DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

WATER POLLUTION CONTROL PROGRAM

TOTAL AMMONIA CRITERIA

Chapter 74:51:01

APPENDIX A

SEE: § 74:51:01:22

**Source:** Effective November 14, 1980; transferred from Chapter 74:03:02, Appendix A, July 1, 1996; transferred from Chapter 74:51:01, Appendix C, 24 SDR 10, effective July 20, 1997; 31 SDR 29, effective September 13, 2004; 35 SDR 253, effective May 12, 2009; 47 SDR 110, effective April 27, 2021.

**APPENDIX A to Chapter 74:51:01**

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| Equation 1: Acute criterion for waters where salmonid fish are present.  MIN(((0.275/(1+107.204-pH))+(39/(1+10pH-7.204))),(0.7249\*((0.0114/(1+10^7.204-pH))+(1.6181/(1+10^pH-7.204)))\*(23.12\*10^0.036\*(20-T)))) |
| MIN = use either the value of (((0.275/(1+107.204-pH))+(39/(1+10pH-7.204))) or the value of (0.7249\*((0.0114/(1+10^7.204-pH))+(1.6181/(1+10^pH-7.204)))\*(23.12\*10^0.036\*(20-T)))), whichever is the smaller value.  T = the water temperature of the sample in degrees Centigrade.  pH = the pH of the water quality sample in standard units. |

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| Equation 2: Acute criterion for waters where salmonid fish are not present.  0.7249\*(((0.0114/(1+107.204-pH))+(1.6181/(1+10pH-7.204)))\*MIN(51.93,23.12\*100.036\*(20-T)) |
| MIN = use either 51.93 or the value of 23.12\*100.036\*(20-T), whichever is the smaller value.  T = the water temperature of the sample in degrees Centigrade.  pH - the pH of the water quality sample in standard units. |

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| Equation 3: Chronic criterion  0.8876\*(((0.0278/(1+107.688-pH))+(1.1994/(1+10pH-7.688)))\*(2.126\*100.028\*(20-MAX(T,7))) |
| T = the water temperature of the sample in degrees Centigrade.  pH - the pH of the water quality sample in standard units.  MAX = use either the water temperature (T) for the sample, or 7, whichever is the greater value. |

**Reference:**  Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013, EPA 822-R-13-001, April 2013.