83rd Annual North Dakota Water Pollution Control Conference

October 11-13, 2011

Nutrient Removal/Criteria Development Panel Discussion

Gary Bracht, NDDH

NORTH DAKOTA
DEPARTMENT of HEALTH

Outline

- History
- Challenges
- Regulatory Solutions
- Federal & State Rule Making
- Region 8 States (MT & CO)
- Summary

History Nutrients vs. Limits

- Late 1990's, started seeing the call for states to initiate Nutrient reduction/develop criteria
- States lagged behind, EPA continued to work with states on development of nutrient criteria
- Several legal challenges in states to implement nutrient criteria/standards
- National Resources Defense Council filed a 2007 brief (legal challenge) for EPA to start rulemaking for Nutrients
- March 16, 2011 Memo by Acting Assistant Administrator (Nancy Stoner) – states need to move forward with Nutrient development.
- Recent Senate Committee hearing on Nutrient Reduction Approaches

Challenges in Establishing Nutrient Criteria

- Indentifying Threshold of Harm to Beneficial Uses
- Numeric Nutrient Criteria

  Stressor Response

  - Response Variables – DO, pH, algae, chl-a, macro-invertebrates, fisheries, public perception, etc
- Translation of in-stream criteria to effluent discharge permit limits

Numeric Nutrient Criteria & Limits of WW Treatment Technology

BNR – Biological Nutrient Removal

(Mg/l)	Raw	Secondary Effl	Typical BNR	Enhanced BNR	Limits Treat. Tech
TP	4-8	4-6	1	.25-.5	0.05-0.07
TN	25-30	20-30	10	4-6	3-4

Table summary does take into account:

- Cost associated
- Effectiveness of advanced treatment for Nutrient Removal
- Translation to permit limits

Regulatory Solutions (key areas)

- Permit Requirements Below Capabilities of WW treatment Technology
- Water Quality Variances
- Treatment Technologies
- Affordability Tests

Appropriate Discharge Permit Guidance for Nutrients

- Translation WQ in-stream criteria to NPDES to discharge permit limits
- Critical interpretation of WQ issues
  - Most guidance from EPA/States have focused on toxics in permits
- Appropriate averaging periods
- Variability in low nutrient plant performance

EPA Rule Development

- EPA develops Effluent Limitation Guidelines (ELG) for Nutrients
- Proposed rule is public noticed in Federal Register for 30-90 days
- Comments are addressed, final rule can be up to a year after initial PN of draft
- States would have 1-2 years to implement
- Challenges/Law Suits

ND Rule Development

- Water Quality Standards may need to be updated to include Nutrient criteria
- May require updates to NDPDES rules
- Public notice/comment period for proposed state rule updates
- Comments addressed, final rule implemented
- State rule revision can take 1-2 years
- NDPDES permits would need to include any nutrient limits

NDPDES Permits

- Nutrient limits affects who?
  - Based on Flow, Type of Facility (Major), Watershed
- Can I get a state variance or waver?
  - State will explore the option
- When will limits be implemented in permits?
  - Permit modifications, Reissuance of 5-yr permit
- Compliance schedules?
  - Good tool that allows time to meet any new limits

Region 8 State - Montana

- Rule making going on for > 10 years
- Proposed limits Streams/Rivers are not achievable
- As a result, MT adopted numeric criteria standard variance legislation
  - Mech WWTP > 1MGD – can apply for general variance of 10 mg/L TN and 1 mg/L TP
  - Mech WWTP < 1MGD, can apply for general variance of 15 mg/L TN and 2 mg/L TP
  - Lagoons not designed for nutrient removal, no increase in Limits
  - Two other variances: Individual - economics; Alternative – other factors like flows, etc

Region 8 State - Colorado

- Regulation #31 - In-Stream Standards

Rivers/Streams	Cold Water	Warm Water
Chl – a mg/m^2	150	150
TP – ug/l	110	160
TIN – ug/l	400	200

- Regulation #85 – Nutrient Management Control

Existing Plants	New Plants
1st Level BNR	Enhanced BNR
TP – 1 mg/l	TP – 0.7 mg/l
TIN – 10 mg/l	TIN – 7 mg/l

BNR – Biological Nutrient Removal

Summary

- Its coming, its just a matter of when
- Allow the states flexibility, one size fits all does not work most of the time
- Get involved early in the rule making process
- Numeric nutrient standards need to be technically & scientifically defensible; economically achievable
- Narrative Standard to Permit limits *


can you
hear me
NOW!?!?
OMG WTF