



MASSDEP'S STU STANDARD CONDITIONS FOR REMEDIAL USE APPROVAL

A Presentation to the MEHA Conference

March 12, 2014

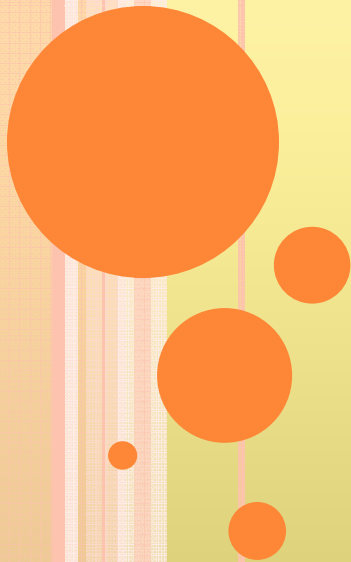
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CAVEATS

- I am a supporter of MassDEP and want to help them share important information
- I did not author these Standard Conditions
- I do not work for MassDEP
- I am interpreting this document to the best of my ability but please check with your MassDEP regional office if there are further questions



SECONDARY TREATMENT UNITS



SECONDARY TREATMENT UNIT (STU)

- Since 1995, MassDEP has approved a number of treatment systems that precede a septic tank, sit inside a septic tank, or follow a septic tank
- Called Innovative and Alternative Treatment Systems (I/A)
- These systems have to have been examined by MassDEP and shown to meet certain performance standards to clean up sewage



SECONDARY TREATMENT UNITS

- Generally operate in one of three ways:
 - Aerobic – apply oxygen to tank of sewage
 - Screen Filter – push sewage through filter to screen out material
 - Media – spray effluent on top of a media that allows treatment to occur
- Can be used for Upgrades or New Construction



SECONDARY TREATMENT UNITS



STU'S FOR NEW CONSTRUCTION

- Typically New Construction is only for STU's that have been approved for General Use or for removal of a specific pollutant (often nitrogen)
- Title 5 defines new construction as raw land being built upon, or additional design or actual flow to an existing onsite system
- STUs have been shown to meet certain treatment standards which are equivalent to or greater than a fully complying conventional Title 5 system



STUS FOR UPGRADES

- Categorized as Remedial Use under Title 5
- Allowed under 310 CMR 15.284
- Approximately 2 dozen brands have been approved for use
- Have to show MassDEP that will likely improve existing conditions for a site that is served by a non-conforming or failing system



UPGRADES PRIOR TO STANDARD CONDITIONS

- Each brand had detailed approval letter
- Each approval letter said when could and could not be used
- Each approval letter indicated what documentation was needed and what standards could be used
- Many aspects were identical among all STUs

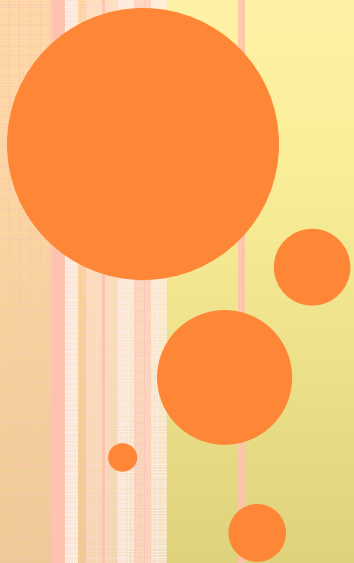


UPGRADES PRIOR TO STANDARD CONDITIONS

- Allowed to take one of three “credits” by right:
 - Reduced size of SAS by up to 50%
 - Reduced distance from bottom of SAS to ESHGW by 2’
 - Reduce depth of naturally occurring soil found on the site to 2’
- Really challenging sites would require site-specific approvals using BRPWP64C if could not achieve a design with only one credit



STANDARD CONDITIONS



STANDARD CONDITIONS

Standard Conditions for Secondary Treatment Units Approved for Remedial Use **Effective Date: November 05, 2012**

A Secondary Treatment Unit (STU) is 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. A conventional system may be more costly to construct or infeasible where there is a shallow water table and/or limited area for the siting of a conventional system. As compared to a conventional system, in certain instances, an STU provides for higher loading rates (smaller leaching area) and may require less land area, potentially less fill, and less disturbance of the site.

The System consists of an STU preceding a pressure dosed soil absorption system. The secondary treatment unit is designed to reduce the organic material and solids in the wastewater which reduces the demand for treatment in the soil absorption system. A conventional septic tank precedes the STU unless exempt by the Special Conditions for a specific Technology.

The use of an STU in accordance with this Approval for Remedial Use requires, among other things:

- A Disclosure Notice in the Deed to the property (310 CMR 15.287(10)) (A Deed Notice template is available from the Department);
- Certifications by the Designer and the Installer (310 CMR 15.021(3));
- A Massachusetts certified operator who has received training for the technology and is under contract for periodic inspection and maintenance (310 CMR 15.287(10));
- Periodic sampling, recordkeeping, and reporting, in accordance with this Approval;
- Notification within 24 hours by the System Owner to the local approving authority of any System failure;
- When pumping is required to discharge to the SAS, 24-hour emergency wastewater storage capacity above the elevation of the high level alarm; and
- System Owner Acknowledgement of Responsibilities, in accordance with this Approval.



STANDARD CONDITIONS

- Developed because many systems had long approval letters with essentially the same wording
- There were some sites which did not meet criteria in the approval letters and required MassDEP review which was not deemed a prudent practice
- There was concern that some owners did not understand what was being proposed on their property



STANDARD CONDITIONS

- Effective November 2012
- On MassDEP's website
- Not well announced
- Also revised Remedial Use approval letter for each STU technology to be much shorter and to only address the items that are unique to that system



STANDARD CONDITIONS

Goals:

- Make consistent procedures for implementation
- Have all decisions made at municipal level
- Make sure documentation is clear and known by relevant parties and passed along to new property owners
- Assure long-term maintenance is provided

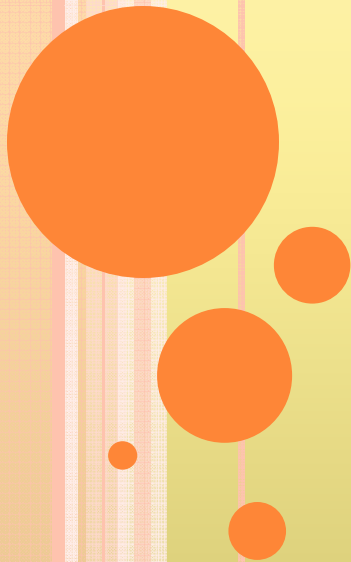


STANDARD CONDITIONS

- Applies only to Remedial Use treatment systems
 - not conventional, not different types of soil absorptions systems, not rejuvenation systems



STANDARD CONDITIONS DETAILS



STANDARD CONDITIONS

- Major areas of Standard Conditions state:
 1. When STUs can and cannot be used
 2. What standards can be applied when they are used
 3. What is required to assure proper operation and maintenance
 4. What is required to assure future owners know what technology serves the property
- Each of these four areas will be explored in detail



WHEN CAN STANDARD CONDITIONS BE USED

- Upgrade to systems <10,000 GPD
- Replace a failed or non-conforming system
- No increase in design or actual flow
- Conventional system with a reserve area cannot feasibly be built
- Sewer connection is not feasible
- Technology has Remedial Use Approval from MassDEP



WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- Technology shall not interfere with operations of other parts of the onsite system
- Shall have full-sized septic tank unless approval letter for the technology says otherwise



WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- Must use pressure distribution (or drip dispersal) if seeking any of the following:
 - SAS size reduction of 25% or more
 - Reduction in separation distance between ESHGW and SAS of 1' or more
 - Anything less than 4' of naturally occurring pervious soil

(note: this conflicts with opening part of the Standard Conditions which says all systems shall have pressure distribution, however my guess is that the opening sentence is a carryover and the more detailed text should be followed)



WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- Provided Title 5 standards have been varied to least degree necessary, BOH can approve any combination of reductions including:
 - Reduced size of SAS by up to 50%
 - Reduced distance from bottom of SAS to ESHGW by 2'
 - Reduce depth of naturally occurring soil found on the site to 2'
- These can be approved provided there is no impact on the Best Feasible Upgrade (BFU)



WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

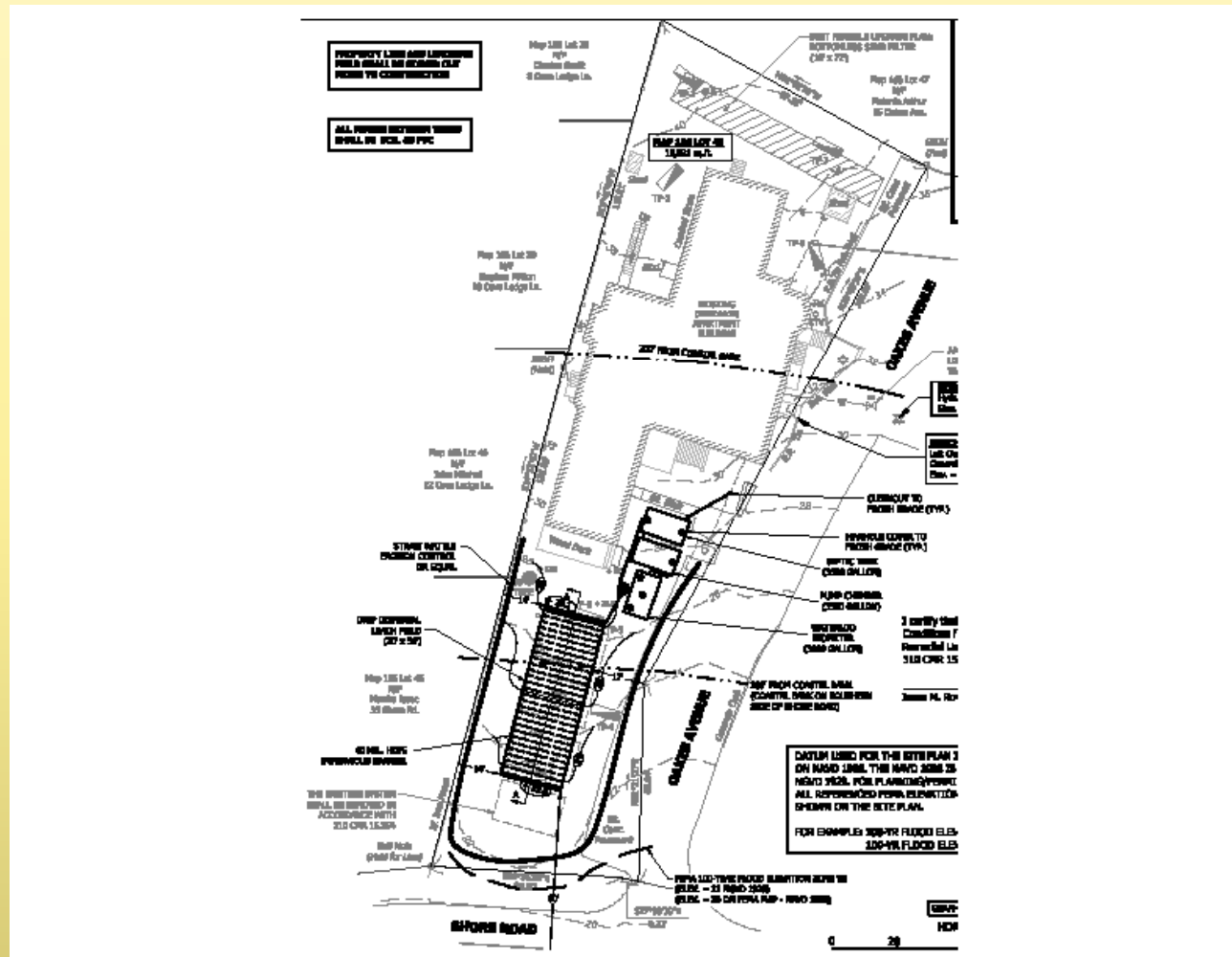
- Best Feasible Upgrade area must be shown on site plan
 - BFU located in area not permanently made unusable due to STU system being proposed
 - BFU area not to be built on or disturbed



WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- Best Feasible Upgrade area shown must be based on system designed in following order of priority:
 - Full sized conventional system with no reserve area
 - Conventional system with LUA
 - STU w BSF
 - Conventional or I/A system with variances
 - Tight tank





WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- Cannot grant LUA or Variance to waive any further from the reductions in the Standard Conditions
- Must use BSF if cannot make system work on the lot without variances
- If cannot use BSF, then can request variance from Title 5 to be reviewed by BOH



WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- If seeking groundwater reduction of up to 2' from ESHGW to bottom of SAS :
 - ESHGW Determined by BOH
 - Cannot seek ESHGW reduction if an LUA is also being sought for reduction to private or public wells, wetlands, vernal pools, water supply pipes, water supplies and others
 - Mounding analysis performed if flow >2,000 GPD

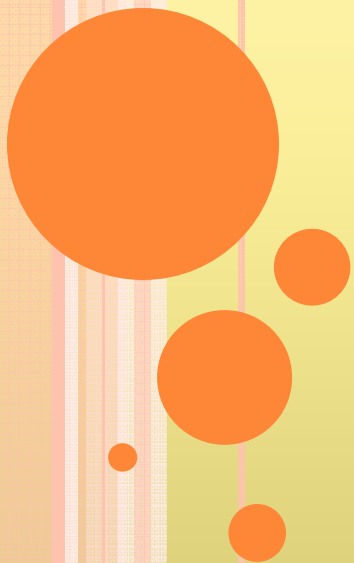


WHAT STANDARDS ARE APPLIED WHEN THE STANDARD CONDITIONS ARE USED?

- If design flow is >2,000 GPD and SAS is in a Nitrogen Sensitive Area, then must use a treatment system with specific nitrogen removal approval from MassDEP



DESIGN



WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- Design and Construction Standards:
 - Access covers watertight and to grade, secured
 - No structures above covers
 - Watertight connections at tank penetrations if ESHGW within 12"
 - Components designed against freezing
 - No relief valve designed into the system for overflow discharge
 - If pumps - control panel accessible and visible, adequate emergency storage, high water alarm
 - Inspection port in SAS



WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- At time of submission of DSCP (usually with design plan) must include:
 - Proof of Designer training for technology (if required)
 - Certification statement signed by Designer saying the design plan conforms to Title 5, MassDEP approval for technology, and technology design guidance



WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- At time of submission of DSCP (usually with design plan) must include:
 - Certification signed by owner of property indicating they:
 - Have a copy of MassDEP approval letter
 - Have a copy of technology owner's manual
 - Have a copy of the technology O&M manual
 - Agree to comply with all terms and conditions in these documents



WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- At time of submission of DSCP (usually with design plan) must include:
 - Certification signed by owner of property indicating they understand
 - Costs for O&M, energy use and other expenses
 - The need for an O&M service contract
 - The need to put notice on deed indicating presence of an STU
 - The requirement to let future owners know about these requirements



WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- At time of submission of DSCP (usually with design plan) must include:
 - Certification signed by owner of property indicating they understand
 - Cannot use a garbage grinder unless part of design plan
 - Must keep the system operational, must comply with requirements of BOH or MassDEP to repair or replace if system not performing



WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- At time of submission of DSCP (usually with design plan) must include:
 - Certification by technology that design is correct for residential flow >2,000 GPD or any onsite system serving non residential facilities

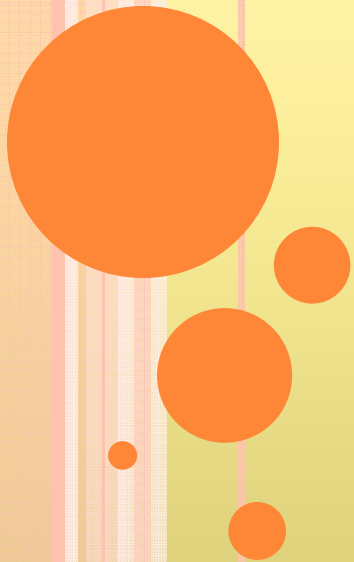


WHAT IS REQUIRED TO ASSURE PROPER DESIGN AND O&M

- Use of a technology that is approved for use by MassDEP



CONSTRUCTION



WHAT IS REQUIRED TO ASSURE PROPER CONSTRUCTION

- Installer locally licensed
- Installer trained by technology if required
- Installer certifies to Designer, BOH and property owner that:
 - Locally licensed
 - If required by technology, is certified or trained on installation



WHAT IS REQUIRED TO ASSURE PROPER CONSTRUCTION

- Installer keeps on the property during construction:
 - Approved design plans
 - Owner's manual for technology
 - O&M manual for technology
 - MassDEP approval for technology



WHAT IS REQUIRED TO ASSURE PROPER CONSTRUCTION

- Owner only allows construction by:
 - An Installer who is locally licensed
 - An Installer who is certified or trained by technology, if required



WHAT IS REQUIRED TO ASSURE PROPER CONSTRUCTION

- If technology requires installer training then cannot sell system to installer without proof of training
- When sell technology, must give purchaser a copy of Standard Conditions, O&M manual and owner's manual plus any design and installation manuals



WHAT IS REQUIRED TO ASSURE PROPER CONSTRUCTION

- Certificate of Compliance cannot be issued until a separate written certification signed by Designer and Installer saying that system was installed in compliance with Standard Conditions

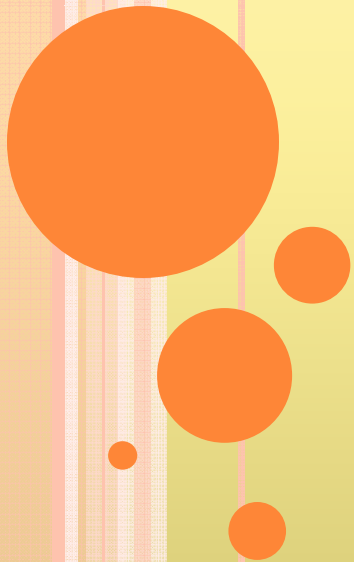


WHEN IS ABANDONMENT REQUIRED

- Within 60 days of sanitary sewer connection becoming feasible, unless BOH or MassDEP gives longer time



LONG TERM OPERATION



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Owner to have agreement with:
 - Grade Level II (or higher) WWTP Operator
 - On list of approved service providers issued by technology



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Signed agreement between owner and service provider to be provided to BOH prior to construction
- Agreement to:
 - Be for at least 1 year
 - Name the individual who is authorized to perform service
 - Assess system operation including samples if needed
 - Notify in writing to BOH, owner and technology problems found and corrections made within 5 days of event



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Service provider responsible for properly operating and maintaining the system as long as under contract
- If aware of conditions which are classified as a failure under Title 5, must notify owner immediately, and BOH within 24 hours
- If problems found with technology, service provider to notify technology within 5 days



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Operator to visit site at least annually for single family house
- Operator to visit other sites with flows <2,000 GPD at least twice per year
- Operator to visit sites with flows >2,000 GPD at least four times per year
- Specific field tests and observations done



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Recording of findings of specific items including: condition of tanks and SAS, odors or other problems, samples taken, water level inside inspection port, etc.
- If water present in inspection port above pipe invert, must return within 30 days to observe again
- Cease use of system if major problem such as backup into house



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- If repairs needed, must be:
 - In compliance with technology approval
 - Done by licensed installer if the work requires a DSCP
 - Under a DSCP if nature of repairs are required by Title 5 to have a DSCP



WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Annual report to BOH and technology by March 1 for preceding year
- If O&M contract is cancelled, must notify BOH and technology within 7 days

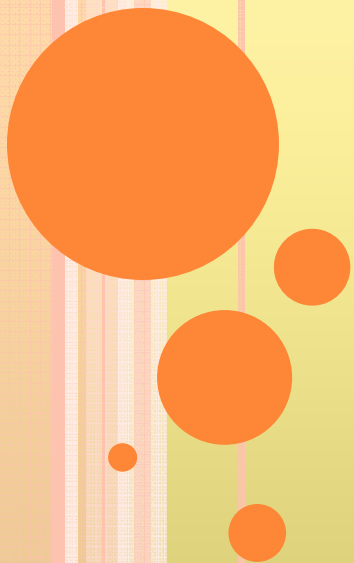


WHAT IS REQUIRED TO ASSURE PROPER OPERATIONS & MAINTENANCE

- Technology to provide training classes at least annually for service contractors
- Technology to maintain list of trained and certified service contractors
- Technology to remove persons from list of certified service contractors if not submitted annual reports



OWNER NOTIFICATION



WHAT IS REQUIRED TO ASSURE FUTURE OWNERS UNDERSTAND WHAT ONSITE SYSTEM SERVES THE PROPERTY

- Deed notice indicating the presence of the technology needs to be recorded prior on title to the property prior to construction
- Notice to be on form provided by MassDEP
- Copy of recorded deed notice to be provided to BOH prior to construction

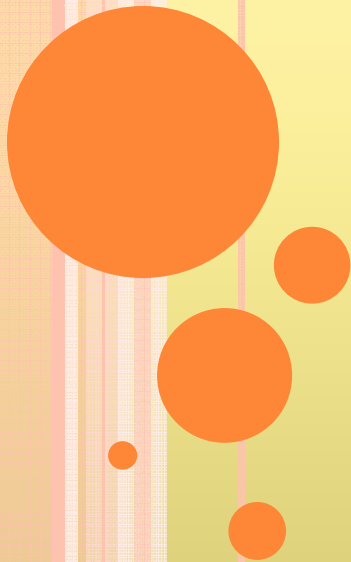


WHAT IS REQUIRED TO ASSURE FUTURE OWNERS UNDERSTAND WHAT ONSITE SYSTEM SERVES THE PROPERTY

- Written notice to transferee of requirements associated with technology
- Copy of written notice to BOH within 10 days of giving notice



THE BIG PICTURE: ENVIRONMENTAL HEALTH IMPROVEMENT



THE BIG PICTURE

- Through all of this, remember that from a public health and environmental perspective, STUs are a good thing: They assure that a consistently well-treated wastewater is being discharged to the environment

