What is “Regulatory Certainty,” and how is it implemented?

Water Communications Forum

Presenter
MPCA Wastewater Staff

June 30, 2016
Regulatory Certainty

- Overview
- Legislative Effort
- Technical discussion of BNR
- Implementing into permit
Idea from multiple sources

• Wastewater Think Tank
• Governor’s Listening Sessions
• MPCA Staff
• Legislative stakeholders and legislators
Wastewater professionals say ...

- Wastewater professionals expressed frustration of more restrictive effluent limits
- Wastewater professionals want clean water
- Wastewater professionals want to balance treatment with economic burden on rate payers, but they want to plan debt repayment schedules.
- Wastewater professionals want the ability to plan for facility upgrades.
Regulatory Certainty

- An agreement between PCA and the owner that more restrictive effluent limits for TP and TN will not be required for a period up to 20 years, if:
  - The owner receives a WQBEL for TP
  - The owner accepts a TN effluent limit no greater than 10 mg/L
Benefits to the waters of the state

• Uses most effective technology to efficiently address both phosphorous and nitrogen at one time

• A more cost effective approach to nutrient reduction for Permittees

• Provide an opportunity to show how BNR as a treatment technology will work in our climate
Questions?
Legislative Effort

- **HF 3409**, authored by:
  - Rep. Fabian, – R, Roseau;
  - Rep. Poppe, - DFL, Austin
  - Rep. Metsa, - DFL, Virginia

- **SF 3272**, authored by:
  - Sen. Marty, - DLF, Roseville;
  - Sen. Sparks, - DFL, Austin;
  - Sen. Senjem, - R, Rochester
  - Sen. Hoffman, - DFL, Champlin
Legislative Effort

- HF 3409 and SF 3272 were identical, but SF3272 was amended in committee to include industrial permittees and to include chemical polishing for P.
- House adopted the Senate language
- Senate passed SF3272 unanimously
- House passed SF3272 with a 105-23 vote
Legislative Effort

• Benefits of the bill
  • “Cleaner water faster”
  • Flexibility for municipalities
  • More efficient use of state funds from PFA

• Supporters
  • League of Minnesota Cities
  • MN Municipal Utilities Association
  • Conservation Minnesota
Questions?
Regulatory Certainty

• Who is Eligible?
  • Municipal and Industrial Facilities that installs a new BNR system; or
  • A municipality with an existing facility that includes a treatment technology that is currently designed for TN removal.
What is BNR?

- Combining biological phosphorus removal with biological nitrogen removal
- Capable of producing effluent
  - 5-10 mg/l total nitrogen
  - 0.5-2.0 mg/l total phosphorus
- May include chemical addition
  - Phosphorus precipitation
  - Enhanced nitrogen removal
- Many configurations capable of BNR
What is BNR?

All Configurations have in common

• Aerobic Zone sized for BOD removal and nitrification
• Protect Anoxic Zone
• Release of TP in Anaerobic Zone
• Luxury Uptake of TP in Aerobic Zone
  – Waste TP before secondary release
What is BNR?
Modified Bardenpho

- Anaerobic
- Anoxic
- Oxic (aeration)
- Anoxic
- Oxic (aeration)

Influent → Anaerobic → Anoxic → Oxic (aeration) → Anoxic → Oxic (aeration) → Secondary clarifier → Effluent

Return activated sludge → Waste sludge

NO₃
What is BNR

Nitrogen Removal Key Ideas:

• Nitrification is an aerobic process that requires a long SRT and HRT

• The length of the SRT is affected by temp, DO, pH, and ammonia concentration

• Denitrification is an anoxic process that requires very low DO with a carbon source
What is BNR

Phosphorus Removal Key Ideas:

• The correct ratio of VFA:P
• Phosphorus removal requires correctly sized anaerobic zone
• Avoid secondary release of phosphorus
• Return flows
What is BNR

More than design

• Process Control is essential to successful biological nutrient removal
• Monitoring and collecting data over time develops control parameters
• Evaluating results and understanding needed operational changes
Evaluation of Treatment Technology

- Influent characteristics well defined
  - Throughout the design life
  - Ratios of VFA:P
  - Variability of flow and loading
- Biosolids handling
  - Secondary release
  - Return flows
  - Chemical feed points
Evaluation of Treatment Technology

- Hydraulic consideration
  - Short circuiting
  - Back mixing
  - Oxygen return
- Flexibility in operation
  - Location and number of return lines
  - Swing zones
- O&M
  - Describing process control
  - Sampling location and expected results
  - Trouble shooting
SRF funding for Municipal

- Work under existing programs
  - Apply to the PPL
  - Submit facility plan
- Eligible for Point Source Implementation Grant
  - Application period is July
Questions?
Regulatory Certainty

- Voluntary
- Agree to meet TP WQBEL and TN effluent limit
- MPCA determines whether to provide RC based on facility design
- Agreement between MPCA and Permittee
- 20 year term or design life, whichever is shorter
- Sunset provisions – Dec 31 2031 or EPA approval of nitrate toxicity WQ standard
Regulatory Certainty – Permitting Process

• Submit Application
  • Must be submitted as part of an application for permit reissuance or modification

• Development of Permit Conditions:
  • Development of TP WQBEL
  • Review of technical documentation to:
    • Approve design of proposed BNR or existing treatment technology
    • Determine the associated TN limit
    • Determine design life ~ term of eligibility

• Develop and Formalize Agreement:
  • Length of Regulatory Certainty
  • TP WQBEL and TN effluent limit
  • Signed by both MPCA and Permittee
Regulatory Certainty – Permitting Process

- Permit Document:
  - TP WQBEL and TN limits included in Limits and Monitoring requirements
- Permit Text will include:
  - Language incorporating the terms of the Agreement into the Permit
  - Construction schedule, if applicable
- Final Agreement - Appendix to the Permit
- Factsheet and/or SOB will include basis for:
  - TP WQBEL and TN effluent limit; and
  - Regulatory Certainty – term and conditions
Regulatory Certainty

• Sunset
  • Applications will be accepted until December 31, 2031 or the day following EPA approval of MPCA adopted WQS for nitrate-nitrogen.
Questions?
Opportunity to participate

We are seeking volunteers to help formulate the agreement between PCA and permitee.

Stakeholders:
- Wastewater professionals
- Consultants
- Advocacy
- Industry
- Municipal

Limited number of meetings to conclude by August 31, 2016.
Cleaner water faster

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