Onsite System N Reductions

Documenting Reductions Outside the BMP Process

VDH VIRGINIA DEPARTMENT OF HEALTH

N Reductions in Onsite

- Credit is allowed for reductions through an approved BMP in NEIEN
- 21 categories plus hook up and pump out
- Limited to residential equivalent systems
- Limited to smaller systems (less than 1,000-5,000 gpd)

How to 'Count' Others?

- Larger systems (over individual state max design flow for small systems)
- Non-residential systems

- Examples: Restaurants, gas stations, community systems, churches, schools

BMP Expert Panel

- Anticipated this issue in section 3 and 3.2.2

Section 3 – BMP Panel

- For proprietary systems and the smaller set of high-risk (e.g., larger) systems that do trigger additional state requirements, **states should be encouraged to provide more robust, case-by-case verification of TN reduction** than the minimum standards identified herein.

BMP Panel Report, cont.

- **3.2.2 Nonproprietary System Protocol**

  Recommends a two-step approach for engineered nonproprietary systems that are not currently assigned nitrogen reduction credits through BMPs

- Step One: submittal of engineering design justification that follows standard engineering practice for nitrogen removal.
- Step Two: The system should then undergo accelerated testing to verify the design and estimated TN removal. Testing should be at least 1 to 2 years in duration, seasonal, and otherwise in accordance with the field testing protocol for proprietary systems.

- If a designer wants to seek watershed-wide approval for a given design – they will have to follow the process the other BMPS have
- So this option is Case by Case and is not intended to result in the creation of a new BMP

Proposal: VA Small System Verification

- These are systems that do not normally have state required ongoing monitoring.
- The purpose of the short term monitoring would be to verify that the N reduction is functioning as designed.
- Two Step Process;
  - Engineering design submittal
  - Field verification

VDH VIRGINIA DEPARTMENT OF HEALTH

Step One - Calculations

- Follow standard engineering practices for TN reduction
- Address relevant criteria such as oxygen requirements for treatment units; safety factors; nitrogen, hydraulic and organic loading rates; pump rates; recirculation rates
- The process(es) used must be based on demonstrated N reduction in similar designs

Step Two – Field Verification

- Sample type: grab sample
- Sample point:
  - At end of treatment unit
  - In situ (within 24 inches of application point)
- Frequency
  - Initial within 180 days
  - 4 additional at 6 mo interval with 2 in winter
- Parameter: TN

Criteria

- Treatment units
  - Mean of TN samples ≤ 30 mg/l
- In situ
  - Mean of TN samples ≤ 24 mg/l

Once verified, Ongoing verification is provided by annual inspection, similar to other small systems

How to report? Suggest count under similar BMP

Large Systems

- Ongoing monitoring to confirm effluent quality from once a year to weekly depending on design flow
- Need way to report these systems
- >700 systems and >7,000,000 gpd
- Could provide household equivalent
  - For example a 20000 gpd community system is equivalent to x households at x % reduction

Two Issues

- How to verify and gain credit for small systems that do not fall under a BMP
- How to credit larger systems with credits