the Herman Thomas all Caltures
3635 3636	Section 302.648	Determ	nining the Human Threshold Criterion
	The UTC is color	alatad aa	parding to the aquation.
3637	The HTC is calcu	mated ac	cording to the equation:
3638	$IITC - \Lambda$	DI/FW/ +	(E v DCE)]
3639	птс – А	רוען עון ען דע	$(F \times BCF)$
3640	***1	here:	
3641 3642	WI	nere:	
3042		HTC	Human health protection criterion in milligrams per liter (mg/L);
		ADI	= Acceptable daily intake of substance in milligrams per day (mg/d) as specified in 35 Ill. Adm. Code 302.645;
		W	= Per capita daily water consumption equal to 2 liters per day (L/d) for surface waters at the point of intake of a public or food processing water supply, or equal to 0.01 liters per day (L/d) which represents incidental exposure through contact or ingestion of small volumes of water while swimming or during other recreational activities for areas which are determined to be public access areas under 35 Ill. Adm. Code Section 302.102 (b)(3), or 0.001 liters per day (L/d) for other waters;
		F	= Assumed daily fish consumption in the United States equal to 0.020 kilograms per day (kg/d); and
		BCF	 Aquatic organism Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in 35 Ill. Adm. Code 302.660 through 302.666.
3643	/=		1 1671 7
3644	(Source:	Amende	ed at 46 Ill. Reg, effective)
3645			

1st Notice

JCAR350302-2207052r01

Section 302.651 The Human Nonthreshold Criterion

The Human Nonthreshold Criterion (HNC) of a substance is that concentration or level of a substance at which humans are protected from an unreasonable risk of disease caused by a nonthreshold toxic mechanism as a result of incidental exposure to or ingestion of surface waters of the State and from ingestion of aquatic organisms taken from surface waters of the State. HNCs are derived for those toxic substances for which any exposure, regardless of extent, carries some risk of damage as specified in subsections (a) and (b).

a) For single substances, a risk level of one in one million (1 in 1,000,000) must be allowed (i.e, considered acceptable) for the purposes of determining an HNC.

b) For mixtures of substances, an additive risk level of one in one hundred thousand (1 in 100,000) must be allowed (i.e, considered acceptable) for the purposes of determining an HNC.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 302.654 Determining the Risk Associated Intake

The Risk Associated Intake (RAI) is the maximum amount of a substance which if ingested daily for a lifetime is expected to result in the risk of one additional case of human cancer in a population of one million. Where more than one carcinogenic chemical is present, the RAI must be based on an allowed additive risk of one additional case of cancer in a population of one hundred thousand. The RAI must be derived as specified in subsections (a) through (c).

a) For those substances for which a human epidemiologic study has been performed, the RAI equals the product of the dose from exposure in units of milligrams toxicant per kilogram body weight per day (mg/kg-d) that results in a 70-year lifetime cancer probability of one in one million, times the average weight of an adult human of 70 kilograms (kg). The resulting RAI is expressed in milligrams toxicant per day (mg/d). If more than one human epidemiologic study is available, the lowest exposure level resulting in a 70-year lifetime probability of cancer equal to a ratio of one in one hundred thousand must be used in calculating the RAI.

b) In the absence of an epidemiologic study, for those toxic substances for which a carcinogenic potency factor (CPF) has been derived from studies of mammalian test species the risk associated intake is calculated from the equation:

RAI = K/CPF

Where:

1st Notice JCAR350302-2207052r01

- RAI = Risk associated intake in milligrams per day (mg/d);
- K = A constant consisting of the product of the average weight of an adult human, assumed to be 70 kg, and the allowed cancer risk level of one in one million (1/1,000,000); and
- CPF = Carcinogenic Potency Factor is the risk of one additional cancer per unit dose from exposure. The CPF is expressed in units of inverse milligrams per kilogram day (l/mg/kg-d) as derived in subsections (b)(1) through (b)(7).
- 1) Only those studies which fulfill the data requirement criteria of 35 Ill. Adm. Code 302.606 must be used in calculating the CPF.
- The linear non-threshold dose-response relationship developed in the same manner as in the USEPA document "Mutagenicity and Carcinogenicity Assessment of 1,3-butadiene", incorporated by reference in 35 Ill. Adm. Code 301.106, must be used in obtaining the unit risk, defined as the 95th percentile upper bound risk of one additional cancer resulting from a life time exposure to a unit concentration of the substance being considered. The CPF must be estimated from the unit risk in compliance with subsection (b)(7). In calculating a CPF, the Agency must review alternate scientifically valid protocols if so requested.
- 3) If in a study of a single species more than one type of tumor is induced by exposure to the toxic substance, the highest of the CPFs is used.
- 4) If two or more studies vary in either species, strain or sex of the test animal, or in tumor type, the highest CPF is used.
- 5) If more than one tumor of the same type is found in some of the test animals, these should be pooled so that the dose response relationship is dose versus number of tumors per animal. The potency estimate for this dose response relationship is used if it is higher than estimates resulting from other methods.
- 6) If two or more studies are identical regarding species, strain and sex of the test animal, and tumor type, the highest of the CPFs is used.
- 7) Calculation of an equivalent dose between animal species and humans using a surface area conversion, and conversion of units of exposure to dose in milligrams of toxicant per kilogram of body weight per day (mg/kg-d) must be performed as specified in the USEPA document "Mutagenicity and Carcinogenicity Assessment of 1,3-butadiene", incorporated by reference in 35 Ill. Adm. Code 301.106.

JCAR350302-2207052r01

3725			
3726	c)	If bo	th a human epidemiologic study and a study of mammalian test species are
3727	,		able for use in subsections (a) and (b), the risk associated intake is
3728		deter	rmined as follows:
3729			
3730		1)	When the human epidemiologic study provides evidence of a carcinogenic
3731			effect on humans, the RAI is calculated from the human epidemiology
3732			study as specified in subsection (a).
3733			
3734		2)	When the mammalian study provides evidence a carcinogenic effect on
3735			humans, but the human epidemiologic study does not, a cancer risk to
3736			humans is assumed and the risk associated intake is calculated as specified
3737			in subsection (b).
3738			
3739	(Soi	arce: An	mended at 46 Ill. Reg, effective)
3740			
3741	Section 302	2.657 D	etermining the Human Nonthreshold Criterion
3742			
3743	The HNC is	s calcula	ted according to the equation:
3744			
3745			$HNC = RAI/[W + (F \times BCF)]$
3746	1		
3747	whe	ere:	
3748		INC -	Hymne Northwell Dustration Criterion in williams and liter
		HNC =	Human Nonthreshold Protection Criterion in milligrams per liter
			(mg/L);
		RAI =	Risk Associated Intake of a substance in milligrams per day (mg/d)
			which is associated with a lifetime cancer risk level equal to a ratio
			of one to 1,000,000 as derived in 35 Ill. Adm. Code 302.654;

		W =	Per capita daily water consumption equal to 2 liters per day (L/d)
			for surface waters at the point of intake of a public or food
			processing water supply, or equal to 0.01 liters per day (L/d) which
			represents incidental exposure through contact or ingestion of small
			volumes of water while swimming or during other recreational
			activities for areas which are determined to be public access areas
			under 35 Ill. Adm. Code 302.102(b)(3), or 0.001 liters per day (L/d)
			for other waters;
		F =	Assumed daily fish consumption in the United States equal to 0.020
		1 -	kilograms per day (kg/d); and
			Kilogianis poi day (kg/u), and

BCF = Aquatic Life Bioconcentration Factor with units of liter per kilogram (L/kg) as derived in 35 Ill. Adm. Code 302.663.

3750	(Sou	rce: Ar	mended at 46 III. Reg	, effective)	
3751	G 4: 202	650 C		· err Ni 41	1 116 4	
3752 3753	Section 302	.658 81	tream Flow for Applicat	ion of Human Nonti	ireshold Criterion	l
3754	The IINC on	م مانام	t all time as avecant dymina m	ania da xxiban flaxxa an	a laga than tha ham	
	-	-	t all times except during p	erious when hows ar	e less than the harn	nomic mean
3755	flow (Qhm),	as dete	ermined by:			
3756		01	N. / CLD #(1/O')			
3757		Qhm	n = N / SUM(1/Qi)			
3758	77.71					
3759	Whe	re:				
3760		01	1			
		Qhı			1	
		N	= number of daily v		s, and	
2561		Qi	= daily streamflow	value on day 1.		
3761	(0		1 1 . 46 XII D	00	,	
3762	(Sou	rce: Ai	mended at 46 Ill. Reg	, effective)	
3763	~					
3764	Section 302.	.663 D	etermination of Bioconc	entration Factors		
3765						
3766			Factor equals the concent			
3767	_	_	ams per kilogram of wet t	2 (2)	•	
3768			the water to which the org	anism is exposed in 1	nilligrams of the su	ıbstance per
3769	liter of water	r (mg/L	<i>i</i>).			
3770						
3771	a)		Bioconcentration Factor is	s calculated from a fi	eld study if the foll	owing
3772		cond	litions are met:			
3773						
3774		1)	Data are available to sl	now that the concentr	ation of the substar	nce in the
3775			water to which the orga	anism was exposed re	emained constant of	ver the
3776			range of territory inhab	oited by the organism	and for a period of	time
3777			exceeding 28 days;			
3778						
3779		2)	Competing mechanism	s for removal of the	substance from solu	ution did not
3780			affect the bioavailabilit	ty of the substance; a	nd	
3781						
3782		3)	The concentration of the	ne substance to which	the organism was	exposed is
3783			less than the lowest con	ncentration causing a	ny adverse effects	on the
3784			organism.	_		
3785			_			
3786	b)	In th	e absence of a field-derive	ed Bioconcentration l	Factor, the Bioconc	entration
3787	,		or is calculated from a lab		•	
3788				•	Č	
3789		1)	The Bioconcentration	Factor was calculated	from measured co	ncentrations
3790		,	of the toxic substance i			

1st Notice

3791			
3792		2)	The laboratory test was of sufficient duration to have reached steady-state
3793		-)	which is defined as a less than 10 percent change in the calculated
3794			Bioconcentration Factor over a 2-day period or 16 percent of the test
3795			duration whichever is longer. In the absence of a laboratory test which has
3796			reached steady-state, the Bioconcentration Factor may be calculated from
3797			a laboratory test with a duration greater than 28 days if more than one test
3798			is available for the same species of organism;
3799			is available for the same species of organism,
3800		2)	The concentration of the toxic substance to which the test encomism was
		3)	The concentration of the toxic substance to which the test organism was
3801			exposed is less than the lowest concentration causing any adverse effects
3802			on the organism;
3803		45	
3804		4)	If more than one Bioconcentration Factor for the same species is available,
3805			the geometric mean of the Bioconcentration Factors is used; and
3806			
3807		5)	The Bioconcentration Factor is calculated on a wet tissue weight basis. A
3808			Bioconcentration Factor calculated using dry tissue weight must be
3809			converted to a wet tissue weight basis by multiplying the dry weight
3810			bioconcentration value by 0.1 for plankton and by 0.2 for individual
3811			species of fishes and invertebrates.
3812			1
3813	c)	In the	absence of any Bioconcentration Factors measured from field studies as
3814	,		ied in subsection (a) or laboratory studies which have reached steady-state
3815		-	cified in subsection (b), the Bioconcentration Factor is calculated according
3816		-	equation:
3817		to the	
3818			$\log BCF = A + B \log Kow$
3819			
3820			Where:
3821			WHOIC.
3822			BCF = Bioconcentration Factor;
3823			DCF - Dioconcentration Factor,
			V and The actional Investor workition as officient management
3824			Kow = The octanol/water partition coefficient measured as
3825			specified in ASTM E 1147, incorporated by reference in 35 Ill.
3826			Adm. Code 301.106 (If the Kow is not available from laboratory
3827			testing, it must be calculated from structure-activity relationships
3828			or available regression equations.); and
3829			
3830			The constants $A = -0.23$ and $B = 0.76$ must be used unless a
3831			change in the value of the constants is requested (The Agency must
3832			honor requests for changes only if such changes are accompanied
3833			by scientifically valid supporting data.).
3834			

3835	(Sour	ce: Am	ended a	at 46 Ill. Reg, effective)				
3836								
3837	Section 302.666 Utilizing the Bioconcentration Factor							
3838								
3839				or derived in 35 Ill. Adm. Code 302.663 is used to calculate water				
3840	quality criteria for a substance as specified below:							
3841								
3842	a)	When	calcula	ating a WDAPC as described in 35 Ill. Adm. Code 302.633, the				
3843		geom	etric me	ean of all available steady-state whole body Bioconcentration Factors				
3844		for fis	sh and s	shellfish species which constitutes or represents a portion of the diet				
3845		of ind	ligenous	is wild and domestic animal species is used. Additional considerations				
3846		in der	iving a	Bioconcentration Factor include:				
3847								
3848		1)	An ec	dible portion Bioconcentration Factor is converted to a whole body				
3849			Bioco	oncentration Factor for a fish or shellfish species by multiplying the				
3850			edible	e portion Bioconcentration Factor by the ratio of the percent lipid in				
3851				whole body to the percent lipid in the edible portion of the same				
3852			specie	es.				
3853			•					
3854		2)	A Bio	oconcentration Factor calculated as described in 35 Ill. Adm. Code				
3855		,	302.6	663(c) is converted to a whole body Bioconcentration Factor by				
3856				iplying the calculated Bioconcentration Factor by the ratio of the				
3857				ent lipid in the whole body to 7.6.				
3858			•	•				
3859	b)	When	calcula	ating either a human threshold criterion or a human nonthreshold				
3860	,			described in 35 Ill. Adm. Code 302.642 through 302.648 and 35 Ill.				
3861				302.651 through 302.657, respectively, the geometric mean of all				
3862				ible portion Bioconcentration Factors for fish and shellfish species				
3863				y humans is used. Additional considerations in deriving a				
3864			-	ation Factor include:				
3865								
3866		1)	Edibl	le portions include:				
3867		,		1				
3868			A)	Decapods – muscle tissue.				
3869			,	1				
3870			B)	Bivalve molluses – total living tissue.				
3871			,					
3872			C)	Scaled fishes – boneless, scaleless filets including skin except for				
3873			,	bloater chubs in which the edible portion is the whole body				
3874				excluding head, scales and viscera.				
3875				5 /				
3876			D)	Smooth-skinned fishes – boneless, skinless filets.				
3877			,	,				
3878		2)	A wh	nole body Bioconcentration Factor is converted to an edible portion				

1st Notice 3879 Bioconcentration Factor by multiplying the whole body Bioconcentration 3880 Factor of a species by the ratio of the percent lipid in the edible portion to 3881 the percent lipid in the whole body of the same species. 3882 3883 A Bioconcentration Factor calculated as described in 35 Ill. Adm. Code 3) 3884 302.663 is converted to an edible portion Bioconcentration Factor by 3885 multiplying the calculated Bioconcentration Factor by the ratio of the 3886 percent lipid in the edible portion to 7.6. 3887 (Source: Amended at 46 Ill. Reg. _____, effective _____) 3888 3889 3890 Section 302.669 Listing of Derived Criteria 3891 3892 The Agency must develop and maintain a listing of toxicity criteria pursuant to a) 3893 this Subpart. This list must be made available to the public and updated whenever 3894 a new criterion is derived and must be published when updated in the Illinois 3895 Register. 3896 3897 **b**) A criterion published pursuant to subsection (a) may be proposed to the Board for 3898 adoption as a numeric water quality standard. 3899 3900 c) The Agency must maintain for inspection all information including assumptions, 3901 toxicity data and calculations used to derive any toxicity criterion listed pursuant

to subsection (a) until adopted by the Board as a water quality standard.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

3902

3903

3904 3905

3906 Section 302.APPENDIX A References to Previous Rules (Repealed)

3908			
3909	(Source: Repealed at 46 Ill. Reg.	, effective	
3910			

3911 Section 302.APPENDIX B Sources of Codified Sections (Repealed)

3913 3914 (Source: Repealed at 46 Ill. Reg. _____, effective _____)