Implementation of Ammonia Criteria

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2013 Ammonia Aquatic Life Criteria

- The revised criteria include toxicity data through October 2012 reflecting freshwater unionid mussel and non-pulmonate (gill-bearing) snail sensitivity
- One set of criteria applicable to all fresh water to protect the aquatic community as a whole, including sensitive mollusks which are present in nearly all fresh waters of the contiguous U.S.
  - Site-specific criteria recalculations are permitted for sites where mussels are absent, as appropriate
  - Recalculated site-specific values (e.g., for sites with mussels absent) are provided in Appendix N of the 2013 ammonia criteria document
- Several supporting documents developed to aid states considering adoption of the updated criteria

Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-specific WQC for_Ammonia

- Provides a basic overview of mussel survey techniques, sampling methods, data sources, and additional information for individuals without mussel survey experience.

- The methods document is broken into three parts:
  - Part A - methods for determining mussel presence/absence, etc.
  - Part B - mussel sampling methods and considerations, including real-life examples
  - Part C - checklist of key elements of a proposed survey methodology

Flexibilities for States Applying EPA's Ammonia Criteria Recommendations

Provides a framework to show when each flexibility can be used individually or in combination in the water quality standards adoption and application processes.

- **Resident species recalculation procedure**
- **WQS Variances**
- **Revision to Designated Uses**
- **Dilution Allowances**
- **Compliance Schedules**

More Resources

Link to Criteria Document

- 2013 Aquatic Life Ambient Water Quality Criteria for Ammonia Freshwater

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Appendix
Comparison 1999 to 2013 Ammonia ALC

- 1999 Criteria
  - Acute = 24 mg N/L at pH 7 (Salmonids most sensitive)
  - Chronic = 4.5 mg N/L at pH 7 and 20 °C (Hyalella and fingernail clam most sensitive)
  - Also 1999 chronic criteria reflected the greater sensitivity of fish early life stages (ELS) than juvenile and adult stages to chronic toxicity of ammonia with site-specific criteria for waters with fish ELS present and absent

- 2013 Ammonia ALC
  - Reflects the sensitivity of freshwater mussels and non-pulmonate snails
  - Acute = 17 mg N/L at pH 7 and 20 °C (Mussels most sensitive)
  - Chronic = 1.9 mg N/L at pH 7 and 20 °C (Mussels most sensitive)

Duration and Frequency for 2013 Ammonia Criteria are the Same as in 1999 and Draft 2009 Criteria

- Duration for acute criterion is 1-hour average
- Duration for chronic ammonia criterion is a 30-day averaging period
- In addition, chronic concentration is not to exceed 2.5 times the CCC as a 4-day average within 30 days (e.g., 4.8 mg TAN/L at pH 7 and temperature 20 °C) more than once in 3 years on average
- Frequency for both acute and chronic criteria is not to be exceeded more than once in 3 years on average

Criterion Duration	1999 AWQC Update Criteria Magnitude		2009 Draft AWQC Update Criteria[c] Magnitude		2013 AWQC Update Criteria Magnitude
	pH 8.0, (mg TAN/L)	pH 7.0, T=20°C (mg TAN/L)	pH 8.0, T=25°C (mg TAN/L)	pH 7.0, T=20°C (mg TAN/L)	pH 7.0, T=20°C (mg TAN/L)
Acute (1-hr average)	5.6[a]	24[a]	2.9	19	17[a]
Chronic (30-d rolling average)	1.2	4.5[b]	0.26	0.91	1.9*
*Not to exceed 2.5 times CCC or 4.8 mg TAN/L (at pH 7, 20°C) as a 4-day average within the 30-days, more than once in three years on average.					
Criteria frequency: Not to be exceeded more than once in three years on average.					

[a] Salmonids present
[b] Based on renormalization of data to pH 7 and 20°C
[c] Mussels present