EO562 Regulatory Review Stakeholder Group for Title 5 (310 CMR 15.000) & Groundwater Discharge Permits (314 CMR 5.00)

Stakeholder Group Meeting
October 8, 2020
MassDEP Zoom Call

Stakeholder Group Meeting Agenda

- Welcome
- DEP Participant Introductions
- EO562 Scope & Principles
- Stakeholder Group Comments & Presentations
  - Nitrogen Sensitive Area (NSA) Subcommittee Update
  - Moldering Privy LUA Guidance
  - Multi-residence occupancy data study
    - UMass Donahue Institute
  - Groundwater Separation Virus Study
    - Scope of Work
    - Mass Test Center presentation
- Wrap Up

EO562 Regulatory Reform: Scope of Work/ Principles

Scope:

- Comprehensive effort to identify and implement reforms to regulations, policies and practices
- Seek additional efficiencies & alternate models among ALL major MassDEP areas

Principles:

- No weakening of environmental protection
- Will not consider:
  - increases in MassDEP staff;
  - transferring MassDEP responsibilities to already-strapped municipalities
- Will not prioritize:
  - Statutory changes, changes to federal responsibilities

Title 5/Groundwater Stakeholder Group

- DEP received 12 comments pertaining to Title 5 and the Groundwater Discharge Permit Program
- 2017 the T5/GW Regulatory Revision Stakeholder Group was formed
- Meetings in 2017 and 2018 addressed 6 of the 12 comments
- This meeting will update/address 4 of the remaining comments

Nitrogen Sensitive Areas (NSA)

- **Summary of NSA Stakeholder Comment:**

DEP is currently authorized under Title 5 to identify Nitrogen Sensitive Areas (NSAs). Designation of these areas requires adoption through a change to the Title 5 regulations and the Mass Surface Water Quality Standards [SWQS] (314 CMR 4.00).Current regulations limit systems in NSAs to 440 gpd/acre. Allow DEP to designate NSAs without the need for regulatory changes to Title 5 and SWQS. For future designated NSAs, consider additional requirements for enhanced treatment to address nitrogen.

Nitrogen Sensitive Areas (NSA)

- Subcommittee met on September 3, 2020 to discuss:
  - Expansion of definition of NSA
    - Embayments and subembayments
  - Define how these areas will be determined
    - TMDL, MEP Report, 303d list
  - Revise nitrogen requirements in certain NSA areas
    - Require nitrogen enhanced removal in combination with loading restrictions
  - Offer compliance options to those with a plan
    - Watershed Permit, CWMP
  - Implementation schedule for these new requirements
    - New
    - Existing

Nitrogen Sensitive Areas (NSA)

- Next steps:

1) DEP drafting policy/regulatory revisions
2) DEP will send draft to NSA Subcommittee
3) Reconvene Subcommittee to discuss draft
4) DEP develops final proposed language based on discussion and begins internal review

Nitrogen Sensitive Areas (NSA)

Questions?

Moldering Privy

Moldering Privies

- ***Summary of Moldering Privy Stakeholder Comment:***

  Current Title 5 regulations do not include provisions for backcountry sanitation for campsites restricted to tent camping and backpackers. Current regulations only include approvals for composting toilets for homes, commercial or public facilities and plumbing approvals.

  Local Health Agents were seeking guidance on how to approve these systems.

Moldering Privies

- Designed and approved by the U.S. Forest Service
- Utilized in the Green and White Mountain National Forests and Appalachian Trail
- Described in: *Appalachian Trail Conservancy's (ATC) Backcountry Sanitation Manual* [2nd Edition, 2014]
  - Conventional outhouse on a mesh-enclosed, above-ground box foundation
  - Decomposition and treatment of the waste pile occurs through the slow collection of waste.

Moldering Privies

- Locations are inaccessible by vehicles
  - Hike-in/Paddle-in only camp sites
- Locations do not have plumbed water available
- Locations would not accommodate a full Title 5 system
- Composting toilets not practical for use at these sites
- Remote and inaccessible location of these sites renders the goal of full compliance physically impossible and economically infeasible

Moldering Privies

310 CMR 15.404(3) provides that a Local Approving Authority (LAA) may issue a Local Upgrade Approval authorizing upgrade of a system with the goal of maximizing protection of public health, safety, welfare and the environment to the maximum extent feasible when full compliance is not feasible.

Moldering Privies

Guidance for Local Upgrade Approval (LUA):

May allow the use of moldering privies at existing hike in/paddle in only sites to upgrade sites with nonconforming pit privies and cat holes

Siting and construction specifications in Section 8 of the *ATC Backcountry Sanitation Manual*

Setback distances should comply with the provisions of 15.211(1) for a Soil Absorption System.

Moldering Privies

Guidance for Local upgrade Approval (LUA):

Four feet of separation between the bottom of the privy crib and high groundwater elevation at the site.

Size of cribs and number of cribs will be determined to provide sufficient storage to accommodate trail use

Disposal of composted solids to be done in a manner approved by LAA

Maintenance and signage for proper use required

T5/GW Stakeholder Group

GUIDANCE FOR THE APPROVAL OF
MOLDERING PRIVIES AT
EXISTING HIKE-IN/PADDLE-IN CAMPSITES

https://www.mass.gov/lists/title-5septic-systems-policies-guidance

T5/GW Stakeholder Group

Questions?

T5 Design Flow for Multi-Residence buildings

Summary of Title 5 Design Flow Stakeholder Comment:

Daily flow rates are incomplete and outdated for current uses and plumbing devices. Flows need to be reviewed and revised. Resurrect committee from 5 years ago to complete their work. Make revisions to 15.203 (sewage flow design criteria) and 15.416 (school variances) including multi-family and single-family homes. This will reduce the high cost of septic systems and the Infiltration and Inflow requirements on commercial and multi-family projects in the MWRA service area.

T5 Design Flow for multi-residence buildings

Massachusetts has one of the lowest design flow rates in the U.S. at **110 gpd/bedroom**.

This design flow is reflective of per capita use estimates combined with an appropriate margin of safety.

Previous discussions focused the topic on the suggestion that flow variations lessen for larger multi-family / multi-user systems at a certain number of bedrooms thereby lowering the overall actual flow.

The missing factors in previous analysis on flows has been occupancy data and a significant sample size of facilities reviewed.

MassDEP contracted with the UMass Donahue Institute and their Economic & Public Policy Research Group to investigate what information was available that would provide information on this comment?

T5 Design Flow for Multi-residence Buildings

An Evaluation of Residential Septic Design Flows and Multi-Residence Occupancy in Massachusetts

By

UMass Donahue Institutes EPPR Group

T5 Design Flow for Multi-Residence buildings

Conclusions:

The 110 gpd/bedroom design flow is based on 55 gpd/pp with 2 people assumed per bedroom as a margin of safety

Based on the occupancy data study, MassDEP's two person per bedroom assumption maintains its integrity when applied to large multi-residential buildings

DEP will not be pursuing further research on this topic or revising the design flow for multi-residential facilities.

T5 Design Flow for Multi-Residence buildings

Questions?

GW Separation and Virus Removal

Summary of Title 5 Groundwater Separation Stakeholder Comment:

There is underutilization of I/A technologies for new construction that provide for enhanced effluent treatment. There is a significant fiscal and environmental cost to constructing mounded or filled systems. Allowing a reduction in groundwater (GW) offsets for new construction (similar to repairs) when using alternative technologies (secondary treatment) will provide enhanced effluent secondary benefits.

GW Separation and Virus Removal

- Current regulation allows for a reduction in the required 4/5 foot separation from bottom of the SAS to groundwater for remedial situations utilizing I/A technologies.
- The group questioned why MA does not allow less than 4 feet of separation when other states do and suggested that reductions should also be allowed for new construction with the use of I/A technology and/or pressure distribution or drip dispersal. Others said the reduction should be allowed in general, not just with I/A.

GW Separation and Virus Removal

Technical Evaluation for Title 5 (1991):

- 4 foot separation is for pathogen removal.
- World Health Organization recommended 5 log removal (99.999%) of pathogens
- 4 log (99.99%) removal of bacteria has been demonstrated in studies to occur by 4 feet of unsaturated separation and greater than 4 log at 5 feet.
- The unknown then and now is virus removal due to very few studies being conducted.

GW Separation and Virus Removal

- March 2018 Stakeholder Group agreed that pursuit of a study on Virus removal would be beneficial
- Study should examine both bacterial and virus removal at various depths with and without pressure distribution
- MassDEP worked with the Mass Alternative System Test Center and Oscar Pancorbo of the Wall Experiment Station for DEP to develop the Virus removal study
- The study is funded through a combination of capital funds and 319 Grant funding

GW Separation and Virus Removal

- Study will test for these pathogens:
  - Indigenous male-specific and somatic phage
  - Fecal Coliform
  - Escherichia coli, also known as E. coli
  - Enterococcus

  Seven “treatments” or vertical separations
  - Four gravity supplied cells: 2-feet, 3-feet, 4-feet, and 5-feet (vertical separation) and,
  - Three pressure dosed scenarios: 2-feet, 3-feet and 4-feet (vertical separation)

GW Separation and Virus Removal

QUESTIONS?

T5/GW Stakeholder Group

https://www.mass.gov/regulations/310-CMR-15000-septic-systems-title-5#title-5-groundwater-stakeholder-group

Thank you!