

HOW STUs CAN BE USED FOR NEW CONSTRUCTION AND UPGRADES

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MEHA - On-site Wastewater for Local Environmental Health Officials

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Discussion Points

- Overview of innovative/alternative technologies in MA
- Types of innovative/alternative systems
- Somewhat recent changes to STU approvals
- Use of STUs for upgrades
- Use of STUs for new construction
- BOH Approvals
- Wrap-up

I/A Technologies in MA

- 1995 Code set forth the procedure for approval
- Four types of approval
 - General Use
 - Piloting Use
 - Provisional Use
 - Remedial Use

Types of I/A Approvals

- Restorative Treatment Processes
- Drip Dispersal Systems
- Buried Filter SASs
- Bottomless Sand Filter
- Secondary Treatment Units (STUs)

What is a Secondary Treatment Unit (STU)?

- An alternative technology that may be used as a component of an on-site sewage disposal system where soil or site conditions make conventional soil absorption systems more costly to construct or infeasible.
- Effluent from the STU shall meet secondary treatment standards:
 - $\text{BOD}_5 \leq 30 \text{ mg/l}$
 - $\text{TSS} \leq 30 \text{ mg/l}$
 - pH between 6.0 and 9.0 SU

Remedial Use Approvals

Secondary Treatment Units with Remedial Use Approval

- AdvanTex
- Amphidrome
- Bioclere
- Busse-MF
- The Clean Solution
- Cromaglass
- FAST
- Modular FAST
- Hoot
- JET Bat
- Low-Rate ISF
- Puraflo Peat Fiber Biofilter
- SeptiTech
- Singulair
- Singulair Green
- Waterloo Biofilter

RUA Approvals for STUs

- November 5, 2012 Issuance
- Standard Conditions for Secondary Treatment Units Approval for Remedial Use
- Greater uniformity in conditions of approval
- Shorter specific technology approval letter references only technology specific info, conditions, etc.
- Similar to the conditions required of BSFs

RUA Alternative Design Standards

II. Design and Installation Requirements, Para. 5

*Provided that the Designer demonstrates that the impact of the proposed Alternative System has been considered and the design requirements of 310 CMR 15.000 have been varied to the **least degree necessary** so as to allow for both the **best feasible upgrade** within the borders of the lot and the **least effect on public health, safety, welfare and the environment**, the local approving authority may allow any combination of the following alternative design standards without the need for granting a variance under 310 CMR 15.400 or obtaining Department approval:*

RUA Alternative Design Options

- Reduction in SAS area (up to 50%); and/or
- Reduction in depth of NOPM (down to 2 feet); and/or
- Reduction in depth to GW*
 - 2 foot separation in soils with perc rates slower than 2 mpi
 - 3 foot separation in soils with 2 mpi or faster perc rates

* See following discussion

GW Reduction Requirement

II. Design and Installation Requirements, Para. 6

Any proposed reduction in the required depth to groundwater, specified in 310 CMR 15.212, may only be approved when:

a) An approved Soil Evaluator who is a member or agent of the local Approving Authority determines the high groundwater elevation;...

STU Standard Conditions

- Disclosure notice in the deed (MassDEP website)
- Certifications by designer and installer (no standard form)
- Contract operations
- Periodic sampling, recordkeeping and reporting
- 24-hr notification of system failure
- 24-hour emergency storage (req'd – STU w/ RUA has pressure distribution)
- Owner acknowledgement of responsibilities

Design and Installation Requirements

- 26 in all: these are the highlights
- Effluent BOD5, TSS and pH standards
- PE or RS (< 2,000 gpd)
- 3 Alternative design standards
- Best Feasible Upgrade
- NSA requirements for systems >2,000 gpd
- Expanded submittal to BOH

Best Feasible Upgrade

○ Identified

1. Conventional (with or without reserve area)
2. Conventional with LUA
3. BSF
4. Variance (w/ maximum capable compliance)
5. Tight Tank

○ Undisturbed

General Use Approvals

Secondary Treatment Units with General Use Approval

- AdvanTex
- Amphidrome
- Bioclere
- Busse-MF
- The Clean Solution
- Cromaglass
- FAST
- Modular FAST
- Hoot
- JET Bat
- SeptiTech
- Singulair
- Waterloo Biofilter

STU GUA Reduced SAS Option

- For residential systems less than 2,000 gpd
- SAS may be reduced up to 50% from required area for a gravity SAS (using graving LTAR)
- No variance to GW separation
- No variance for depth of NOPM
- Pressure distributed SAS
- If pressure distribution LTAR is used, no reduction
- For residential systems 2,000 gpd or greater or any nonresidential systems, no reduction

Additional Requirements with SAS Reduction – GUA

- Full-sized SAS area shown on plans and approved
- No permanent buildings or structures or disturbance that would encroach on the area approved for the full-sized primary conventional SAS
- Full-sized reserve SAS shown on plans and approved
- No permanent buildings or structures or disturbance that would encroach on the area approved for the full-sized reserve conventional SAS

Conditions Applicable to RUA and GUA STUs

Expanded BOH Submittal

- Designer proof of technology training, if required by Company
- >2,000 gpd system, Company certification
- Designer certification of design conformance
- Owner certification*

Owner Certification

- Documents and agrees to terms and conditions
- Aware of estimated costs associated with operation
- Understands service contract requirement
- Requires Deed Notice
- Approval given to any new owner
- Garbage grinder restriction as appropriate
- Understands about repair/replacement/etc.

Operation and Maintenance

- O&M contract with Grade II WWTP
- Sampling
- SFH: annual
- <2,000 gpd: semi-annual; >2,000 gpd: quarterly
- If used with BSF, BSF requirements trump those of the STU (RUA only)
- Procedures when ample results outside of limits
- Immediate discharge cessation/hauling if failure/back-up/break-out

Reasons for these Requirements

- Lessons learned regarding:
 - What works/doesn't
 - Owner involvement/knowledge
 - O&M requirements
 - Design considerations
- Approvals are evolving to incorporate lessons
- Look for more changes in the future

Contact for STU Approvals

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QUESTIONS?

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THANK YOU!