Technical Decision Making (TDM) Guidance for On Lot Sewage Repair Situations 2022

Pre-Draft Document presented to SAC on 10/26/22

SAC 2022

- 3/30/22 scheduled meeting canceled by DEP for the lack of items to review or discuss
- 8/22/22 ALL SEO LETTER SENT BY DEP WITHOUT ANY REVIEW OR DISCUSSION WITH SAC. 16-point document can be found on the PADEP Clean Water web site.
- 10/26/22 SAC meeting to review and discuss two items:

    New electronic application for on lot sewage

    Pre-Draft TDM Guidance Document

SUMMARY FOR THE YEAR

- Central Office continues to restrict the use of alternate systems for new land planning. They continue to consider Act 34 has given them authority to restrict the use of SLZAS. There have been several court cases on this matter, however DEP has settled the cases before a court adjudication on the issue therefore preventing a precedent.

SUMMARY FOR THE YEAR

- Central office has indicated that during COVID they were developing revisions to Chapter 71, 72 and 73 without any input from SAC.
- To date no draft copy of their revisions to Chapters 71, 72 and 73 have been provided to SAC.

SUMMARY FOR THE YEAR

- DEP continues to consider a PSMA unsatisfactory conclusion is not a malfunction and any new system or system upgrade must completely meet Chapter 73 or the current On-Lot Alternate Technology Listings (ATL) requirements to be permitted. A fully ponded absorption area with no dry aggregate may be considered a malfunction under the new TDM.

SUMMARY FOR THE YEAR

- The pre-draft document distributed at the 10/26/22 SAC meeting entitled TDM Guidance for On-Lot Sewage System Repair Situations (385-2208-004) will impact PSMA members. It will restrict the replacement or upgrading of existing sewage systems that does not meet the requirements of Chapter 73 or the ASL. DEP stated that they worked on this document in 2021. This document as drafted will require the strict compliance with Chapter 73 or the ASL when considering a repair. Any deviation to the requirements of Chapter 73 or the ASL will be considered an experimental system and require DEP regional and Central office review.

Technical Decision Making (TDM) Guidance for On Lot Sewage Repair Situations 2022

Definitions and Acronyms

- BAT-Best Available Technology
- BTG-best Technical Guidance
- Failure-Failure—A condition of an on-lot system or component that threatens the public health by inadequately treating sewage or by creating a potential for direct or indirect contact between sewage and the public.

Definitions and Acronyms

- Limiting zone—A soil horizon or condition in the soil profile or underlying strata that includes one of the following: (i) A seasonal high-water table, whether perched or regional, determined by direct observation of the water table or as indicated by redoximorphic soil mottling. (ii) A rock formation with open joints, fractures, or solution channels. (iii) Masses of rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments. (iv) A rock formation, other stratum or soil condition which is so slowly permeable that it effectively limits the downward passage of effluent.

Definitions and Acronyms

- Malfunctioning on-lot sewage system—An on-lot sewage system that is failing as determined by the local agency sewage enforcement officer or DEP.
- OAT—On-lot alternate technology.
- On-lot Sewage Disposal System Permit—Types of permits are:

Alteration permit—Any modification or structural change to an existing individual or community on-lot sewage system for any purpose other than to affect a repair.

Installation permit—The construction of a new individual or community on-lot sewage system.

Repair permit—Any action taken that is performed on an on-lot sewage system to restore the proper function of the system, including replacement of some or all of its components.

Definitions and Acronyms

- Sewage—A substance that contains the waste products or excrement or other discharge from the bodies of human beings or **animals** and noxious or deleterious substances being harmful or inimical to the public health, or to animal or aquatic life, or to the use of water for domestic water supply or for recreation. The term includes any substance which constitutes pollution under The Clean Streams Law. . (25 Pa. Code § 73.1)

Definitions and Acronyms

- **Site-specific experimental on-lot sewage system**

A method of on-lot sewage treatment and disposal not described in 25 Pa. Code Chapter 73 (relating to standards for onlot treatment facilities) which is proposed for the purpose of addressing a malfunctioning on-lot sewage system when all other options for sewage treatment and disposal, excluding a holding tank, are unavailable.

Definitions and Acronyms

- TDM—Technical decision making.
- TGD—Technical guidance document.

INTRODUCTION

- The TDM process uses an accepted hierarchy based on science and experience of DEP.
- The focus on the term malfunctioning on-lot sewage system in the process is in reference to the requirement in 25 Pa. Code § 73.3(b) that allows BTG only when an on-lot sewage system is considered malfunctioning.

SCOPE

- A. Provide consistent definitions for terms that are used in the TDM process.
- B. Explain guidelines for the TDM process to permit repairs for malfunctioning on-lot sewage systems and components.
- C. Provide guidance on the permitting of replacement on-lot systems and the use of BTG when siting those systems.

SCOPE

- D. Provide guidance on when a repair/replacement permit becomes an experimental permit and what that entails.
- E. Provide guidance on when SEOs can make independent decisions and clarify situations in which consultation with DEP is necessary.

TECHNICAL DECESION MAKING GUIDELINES

- BTG does NOT excuse compliance with regulatory requirements that can be met.
- The TDM guidelines were created as a multi-stepped process where each step indicates the general options that should be considered at that point in the process.
- If the options contained in a step are not feasible for the situation at hand, move to the next step and consider the options indicated therein. Continue this process until you arrive at one or more satisfactory resolution(s).

TECHNICAL DECESION MAKING GUIDELINES

- These guidelines promote flexibility and creative problem solving while providing additional support for the SEOs and guidance from DEP to those making decisions in the field.
- The repair permit may be issued by the local agency SEO **or by DEP,** depending upon the situation or the type of technology selected.

STEP 1 – ON-LOT SEWAGE SYSTEM MALFUNCTION IDENTIFICATION

An on-lot system may be considered “malfunctioning” when it is either causing a nuisance, or it has the potential to cause a nuisance if one or more components of the system are not repaired or replaced.

The following conditions are examples of on-lot system malfunctions:

STEP 1 – ON-LOT SEWAGE SYSTEM MALFUNCTION IDENTIFICATION

- Partially treated or untreated sewage effluent on the ground surface.
- Backup of partially treated or untreated sewage effluent into a structure the on-lot sewage system is serving.
- Partially treated or untreated sewage effluent entering, either directly or indirectly, into a surface water of this Commonwealth.
- Partially treated or untreated sewage entering the ground water.

STEP 1 – ON-LOT SEWAGE SYSTEM MALFUNCTION IDENTIFICATION

- Saturated conditions or ponding in the absorption area that are persistent over a period of 7 or more days not directly related to an identifiable excessive precipitation event.
- Cesspools or seepage pits in contact with the seasonal highwater table, whether perched or regional.
- Cesspools that are structurally unsound. The SEO or DEP has discretion to determine if an on-lot sewage system does not meet the current regulatory requirements, is malfunctioning.

STEP 1 – ON-LOT SEWAGE SYSTEM MALFUNCTION IDENTIFICATION

The SEO or DEP has discretion to determine if an on-lot sewage system does not meet the current regulatory requirements, is malfunctioning.

STEP 2 – TROUBLESHOOTING AND TESTING

- Here are a few guidelines to follow when troubleshooting a malfunctioning on-lot sewage system:
- 1. It is important to inspect every component of the malfunctioning system. Failure of one component may lead to failures of other components. If the SEO does not inspect the entire system, the SEO may miss other failing components, resulting in an unsuccessful repair. Pumping of the tanks are necessary to complete a thorough visual inspection of the interior of these components.

STEP 2 – TROUBLESHOOTING AND TESTING

- 2. Verify during the inspection that servicing one or more components will correct the malfunction. Servicing may include pumping out of components, adjustments to component telemetry by a manufacturer representative or other maintenance activities
- 3. Talk to the property owner and/or tenant to rule out inappropriate use of the on-lot sewage system as the cause of the malfunction. Exceeding the design flow rate and disposal of certain chemicals into the system are two common missuses.

STEP 2 – TROUBLESHOOTING AND TESTING

- 4. If you can test it, test it. Test structural integrity of system components, test the pumps or siphons (if applicable), test the conveyance lines, etc. Rule out the relatively simple fixes before proposing replacement of the whole system.
- 5. If deemed necessary, use dye testing when tank leaks or stream contamination is suspected. Use only industry specific dyes and follow the product directions for its use.
- Once the cause of the malfunction has been identified from the inspections and testing, proceed to Step 3.

STEP 3 – MALFUNCTION REPAIR USING CONVENTIONAL OR ALTERNATE TECHNOLOGIES

- Conventional on-lot sewage systems should first be considered before alternate or experimental on-lot sewage systems when correcting a malfunctioning on-lot sewage system
- A permit is required for repair or replacement of one or more components, and may only be issued by a local agency SEO or when necessary, DEP.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

- The first step in applying BTG is to consider selectively waiving specific horizontal isolation distance criteria under the provisions of BTG found in 25 Pa. Code § 73.3(b).
- Further, BTG does not allow a proposal to bypass the appropriate DEP technology review during the permitting process. It remains essential to interact with DEP when appropriate.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

BTG should not be used for absorption areas in the following circumstances since there is a high probability of malfunctioning either immediately or very soon after installation:

- Placement on unsuitable sites as described per 25 Pa. Code § 73.12. Placing systems on unsuitable soils has a high probability of malfunctioning either immediately or very soon after installation.
- Placement on sites with a limiting zone to the mineral soil surface that is outside the design of the absorption area.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

BTG is appropriate when:

- BTG is used to repair or replace a malfunctioning on-lot sewage system.
- The repair or replacement will not create a nuisance or direct/indirect public health hazard.
- The repaired system or replacement has a reasonable probability of functioning long term.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

- Without reducing the minimum square footage of the absorption area as required by Chapter 73 or the ASL, the length and width may be adjusted by up to 5% to meet site constraints when no other options are available.
- Maintain the horizontal isolation distance in 25 Pa. Code § 73.13 from the absorption area to an area identified as a floodway by FEMA. Where there is no flood mapping, a flood way extends 50 feet from the top of the stream bank as determined by the local agency.
- To drinking water wells except as provided by Pa. Code § 72.33.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

- BTG only applies to individual systems
- If a well can be moved it must be moved
- 72.33 (b) well wavier can be used at the sole discretion of the local agency if the well cannot be moved
- 72.33 (b) well wavier applies to all wells existing, abandoned or not used for a water supply regardless of ownership

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

- Pretreatment of the effluent to avoid fecal coliform and nitrogen contamination of the well will be based on the appropriate groundwater study, i.e., a hydrogeological report, submitted to the local agency, or if the local agency waives this requirement, best available technology should be used for the on-lot sewage system. Best available technology should include advanced secondary treatment, disinfection, and nitrogen reduction, to protect the well from contamination.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

Well isolation exemption is granted by the local agency and not the SEO. Such an exemption should be reflected in a signed written statement by the local agency on its letterhead.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

When approving BTG, the SEO or local agency should provide the homeowner with a written notification that states the following:

- The site does not meet Chapter 73 standards. Itemized all deviation from the regulatory horizontal isolation distances in the permit.
- There is a possibility that the repair system may fail.
- Reducing water use and installing water-conservation devices may help prolong the life of the system.
- The repair permit does not relieve the applicant of the responsibility to correct any failures of on-lot sewage system components that may occur in the future.

STEP 4 – USING BTG TO WAIVE HORIZONTAL ISOLATION DISTANCES OR SELECT DESIGN REQUIREMENTS

If the on-lot sewage system cannot be installed using BTG and there is no viable sewerage connection proceed to Step 5.

Note: If there is a viable centralized sewerage option for the property, consider pursuing this option before proceeding to Step 5. ??????????????

STEP 5 – INITIATE PLANNING FOR AN SFTF

- Evaluate the site for placement of a Small Flow Treatment Facility (SFTF).
- SFTFs require sewage facilities planning and a DEP permit. . Please contact your region's DEP planning and permitting staff in the Bureau of Clean Water for the requirements to complete sewage facilities planning and to obtain a permit.
- High Quality Watersheds Issues

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

All site-specific experimental sewage system proposals must include a complete preliminary design plans and specifications and must be sent to the SEO and DEP at least 60 days prior to applying for a permit. Central office DEP will review, determine if classification is appropriate and provide comments to the SEO within 60 days of receipt of a complete proposal.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

Site-specific experimental classification of an on-lot sewage system may be justified when:

- When violation of one or more vertical isolation distances to a limiting zone is necessary.
- When deviating from design specifications for a conventional or an OAT, outside of what is allowed for in BTG, are necessary to meet site constraints.
- Adjusting the dimensions of the absorption area beyond the 5%.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

- Decreasing the infiltrative surface area of the absorption area, as required by Chapter 73 or required by design in the OAT classification.
- Adjusting lateral configurations.
- When placing a conventional or alternate technology on slopes outside of design requirements. Note, slopes over 25%, as per 25 Pa. Code § 73.12(a), are unsuitable for on-lot sewage systems and a permit must be denied.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

DEP has determined the only way to verify that an experimental design, including repairs, protects public health, safety, and the environment, is through monitoring, observation, and testing.

DEP has determined, that permitted experimental systems should receive periodic inspection and operation and maintenance to provide long-term proper operation, and therefore should be operated under an approved sewage management program (SMP) that specifies such monitoring, observation and testing of the experimental on-lot sewage system, and that an O&M agreement with a qualified service provider is maintained for the life of the system.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

The following additional considerations should be addressed before the classification of a system as a site-specific experimental technology and the issuance of a site-specific experimental on-lot sewage system permit.

- A thorough site investigation using a qualified soil scientist under the direction of a DEP soil scientist. (there are only 6 in the program)

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

- A design completed, signed and, sealed by a professional engineer using BAT, including but not limited to, advanced secondary treatment of sewage, fecal coliform removal to less than 1 cfu/100 ml, and total nitrogen reduction of the sewage of at least 50%. Relaxation of these requirements may be acceptable if noted in a hydrogeologic report. Additional design requirements will be provided by DEP to the professional engineer based on the site conditions.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

- A hydrogeologic report completed, signed and, sealed by a professional hydrogeologist stating the design will not adversely affect public health, safety, and waters of the Commonwealth. Relaxation of this requirement may be acceptable if determined unnecessary by a DEP professional hydrogeologist.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

- An O&M manual developed, signed, and sealed by the professional engineer.
- A deed restriction requiring an O&M agreement be maintained with the property owner and a qualified service provider for the life of the experimental on-lot sewage system. The service provider may be the local agency or a third-party contractor.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

When required by DEP the following additional conditions should be included in a site-specific experimental on-lot sewage system operational permit.

- A 5-year renewal cycle.
- Inspection of the system at a frequency detailed in the O&M manual by a local agency SEO or other SEO contracted with the local agency.

STEP 6 - PROPOSED USE OF SITE-SPECIFIC EXPERIMENTAL SEWAGE SYSTEM

- Sampling of the effluent by a qualified service provider for CBOD5, TSS, Fecal Coliform, and Total Nitrogen (if applicable) a minimum of once per quarter or until after review of the data by DEP allows for a reduction in frequency.
- Annual reporting of all inspection and sampling information should be provided to the DEP.
- If the site will not support an experimental on-lot sewage system than proceed to Step 7

STEP 7 – HOLDING TANK

- The use of a holding tank remains the “repair of last resort” because of the intense and expensive maintenance requirements that exist for this structure.
- Holding tanks should be used only when there are no other viable options available to repair a malfunctioning on-lot sewage system.
- Planning is often required for use of holding tanks; please contact your SEO and regional DEP planning specialist before proceeding.

WHAT DO YOU THINK?

- Is this a workable procedure to address repairs in PA?
- How will this affect a real estate sale?
- At one time in 2005 the program was heading towards a performance based approach instead of a prescriptive approach. What a change!
- The document has not received SAC's endorsement but is being used by the DEP staff as guidance.
- Some aspects will encourage the use of a PSMA business like pumping of tanks for the evaluation of the malfunction and service provider maintenance requirements