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New Ammonia Criteria Implementation: Zachary Carroll, PhD, P.E. (Arkansas Department of Energy and Environment) Arkansas Rural Water Association Technical Conference Presentation

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Zachary Carroll, PhD, P.E., undertook a presentation at the Arkansas Rural Water Association Annual Technical Conference titled:

NEW AMMONIA CRITERIA IMPLEMENTATION ("Presentation").

Zachary serves as the Engineering Supervisor in the Arkansas Department of Energy and Environment – Division of Environmental Quality ("ADEQ") Office of Water Quality.

The Presentation first addressed "Permit Reminders" covering:

- Signatures (specifying appropriate methods).
- SEEK (referencing data migration in progress/applications/instruction videos will be available).

The Presentation then addressed 2025 criteria revision.

Section 303 of the Clean Water Act requires that each state develop Water Quality Standards ("WQS") for jurisdictional Waters of the United States within their borders.

WQS consists of three parts:

1. Designated use of the waterbody;
2. The water quality criteria ("WQC") that are necessary to protect existing uses and to attain the beneficial uses designated by the states; and,
3. An antidegradation statement or policy to protect existing uses in high-quality water.

WQC are ambient water quality conditions deemed protective for the uses of a waterbody. States are required by the Clean Water Act to adopt WQC protective of the designated uses. They represent a judgment as to what levels, concentrations, or conditions can support a designated use.

States can develop their own WQC if justified by technical data. However, EPA also undertakes this task pursuant to Section 304(d) of the Clean Water Act. As a result, EPA WQC are sometimes used by states in establishing or revising WQS.

Zachary's Presentation noted that the Code of Arkansas Regulations 21 (i.e., what used to be Rule 2) has now been codified and contains the State's WQS. These rules are stated to have been approved by EPA in October 2025 and the WQC are effective for Clean Water Act purposes.

Criteria changes described in the Presentation include:

- Uniform criteria for all stages of fish life.
- Criteria are more stringent.
- Criteria at 1-degree Celsius increments.

Implementation is also addressed, noting that partially specified in the WQC:

- 7 day avg./daily max.
- Temperature to be used.
- 2.5x the value in the table.

The Presentation also addressed:

- Ecoregion assumptions.
- Statistical assumptions.
- 7-day avg. or daily max. limits.
- Monthly statistical assumptions.
- Aquatic life presence/absence.
- Monthly average.
- In-stream criteria.
- Aquatic life designation.
- Perennial aquatic life.
- Seasonal aquatic life.
- In-stream mixing.
- Small streams.
- Large rivers.
- Seasonal aquatic life flow.

Permit limits were also addressed in this context.

Under the heading "Will my limit change?" several factors are cited:

- Facility design flow.
- Receiving stream critical flow.
- Receiving stream watershed area.
- Ecoregion (area of the state).
- Proximity of other facilities.

Suggestions included:

- Check your facility on Permit Data System.
- Look for the WQMP file.

As to potential permit limit changes, in regard to ammonia limits, several factors are cited:

- Dissolved oxygen criteria (no change proposed).
- Aquatic life support (no change proposed).
- Seasonal fishery flow use (changing).
- Toxicity criteria (changing).

Additional related topics included:

- Facility design flow.
- Major facilities.
- Large receiving stream.
- Small receiving stream.
- Minor facilities.
- Large receiving stream.
- Small receiving stream.

The Presentation included a “Summary of expected changes” which includes a table (a general guideline) and a note that states:

... there may be some situations where other factors cause changes in ammonia limits

The Presentation addressed:

- WQMP summary.
- Minor < 1 CFS, asking if it is better for small facilities to discharge to a smaller stream.

The implementation timeline was discussed in terms of permit renewals and some modifications. Renewals are stated to be currently backlogged.

A copy of the Presentation can be found [here](#).