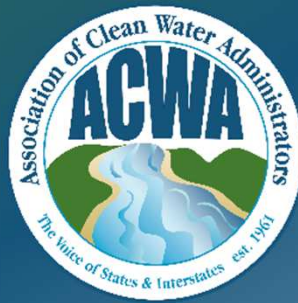


Options for Implementation Approaches & Issues Specific to Ammonia in Freshwater



Association of Clean Water
Administrators

Ammonia Stakeholder Meeting
October 29, 2014

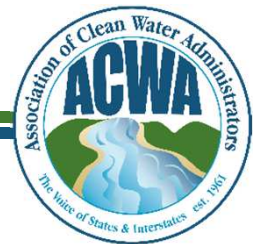
ACWA Team

- State Representatives
 - Bob Mosher, IL - WQS
 - Adam Schnieders, IA - Permitting
 - Mike Tate, KS - CWA Administration
 - Walt Baker, UT - CWA Administration
 - Melissa McCoy – ACWA Environmental Program Mgr



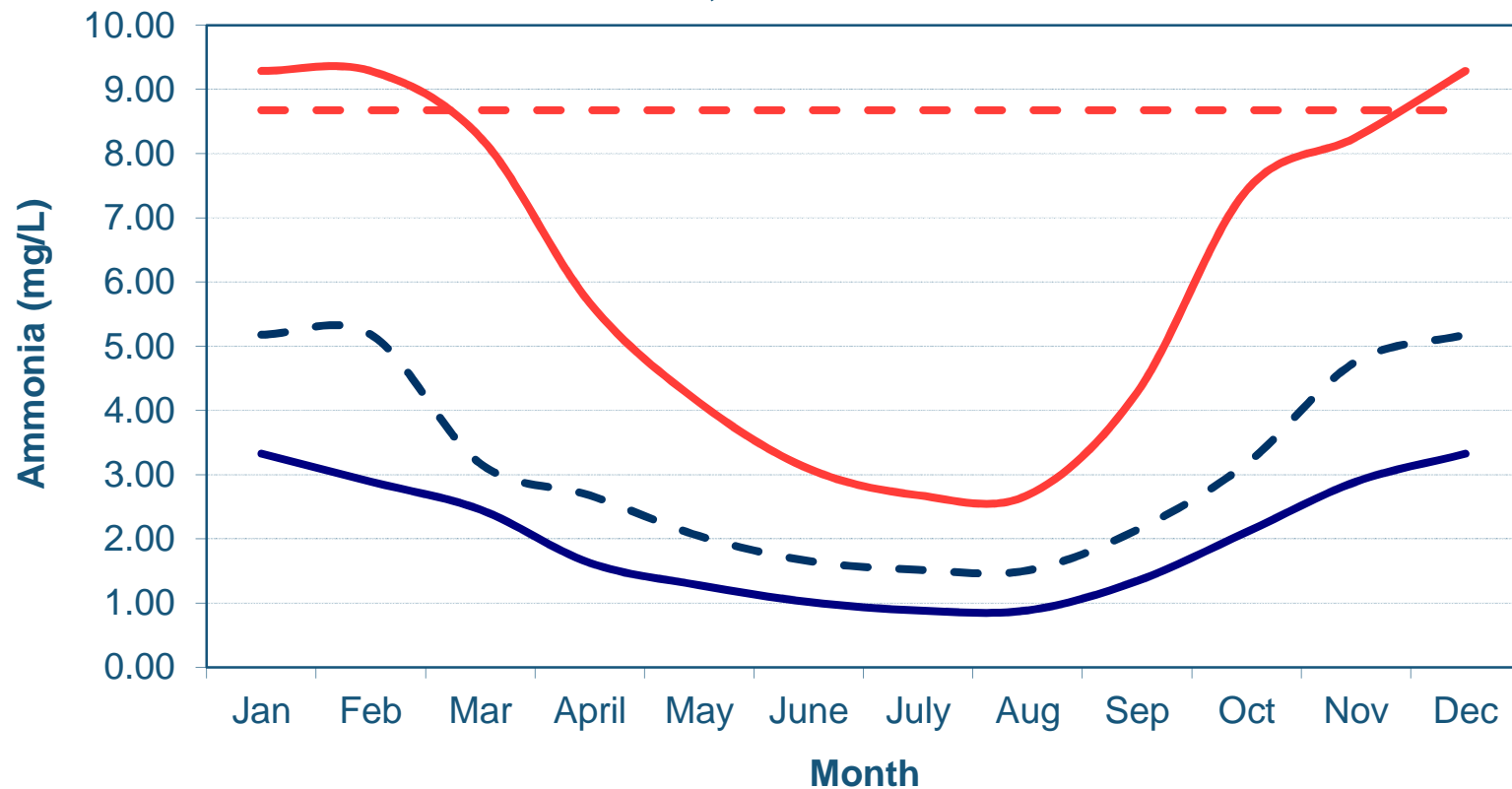
State Identified Issues

- Criteria around 2.5X more stringent than 2001
 - Cost for upgrade can be substantial
 - Especially if recovering a relatively
 - Plant operations control becomes more demanding
 - Enforcement expectations for single violations?
- Need clear guidance/understanding of options to mitigate cost where appropriate
- Where upgrade needed
 - Nitrification and denitrification should be the goal
 - Don't create a nitrate issue
 - Achieve total nitrogen reduction
- Where upgrade might not be needed
 - Identify how we get there



Implementation

Comparison of 2009 vs 2013 Ammonia Limits Wichita, KS Plant #3

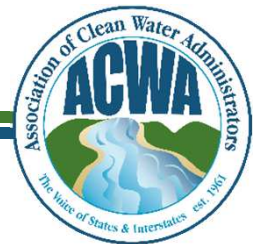


— Chronic Limit - 2013

— Acute Limit - 2013

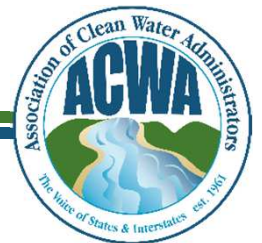
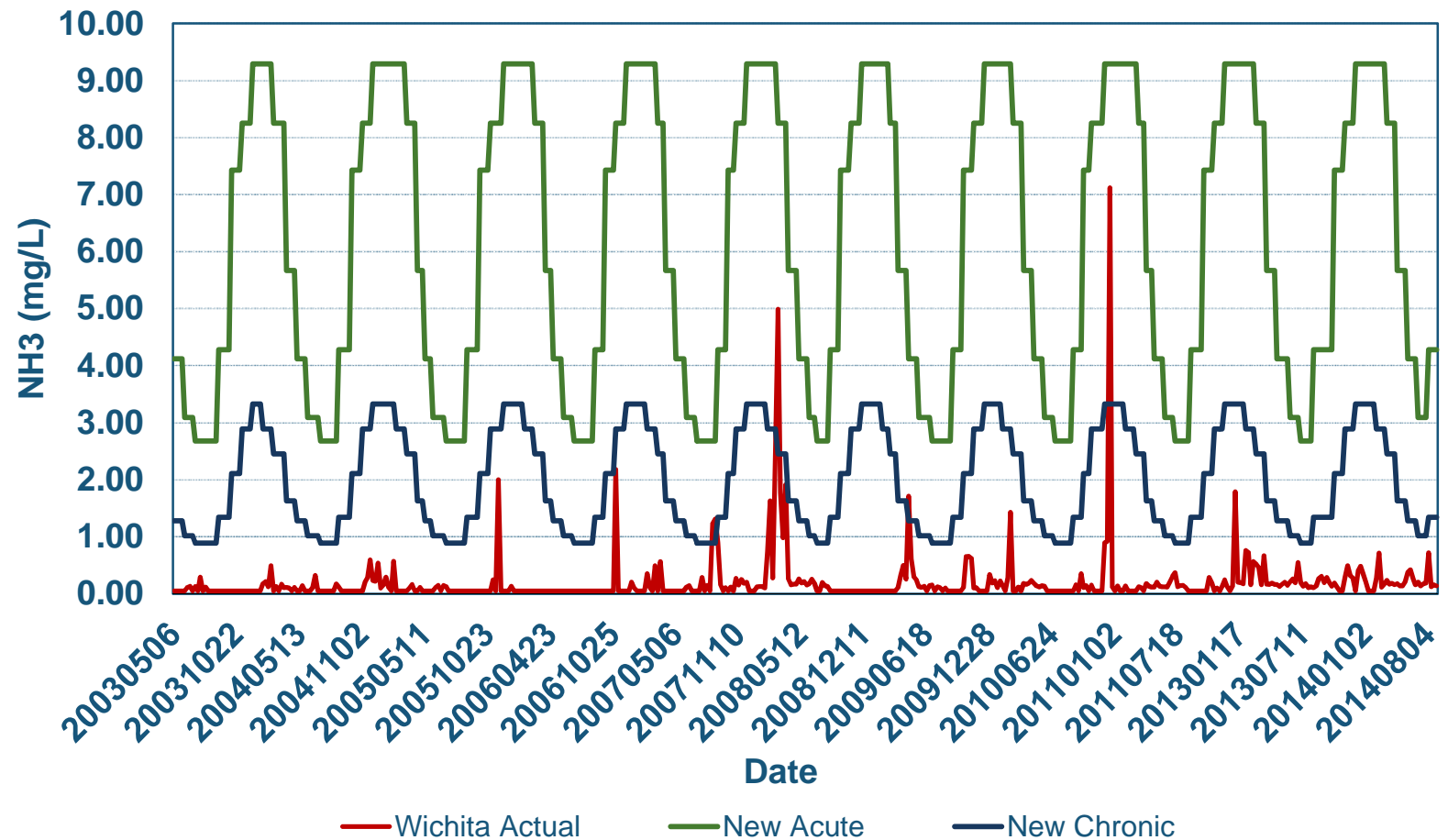
- - Chronic Limit - 2007

- - Acute Limit - 2007



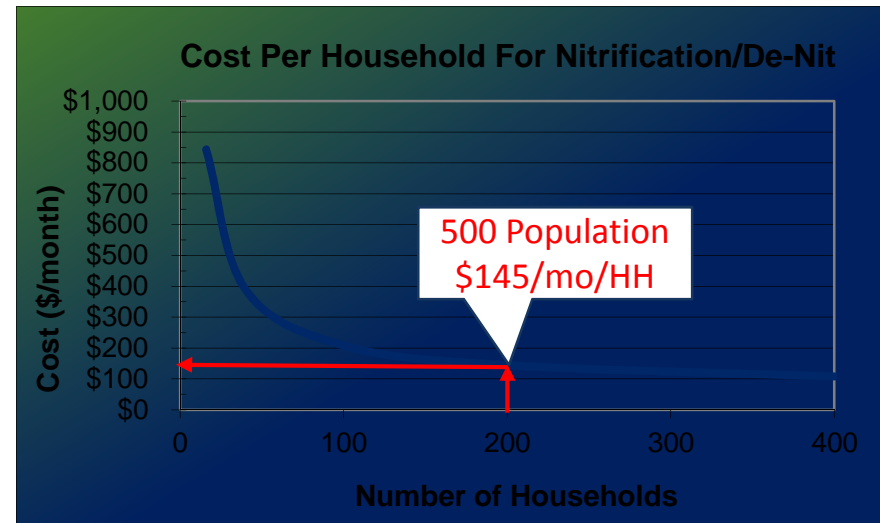
Wichita, KS Actual Performance

Wichita Plant #3



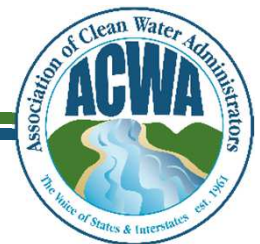
State Identified Issues

- Costs for small systems
 - If mussels present
 - Prohibitive for many
 - Capital
 - O&M
 - Properly trained ops
 - Variance cost
 - Declining rate base
 - If mussels may not be present
 - Cost of study to prove it
- Costs for States
 - Expectation for some will be that
 - Mussel presence is not a rebuttable presumption—State must prove
 - State bears UAA costs



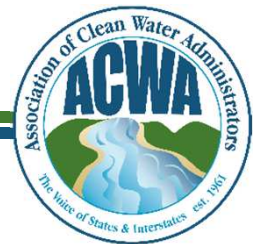
Adapted from Foess, Steinbrecher, Williams, and Garrett - FL Water Resources Journal- December 1998

State	MHI	%MHI
IL	\$56,853	3.1%
IA	\$51,129	3.4%
KS	\$51,273	3.4%
UT	\$58,164	3.0%



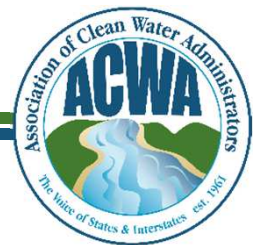
State Identified Issues

- Guidance on which modification tool is best suited
 - UAA vs Variance
 - What are EPA views on why and how each should be used?
 - UAA and variance both based on 40 CFR §131.10(g) factors
 - In the case of (g)(6) – cost – what is really different?
 - » UAA is more permanent and perhaps applicable for small towns
 - For UAA, is factor (g)(5) appropriate?
 - *Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses*
 - Ideas for data required to make showing?



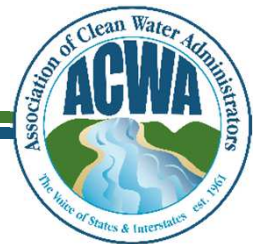
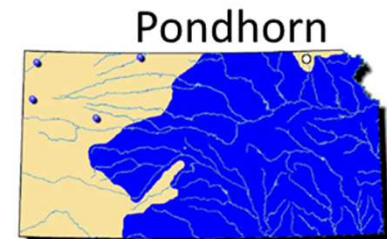
Mitigation Options – Tried and True

- Species Recalculation/Site-Specific Criteria
 - Species determination (mussels/snails) key element
- Mixing Zones
 - Potentially a big player depending on ability to use
- Revise Uses
 - Use Attainability Analyses (UAAs)
- Variances due to compliance cost
 - Delay compliance for life of variance(s)
- Schedules of Compliance (SOCs)
 - Delay compliance during life of schedule



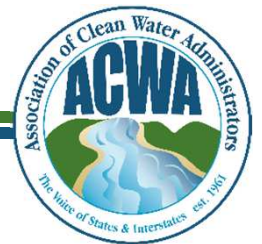
Species Recalculation/Site-Specific Criteria

- Significant interest in mussel presence/absence determination
- Interest in snail presence/absence determination
- If both absent, criteria similar to current criteria
 - Acute still lowers in warmer weather
- What is the yardstick for pres/abs?
 - Waterbody or discharger specific?
 - Applicability of “range” maps similar to T&E
 - Were present at the site in the past, are not currently present at the site due to degraded conditions?
 - Are present in nearby bodies of water, are not currently present at the site due to degraded conditions?
- Can limiting habitat override water quality?



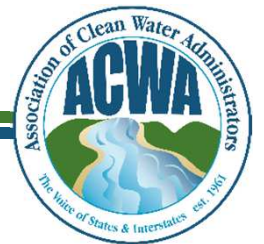
Mixing Zones

- Some believe chronic MZ should be prohibited
 - Mussels can't move to a zone of passage
- Some believe acute MZ should be prohibited
 - Seems to defeat the purpose of an acute MZ
- Allowance of MZ has substantial impact
 - In KS, 31 of 120 mechanical plants would violate w/MZ
 - 49 of 120 would fail w/no MZ
 - 60% increase in number of facilities
- Need to understand EPA thinking on MZ



Revised Uses

- Use Attainability Analyses (UAAs) are generally resource intensive
- Basis for use change
 - Which 40 CFR §131.10(g) factors?
 - Likely cost based – (g)(6)
 - 1994 Interim Economic Guidance needs updating
- Aquatic life support is typically an existing use
 - Need subcategory use - limited ammonia ALS?
 - What does that entail?
- Expectations to revisit modified use?



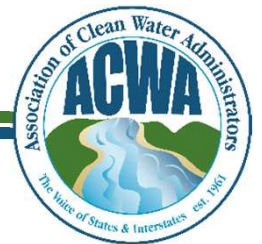
Variances

- Delay compliance for life of variance(s)
- Variances are use changes
 - Must meet one of the §131.10(g) factors
- WQS Clarification Rule will tell us a lot about variance
 - Length of variance
 - How often revisited/renewed
- Multi-Discharger Variance for similar type facilities
 - KS looking at facultative lagoon MDV for small towns
- Individual variances
 - Who performs – permittee or permitting authority?



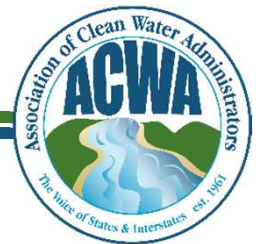
Schedules of Compliance (SOCs)

- If allowed in a State's WQS
- Anticipates discharger can comply if given time
- Delay compliance during life of schedule
 - Delay as short as possible, otherwise can extend across multiple 5-yr permits
- Applies to individual facilities



Mitigation Options – Anything New?

- DNA testing for mussel presence
- Similar waterbody knowledge
 - Similar to species exclusion allowance for finding mussels in nearby waterbodies
 - If **not** present in nearby bodies of water, not likely present?
- *General UAA*
 - Based on stream characteristics, no mussel study req'd.
 - Headwater
 - Intermittent flow
 - Effluent created
- Modeling downstream impacts
 - NH₃ degradation/dilution
 - How far upstream of mussels is discharge appropriate?



Modeling Downstream Impacts

