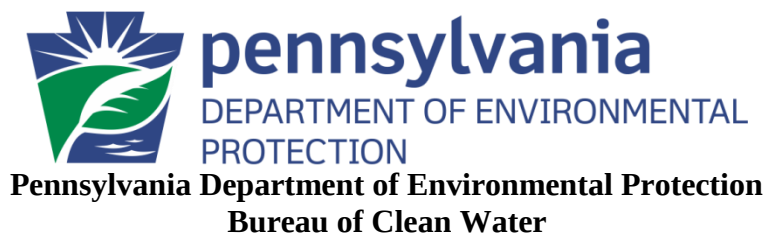


**ALTERNATE ON-LOT SEWAGE PRETREATMENT
TECHNOLOGY VERIFICATION POLICY
(DEP ID: 385-2208-003)**

COMMENT AND RESPONSE DOCUMENT

May 9, 2020



INTRODUCTION

The Department of Environmental Protection (DEP) published notice of the availability of a draft Technical Guidance Document (TGD) “Alternate On-lot Sewage Pretreatment Technology Verification Policy” in the *Pennsylvania Bulletin* on March 10, 2018 [48 Pa.B. 1476]. A 60-day comment period was provided, and interested parties were directed to submit comments to DEP’s eComment system. The comment period ended on May 8, 2018. DEP received comments and questions from 31 different individuals and organizations during the comment period. The purpose of this document is to present DEP’s responses to these comments and answer all questions posed.

LIST OF COMMENTATORS

The names of individuals who submitted comments to DEP are identified below. DEP has recorded each comment in this document and identified the commenter(s) by number, corresponding to the list below.

- (1) Tom Ashton, American Manufacturing Co., Inc, P.O. Box 97, Elkwood, VA 20186
- (2) Sen. Lisa Baker, PA Senate, Senate Box 203020, Harrisburg, PA 17120
- (3) Marie-Christine Belanger, Premier Tech Aqua, 200 Kelly Road, Unit B, Quakertown, PA 18951-4226
- (4) Russell Braun, 426 W. Theresia Road, Saint Marys, PA 15857
- (5) Michael Brown, P.O. Box 200, 113 Heller Street, Berrysburg, PA 17005
- (6) Tom Bruursema, WaterTomorrow Consulting LLC, 219 Glenwood Circle, Manchester, MI 48158
- (7) Mike Cannon, North Central Sewage Agency, P.O. Box 36, Knoxville, PA 16928
- (8) Richard Corey, Clearstream Wastewater Systems, Inc., P.O. Box 7568, Beaumont, TX 77726-7568
- (9) William Daniel, Gulf Coast Testing, LLC, 17170 Perkins Road, Baton Rouge, LA 70810
- (10) Elizabeth Hensil, PA Association of Realtors, 500 North 12th Street, Lemoyne, PA 17043
- (11) Scott Hetrick, Norweco Inc., 220 Republic St., Norwalk, OH 44857
- (12) David Horvat, PA Assn of Sewage Enforcement Officers, 4902 Carlisle Pike, #268, Mechanicsburg, PA 17050
- (13) Christopher Jowett, Waterloo Biofilter Systems Inc., 143 Dennis Street, Rockwood, Ontario CN N0B 2K0
- (14) Jim King, Eljen Corporation, 125 McKee Street, East Hartford, CT 06108

- (15) Greg Marshall, Environmental Design Service, 50 Jay Dee Lane, Birdsboro, PA 19508
- (16) Joseph Micsky, Micsky Excavating & Septic Systems, LLC, 980 Mercer Rd., Greenville, PA 16125
- (17) W. Jeffrey Miller, Evans Mill Environmental, LLC, P.O. Box 735, Uwchland, PA 19480-0735
- (18) Sarah Miller, PA Builders Association, 2509 North Front St. Harrisburg, PA 17110
- (19) Mark Mills, PA Association of Professional Soil Scientists, 2801 Paxton Church Rd., Harrisburg, PA 17110
- (20) Mark Mitman, PSMA, 60 W. Broad Street, Suite 96, Bethlehem, PA 18018
- (21) Duane Mowery, P.O. Box 410, Newburg, PA 17240
- (22) Brian Oram, Region 2 – PASEO, 15 Hillcrest Drive, Dallas, PA 18612
- (23) James Prochaska, JNM Technologies, Inc., P.O. Box 5667, Bryan, TX 77805
- (24) Thomas Quinn, SEO/CCHD, 601 Westtown Road, West Chester, PA 19380
- (25) Lee Rashkin, Presby Environmental, Inc., 143 Airport Rd., Whitefield, NH 03598
- (26) Joshua Skopow, 14471 Gourley Rd., Waterford, PA 16441
- (27) Joseph Soulia, Orenco Systems, Inc., 814 Airway Ave., Sutherlin, OR 97479
- (28) Chris Wood, 118 Fisher Lane, Milford, PA 18337
- (29) Robert T. Wood, 1671 South Main Street, Mansfield, PA 16933
- (30) John Yarnall, PASEO, 4902 Carlisle Pike, #268, Mechanicsburg, PA 17050
- (31) Sen. Gene Yaw, PA Senate, Senate Box 203023, Harrisburg, PA 17120
- (32) Sewage Advisory Committee

COMMENTS AND RESPONSES

The number associated with each commenter is identified in parentheses following the comment. Comments with multiple commenters are summaries of very similar comments with the same Department response.

Topic – General

- Comment:** Alternative listings have provided a ready vehicle for the operation, monitoring, and maintenance of alternative systems. Section IV “IMPLEMENTATION OF A SEWAGE MANAGEMENT PROGRAM REQUIREMENT” of On-Lot Wastewater Technology Verification Protocol (TVP) / Document No.: 385-2208-003 3b on page 13 contains the fundamental elements of minimum maintenance standards and inspection as contained in the “Perc-Rite®” Drip Dispersal System Alternative Listings. It was our impression that these requirements would be required across all Alternative listings. In 18 years, in the case of “Perc-Rite®” Drip Dispersal System Alternative Listings, the private sector has developed to provide for adherence to these requirements and provide service to the citizen. This situation is not uncommon, with the private sector providing services for activities once provided primarily by the public sector. Regarding the operation, monitoring, and maintenance of the public domain shallow limiting zone at-grade Chapter 73 dispersal pressure lateral system, following approved proprietary ex-situ pretreatment, it is unclear what, if any, the requirements are. The Department, at vendors request, has removed the requirement of a maintenance contract for one listed shallow limiting zone proprietary treatment and dispersal system subsequent to the issuance of their approval. O & M must be required for all Alternative systems applied in an equitable manner as appropriate for each specific treatment train configuration. **(1)**

Response: The Department agrees, acceptable O&M should be required for all alternate systems with the type and frequency determined by the Department and the manufacturer. Note, a one-size-fits-all O&M requirement for all alternates is not feasible; the Department will determine O&M requirements on a technology specific basis, with input from the manufacturer. The O&M requirements will be noted in the On-lot Alternate Technology guidance document.

- Comment:** 6. Sensitive information to be provided by manufacturers A. Application: documentation required and level of information to be provided - P.17, Appendix C: Level of information requested in bullet 12 to 16 This could compromise sensitive markets and product positioning information without good reason, nor adding value to the approval under PA rules and regulations. We propose that sensitive information required by PA DEP should remained only for DEP PA internal use and not as public information. **(3)**

Response: Manufacturers will be able to request parts of an application to be considered “confidential.” DEP legal staff will review and determine if the information is confidential and advise the manufacturer if the information is deemed confidential. Language has been added to the “Application Administrative Requirements”, Appendix B, to address this comment.

- Comment:** 7. Defining terms
 - Fail-safe: clearly define this termWe believe that this is vitally important and adding a clear definition will ensure that uniform implementation occurs to prevent untreated or partially treated effluent be discharged to the

dispersal area.

- Components: clearly define this term”. (3)

Response: The Department does not wish to discourage innovative approaches to meeting this expectation. Defining of the term “fail-safe” may have prevented innovation. The Department has added a definition for “On-lot sewage system component”.

4. **Comment:** 8. Alternate technologies providing distribution of septic tank effluent
- P.3, end of the 3rd full paragraph:

“The recommended standard for alternate technologies that provide for the distribution of effluent is the following – Alternate System Components that provide distribution of effluent are required to equally distribute effluent over the absorption area with the goal of maximizing the renovative and dispersal capability of the infiltrative surface. Evidence of equal distribution must be demonstrated to the satisfaction of the Department for alternate component approval.” Products that are distributing septic tank effluent should not only be evaluated to provide equivalent distribution as compared to conventional pipe and stone. Since these products do not provide treatment, footprint reduction should not be granted without an advanced treatment system and same design requirements then conventional pipe and stone should be applied. (3)

Response: Thank you for your comment. Absorption area footprint reduction is not a topic addressed in the guidance document.

5. **Comment:** On behalf of the Pennsylvania Association of Realtors® and it’s 33,000 members we are writing to express concern about the implementation of Act 26. Through PAR’s appointment on the Department’s Sewage Advisory Committee we have been kept updated on the status of Act 26 implementation. We are providing the following comments: Alternate systems have been around for many years and have been tested. The requirements and testing for these systems, as outlined in the Onlot Waste Water Technology Verification Protocol appear cumbersome considering these systems are already in use. (10)

Response: Alternate systems have predominately been used to address malfunctioning on-lot systems on sites where a conventional system could not be sited, or on sites that met general site suitability either as a replacement area during planning or in lieu of a conventional system. They have not been used for creation of lots to support new land development as provided for in the amendments to the Act. The current alternate technologies approved for use in the Commonwealth have been “verified” using a different and less stringent process that didn’t provide for a long-term performance evaluation of the technology. Act 26 2017 states, in part, that “...the department shall, in consultation with the advisory committee, develop scientific, technical, and field testing standards, upon which an evaluation of each on-lot sewage system that has been classified an alternate system in accordance with 25 Pa. Code § 73.72...” The Department is required to reevaluate the current approved alternate on-lot treatment technologies and any new on-lot treatment technologies, using the scientific, technical and field testing standards developed.

6. **Comment:** While the draft policy requires testing firms be independent, PASEO encourages the Department to establish bright lines between the DEP-approved testing companies, the O&M providers, and manufacturer representatives to ensure the vested interests of the various parties do not compromise the integrity of the program. (12)

Response: The Department agrees and thanks you for your comment.

7. **Comment:** In the first drafts of Act 26, which only encompassed paragraph c.1 of the act, it is clear that the goal of the act was to align the alternative technology market with the conventional market in Pennsylvania. So much so it bears its own policy, Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing Onlot Sewage Disposal. The purpose of this document is to bring alternative technologies in line with the policies governing conventional systems on all sites in Pennsylvania. Paragraphs 2 – 4 of Act 26 brought to life the TVP policy. This document places an incredible burden on alternative technologies while excluding conventional technologies. The goal of the document should be bringing all technologies to the same standard and the same level of regulatory review. Having two classes (alternate vs conventional) will unfairly impact and alienate the alternative technology market that to date has not negatively impacted the Pennsylvania environment. Data shows that alternative technologies have in fact improved the environment while conventional technologies have not. The opportunity presented to DEP is to incorporate all sites and technologies into one cohesive situation. This document in its present form does not accomplish that as it only negatively impacts alternative technologies which no evidence exists requiring these extreme measures. (14)

Response: Alternate and conventional technologies are defined differently as per Act 537, Act 26 of 2017, and Chapters 71-73. Section 5(c.2)(3) of Act 537, as amended by Act 26 states that “[i]f...the department determines that there is sufficient scientific, technical and field testing data to reclassify an alternate system as a conventional system, the department shall reclassify the alternate system as a conventional system.” The TVP TGD provides the foundational basis for an alternate system to be reclassified as a conventional system.

8. **Comment:** ...and is arbitrary when considering testing organizations. (17)

Response: The Department disagrees. The commenter does not indicate how the TVP TGD is arbitrary when considering testing organizations, so the Department is unable to provide further response to the comment.

9. **Comment:** Last paragraph, the word ‘Person’ is defined in the act and regulations. Just use that definition. (17)

Response: The definition for “Person” has been removed from the TVP TGD.

10. **Comment:** Paragraph 4. You are dictating the design to the manufacturer. This paragraph should be removed. (17)

Response: The Department disagrees. The Department has determined time and pressure dosing to be more effective in evenly distributing the effluent to the absorption area. Equal distribution of effluent enhances the ability of the soil to remove pathogens by maximizing the surface area used to renovate the effluent, therefore protecting public health and safety and the

environment. Additionally, this practice will maximize the life of the absorption area providing cost savings to the homeowner while helping to prevent malfunctions.

11. **Comment:** Finally, 25 Pa. Code Ch 73 §73.3 gives the SEO the authority to waive permit requirements not DEP so as it relates to repairs DEP really has no authority. (17)

Response: Chapter 25 Pa. Code § 73.3 does not give SEO's the authority to waive permit requirements as it relate to repairs. Best Technical Guidance (BTG) is only to be used when no other options are available to correct an existing malfunction, and only for non-critical horizontal isolation distances such as, distance to property lines, other structures, etc., and critical isolation distance for drinking water wells only. BTG does not allow an SEO to change design criteria of technologies, conventional or alternate. Changes to design criteria require the permit to be issued as an experimental permit which may only be classified as such by the Department.

12. **Comment:** It should be scrapped, and DEP should start over and restrict the document to the mandates of Act 26 including the process by which alternate systems become conventional systems. (17)

Response: The Department disagrees.

13. **Comment:** Second paragraph, "Pretreatment systems approved via the TVP process that meet the requirement treatment standards MAY also be systems that will be eligible for coverage under PSG-04. Why the use of the word May? If it meets the standard it meets the standard. (17)

Response: The alternate technologies that will be approved for use as small flow treatment facilities (SFTF) must meet the standards for "Advanced Secondary Treatment" and the treatment level for fecal coliform of 200 MPN/100 ml. The TVP TGD includes standards for various levels of treatment. Not all technologies can meet the SFTF requirement.

14. **Comment:** Third paragraph, "Proprietary pretreatment systems are the focus of Act 26..." I did not see that in the Act. This is another example of DEP ignoring the will of the legislature. (17)

Response: This language was removed.

15. **Comment:** Last paragraph extending on to Page 4 "... in inconsistencies in classification, inappropriate use of alternate and experimental systems..." where are the examples of inappropriate use? (17)

Response: The language "inappropriate use" has been removed from the paragraph cited.

16. **Comment:** Paragraph 6. What are DEP's minimum requirements of mechanical and electrical components? I have never been able to get DEP to answer that question. Were those standards developed in consultation with SAC? (17)

Response: The Department does not have minimum requirements for mechanical and electrical components. The standards are based on treatment performance of the component rather than each individual piece and part that makes up a component.

17. **Comment:** Page 5 last paragraph, “Non-proprietary pretreatment systems/components are not required to have a certification.” What is a “commonly accepted standard design? Are foreign commonly accepted standard designs included in this? While they are proprietary, how about open bottom peat and cocoa filters which are extensively used in Quebec? (17)

Response: The Department will review nonproprietary technologies, foreign and domestic, and the commonly accepted designs to determine if they are appropriate for use in the Commonwealth. The Department will engage with experts in the Department and outside the Department, and other states and/or countries during the review of these type of technologies to develop the approval document which includes design specifications. Proprietary pretreatment technologies will follow the process outlined in the TVP TGD.

18. **Comment:** Page 8. Step 3 paragraph 1. What in the world are you doing?! “Sewage Planning considerations will provide the basis for the General Site Suitability Requirements” the Act stated that Alternate systems are to be accepted as generally suitable. This paragraph this entire document should be scrapped, and DEP should start over IN CONSULTATION WITH SAC. (17)

Response: The Department disagrees, but this language was removed.

19. **Comment:** Page 9 bullet points, Planning was not part of Act 26 and should not be here. Planning is planning, and those requirements are already found at 25 Pa. Code Ch 71. There was no discussion of revising planning in Act 26 and it should not be here. (17)

Response: Alternates may be sited on lots that have soils with shallow limiting zones. The existing sewage planning regulations do not allow alternate systems to provide long-term sewage disposal on lots with shallow soils. For this reason, additional planning requirements may be necessary. These planning requirements will be included in the On-lot Alternate Technology guidance document.

20. **Comment:** Page 14, this table is unnecessary and should be removed. It is a planning issue which is not the intent of Act 26. (17)

Response: The Department disagrees. Although the table has been modified in the final document, it provides the treatment standard for fecal coliform based on the depth to a limiting zone and infiltration loading rate.

21. **Comment:** Page 16, just what exactly is this table intended to accomplish? It seems needless. (17)

Response: Page 16 in the draft TVP TGD was an Appendix that has been removed from the final TVP TGD.

22. **Comment:** Regarding the nitrogen table, what impacts would this have on preliminary hydrogeologic studies? This should only be considered as it relates to the currently requirements for a preliminary hydrogeologic study found in 25 Pa. Code Ch. 71. Nothing in Act 26 changed those requirements. (17)

Response: The nitrogen standard developed for nitrogen reduction technologies and stated in the nitrogen table will not impose any additional requirements for preliminary hydrogeologic studies.

23. **Comment:** This should also open the potential to use open bottom peat and coca filters in Pa. as the definition of an Alternate System is “Alternate sewage system—A method of demonstrated onlot sewage treatment and disposal not described in this part.” Clearly open bottom peat and coca filters meet that definition and have field verification areas that are colder than USDA Plant Hardiness Zone 7b. Indeed, PQ ranges from 0a to 4b. (17)

Response: The manufacturers of open-bottom peat and cocoa filters may request that the Department classify those system as alternates. They will need to follow the steps outlined in the TVP TGD.

24. **Comment:** In addition, Act 26 requires the Department to develop the policy in consultation with the SAC. there is no information regarding how may recommendations SAC made to DEP and of those recommendations, how many were accepted by DEP. that information should be released.” (17)

Response: SAC provided formal recommendations for the TVP TGD. Though not all the recommendations were adopted in the final TVP TGD, the Department seriously considered all of SAC’s recommendations. As for the planning TGD, the Department extended the comment period 30 days for the draft planning TGD, allowing for the Department to meet with SAC before the end of the comment period. The Department also reviewed a final draft of the TVP TGD with SAC during the December 2018 SAC meeting.

25. **Comment:** We question DEP’s ability to implement these changes through technical guidance. (18)

Response: The Department is willing and capable to implement these changes through technical guidance.

26. **Comment:** The process proposed in the draft Onlot Wastewater Technology Verification Protocol may cause already approved alternative systems to be delisted. How many currently approved systems will be able to meet the newly established standards? (18)

Response: The Department has not reviewed the current alternate technology data to determine if they will meet the standards as stated in the TVP TGD. The Department requested that the existing alternate system manufacturers provide any field and/or third-party testing data during the standard development process; only one manufacturer supplied data.

27. **Comment:** This currently approved site evaluation method is working and can be documented throughout the state. (19)

Response: The TVP TGD does not change the current site evaluation method for siting on-lot sewage systems.

28. **Comment:** The intended focus stated in the proposed TVP document (according to page 3, paragraph 3) is to address ““proprietary pretreatment systems.”“ The existing ““Tyler Table”“ has been used in PA to size non-proprietary (shallow limiting zone at-grade) absorption areas for many years. (19)

Response: The TVP TGD does address nonproprietary pretreatment in Section V.B.d. Currently listed alternate nonproprietary distribution technologies such as Shallow At-Grade bed are not addressed with the TVP TGD and will be reviewed on an individual basis using commonly accepted standard designs. The “Tyler Table” will continue to be used to site systems on soils with shallow limiting zones and when required by the design criteria listed in the alternate technology guidance document.

29. **Comment:** It is an inappropriate time and place to introduce these changes. Non-proprietary absorption areas are not the focus of the TVP changes prescribed by the Act, nor intended by the DEP’s present proposal. (19)

Response: The TVP TGD does not address nonproprietary distribution and absorption area technologies. Currently listed alternate nonproprietary absorption technologies such as Shallow At-Grade bed are not addressed with the TVP TGD and will be reviewed on an individual basis based on commonly accepted standard designs.

30. **Comment:** The current TVP document includes substantial changes to the existing soil testing process... (19)

Response: The Department does not agree that the TVP TGD changes the soil testing process as described in the regulations or as currently described in the alternate technology listings.

31. **Comment:** Soil depths are not consistent with the present regulations (for the IRSIS conventional system) or the already accepted non-proprietary guidance (for the shallow limiting zone at-grade absorption area). (19)

Response: The Department agrees with the comment. IRSIS standards have been vetted through the regulatory process and therefore the technology, siting, and operation and maintenance standards only apply to IRSIS. IRSIS land application is different than subsurface disposal and these standards do not apply to alternate systems. As for the currently approved Shallow At-Grade Bed and other nonproprietary alternate absorption area technologies, the technologies will need to be reviewed in conjunction with the new standards and commonly accepted design standards, to determine if they are appropriate for use in the Commonwealth.

32. **Comment:** Changes to the soil morphological assessment process should not be included in this document, which is intended to establish pretreatment component standards. (19)

Response: The TVP TGD does not address or change the soil morphological assessment process. The document adopts the industry accepted Tyler HLLR table and the Department used the Tyler table basal loading rates as one criterion in the standard process. The soil group table has been removed from the TGD.

33. **Comment:** There is no reference to ““qualified soil scientist”” throughout the document, even though the required soil morphological assessment is based on a complex process that requires evaluation and design input from the soil scientist. (19)

Response: The purpose of the TVP TGD is to provide scientific, technical and field testing standards upon which evaluation of each on-lot sewage system or component that has been classified as an alternate system and newly proposed on-lot sewage system or component technologies for which approval as an alternate system or component in the Commonwealth of Pennsylvania is being sought. The process for siting an absorption area is addressed in 25 Pa. Code Chapter 73 and/or the alternate approval listing for the specific absorption area technology.

34. **Comment:** The DEP enacted the current EVTP (381-2208-001) over the objection of SAC in 2004. However, the Department failed to uniformly implement that EVTP. Now the Department has developed a new TVP under the vail of an Act 26 requirement. The SAC was never given any data that supported a public health issue with the currently operating alternate systems. (20)

Response: Act 26 of 2017 tasked the Department with development of scientific, technical and field testing standards. Evaluation of the performance of existing systems would only provide field testing data which would not fulfill the Department’s obligation. The evaluation of the current alternate technologies will occur after these standards are developed. The Department provided SAC with a literature review showing a potential for contamination of the waters of the Commonwealth possibly impacting public health and safety and the environment. In many areas of Pennsylvania, well testing indicates the presence of both total and fecal coliforms. The exact source of these organisms is not specifically known; however, the contamination may come from any number of sources, including on-lot systems. The Department’s approach to protecting groundwater by employing the approach that utilizes surface water quality standards at the point of discharge is consistent with past and current permitting practices. In the case of discharges from on-lot systems in situations where soils have shallow limiting zones, the Department is giving soil the credit for a portion of treatment. The Department conservatively assumes that the discharge should at least meet surface water quality standards prior to moving from the absorption area. Meeting water quality standards protects the most limiting condition of groundwater being present just past the limiting zone or in the event that the discharge surfaces somewhere closely downgradient of the absorption area. In many areas that utilize on-lot systems for sewage disposal, private wells are the predominant or only source of drinking water. No level of total or fecal coliform contamination of drinking water is acceptable from a drinking water standpoint, so protection of these source waters is integral to long-term viability of the drinking water source. Treating the drinking water microbial contamination at the source rather than at the wellhead is necessary.

35. **Comment:** Other states have addressed this issue by allowing for a provisional permit approval of a fixed amount of new alternate systems over a fixed period of time. This is generally five years and 50 permits per year. If the technology meets the approval parameters after five years, then the technology is granted a permanent approval without any additional ongoing sampling or testing. If in the provisional period the technology does not meet its parameters, the provisional approval is rescinded. This would seem to be a more practical approach than to continue sampling of all alternate systems forever.

2. Appendix F should be implemented under a provisional permit as outline in our general comments above. (20)

Response: The Department is unaware of any states that use the alternative method described in the comment. The Department considered PSMA's alternative approach to the proposed alternate approval process, but the Department does not consider this approach appropriate because it allows technologies to be used on sites prior to ensuring that the system meets appropriate standards. In contrast, the Department's process documented in the TVP TGD fully vets the technologies prior to approval as an alternate. The Department's regulations provide for an experimental permit process to facilitate installation and testing of new innovative technologies.

The TVP TGD does not indicate that sampling will occur "forever." The Department will evaluate the data collected over an appropriate time period and determine when there is sufficient scientific, technical and field testing data to reduce or end the performance audit.

36. **Comment:** Does the Department have the resources to store, analyze and interpret this ongoing collection of data? (20)

Response: Yes, the Department will develop a database and spreadsheets to help store and analyze the data collected.

37. **Comment:** The use of the currently approved alternate systems for new land planning should be allowed with the specific operation and management of the individual technologies a requirement of the manufacture. Any proposed new alternate technology will need verification and approval through the existing EVTP or a modification of this proposed TVP. The SAC should meet with the DEP and other interested parties to develop criteria for an updated Act 537. These criteria should have the vision for the program over the next 25 years. This should include an operational permit for all new systems and a defined process for the approval of new alternate technologies that would utilize a provisional and permanent permit approval process. PSMA would like to assist with the development of a practical operation and maintenance program for existing and new waste water treatment systems in PA. (20)

Response: Act 26 of 2017 required the Department to develop scientific, technical, and field testing standards and apply those standards to the current alternate systems. The standards developed for the existing alternate system review will also be used for any proposed alternate systems. The Department would be interested in meeting with stakeholders to develop proposed amendments to Act 537.

38. **Comment:** 5. Make the physical barrier between treatment tank and soil dispersal area a requirement. I am encouraged by the mention of a step that I believe to be essential to the long

term performance of onlot systems in PA. Page 8, step 3, number 3 states: “Pretreatment Systems/components should be designed with a physical treatment barrier or a fail-safe mechanism to ensure that untreated or partially treated sewage will not be discharged to the absorption area.” Until recently, all onlot systems in PA had the advantage of a physical fine media or fine filtration by disk filter, as in the case of drip irrigation systems, barrier between the treatment tank and the soil. With the approval of the Norweco system as a pretreatment unit ahead of at-grade (including shallow limiting zone) absorption areas, PA consciously and intentionally removed a protective barrier to prevent the discharge of partially treated wastewater to the surface of the ground. In light of the very conservative approach that is suggested in this document with regard to fecal coliform and depth to LZ, it is essential that this requirement be reinstated without exception. A large part of the reason for lack of groundwater contamination from the significant numbers of malfunctioning conventional systems is likely due to the existence of this barrier. The physical barrier requirement cannot exist as merely a recommendation, it must be a requirement. If this step is not made a requirement, we will intentionally and profoundly change the paradigm for protection of the environment with onlot systems. (21)

Response: The manufacturer will provide the Department the means by which their technology will prevent partially treated and/or untreated sewage discharging to the absorption area. The Department does not want to dictate how the manufacturer will accomplish this because the Department believes doing so would discourage innovation. A physical barrier is one method a manufacturer may choose.

39. **Comment:** The verification document is a clear example of an inconsistency in approach. In the document related to the use of alternative systems, the PADEP takes a very measured and conservative interpretation of the law, but for the verification protocol the PADEP further undermines the existing law and current approvals by the PADEP. (22)

Response: The Department disagrees. The commenter does not indicate how the TVP TGD undermines the existing law and the current approvals, so the Department cannot further address this comment.

40. **Comment:** When reviewing these documents, it is important to remember the regulatory definition of conventional and alternative sewage system. From this definition, the septic systems on the PADEP approved list by definition have “demonstrated on-lot sewage treatment”. The regulation defines conventional system as: Conventional sewage system—A system employing the use of demonstrated on-lot sewage treatment and disposal technology in a manner specifically recognized by this part. The term does not include alternate sewage systems or experimental sewage systems. (Section 72.1) Alternate sewage system—A method of demonstrated on-lot sewage treatment and disposal not described in this part. Throughout, the document the PADEP implies that approved alternative systems that meet the 20 inch plus limiting zone criteria are inferior to “conventional” systems and that currently approved alternatives that meet the 10 inch criteria are inferior to “conventional systems”. This is not factually correct and by definition all the currently approved alternatives have demonstrated on-lot sewage treatment requirement. If the PADEP believes they do not meet on-lot sewage treatment requirements, why did the PADEP approve these alternative systems? (22)

Response: The Department does not state or imply anywhere in the TVP TGD that alternate sewage systems are inferior to conventional sewage systems. The current alternate systems were

approved under a process that was deemed sufficient by the Department at the time of approval for their intended use. Prior to the enactment of Act 26 of 2017, alternate system approvals were intended to address malfunctioning on-lot system on sites where a conventional system could not be sited, or on sites that met general site suitability. These systems were not approved or intended to be used for creation of lots to support new land development as provided for in the amendments to the Act. Having reviewed the alternate systems approval process following the enactment of Act 26, the Department now believes the existing approval process is not scientifically or technically defensible and does not provide a level playing field for all pretreatment technologies.

- 41. Comment:** Related to the “On-lot Wastewater Technology Verification Protocol”, my comments are as follows: 1. Eliminate the document, it is very flawed. It lacks definitions and proper sizing calculation guidance (but how can PADEP develop sizing criteria for a technology that does not currently exist? (22)

Response: The Department disagrees and will not be eliminating the document. Definitions are included in the final TVP TGD. Specific information on system design will be developed in conjunction between the manufacturer and the Department after a system is approved through the approval process detailed in the TVP TGD.

- 42. Comment:** 2. Eliminate the document, because it is inconsistent with current law or approved guidance; (22)

Response: The Department disagrees. The commenter does not state how the document “is inconsistent with current law or approved guidance.” The TVP TGD is consistent with current law. This new TVP TGD replaces the previous TVP TGD for experimental on-lot systems and therefore will not cause any inconsistencies between the two documents.

- 43. Comment:** 3. Eliminate the document, because it is not based on solid science and is inconsistent with current approvals for alternative systems; (22)

Response: The Department disagrees. The commenter does not provide evidence or information supporting the claim that the document is not consistent with solid science. The TVP TGD proposes a procedure to evaluate the current and future alternate technologies against the latest scientific and technical standards as per the requirement i of Section 5.(c.2)(1) of the Pennsylvania Sewage Facilities Act as amended by Act 26 of 2017. The proposed procedure provides manufacturers a standard approach to be evaluated and approved for use in Pennsylvania. The procedure also provides the manufacturers with a fair and equal process for the approval of their pretreatment technologies.

- 44. Comment:** B) Does the alternative systems that meets the equivalent limiting zone requirements for spray irrigation, meet the anticipated equivalent standard for spray irrigation. Professional, my answer would be the spray irrigation system is over-sized and YES. Since the PADEP has approved these systems as alternative systems for use on pre-existing lots and permitted backup systems, their answer must be YES. (22)

Response: The comment is unclear. Spray irrigation standards are established in regulation. Spray irrigation standards are not the subject of this guidance document. Alternate systems are those on-lot systems whose standards have not yet been established in regulation. The standards

in the TVP TGD are designed for use for pretreatment systems/components when the disposal method is to a subsurface soil absorption area. These standards were developed based upon the Department's literature review of technical papers and other states standards.

45. **Comment:** In closing, we think the best solution would be to develop a work group to deal with the conflicts in the guidance documents and current law. This same work group could assist the PADEP in drafting a recommendation to the legislators in Pennsylvania. (22)

Response: The Department disagrees. The TVP TGD is not in conflict with current law. The commenter does not provide wherein the TGD conflicts with current law.

46. **Comment:** During this process, the first step or phase would be to consider all currently approved alternatives systems as "conventional", but the planning phase may require more detailed site characterization, design and sizing information with options, and associated deed stipulations related to land-based wastewater disposal for each specific alternative system. Therefore, the specifics or criteria are part of the approval process for the alternative system. This would hopefully aid in dealing with future conflicts with the law. (22)

Response: The Department disagrees. Act 26 of 2017 provides a method for alternate technologies to be classified as conventional. Thank you for your suggestions; the Department has reviewed them and believes the TVP TGD and the *Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-lot Sewage Disposal* TGD, which is currently in the process of being finalized, adequately address the concerns noted in your suggestions.

47. **Comment:** 8. From our understanding of Act 26, the Act made all systems listed in the current law and the systems listed on the approved alternative list the same classification as "conventional". (22)

Response: The Department disagrees. Act 26 of 2017 does not state that currently approved alternates are the same classification as "conventional."

48. **Comment:** Act 26 did not authorize the PADEP to abrogate current law. (22)

Response: The Department disagrees. Nothing in the TVP TGD abrogates current law.

49. **Comment:** We do agree that Act 537 and the related sections require an update, but this should not be the mechanism by-which this law is updated. (22)

Response: The Department disagrees with what the commenter is implying. Nothing in the TVP TGD updates Act 537 or any law.

50. **Comment:** The implementation of Act 26 could have been easily phased to take into account the fact that the current listing of alternative systems are being effectively and properly used in Pennsylvania and that many are based on a depth to a limiting zone that is > 20 inches with site conditions that are generally consistent with siting elevated sand mound systems or consistent with the site conditions suitable for spray irrigation. The existing approved alternative systems are used as part of the planning process now and they are being used as reserve or back-up areas, used for pre-existing lots, and used as part of Best Technical Guidance. We would like to note

that this work is currently being done by PA Sewage Enforcement Officers with specific training in the design and design review with support from design engineers and other professionals, such as soil scientists with PADEP oversight. Therefore, my first suggestion would be for the PADEP to start over and prepare a guidance document related to the use of the existing approved alternative systems and implement this approach in a manner that is generally consistent with current law. (22)

Response: It is unclear what the commenter is suggesting by “easily phased into account...” Act 26 of 2017 states that “...the department shall, in consultation with the advisory committee, develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system in...” Act 26 also states, “The department shall, in consultation with the advisory committee, review the scientific, technical and field testing data for each individual on-lot sewage system and each community on-lot sewage system that is classified as an alternate on-lot sewage system.” What the commenter is suggesting is contrary to Act 26. The Department developed the TVP TGD to meet the requirements of the Act 26, Act 537 and the Department’s current regulations. A TGD dedicated to only considering existing classified alternate systems would not provide standards for new alternate technologies. The Department provides standards for all technologies that are current classified alternate technologies and new alternate technologies which creates a level playing field for technologies. The Department disagrees with the suggestion and believes the approach the Department is taking with regards to Act 26 implementation is consistent with current law.

51. **Comment:** The main problem with the proposed documents is they are not consistent with other laws and in fact are inconsistent between documents and inconsistent with the approved alternative systems. (22)

Response: The Department disagrees that the TVP TGD and the updated *Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-lot Sewage Disposal* TGD are inconsistent with other laws and inconsistent between the two documents. The TVP TGD will be the mechanism for approving alternate systems. The current classified alternate systems may need to be updated based upon the new requirements in the TVP TGD. Any inconsistencies with the current classified alternate systems and the proposed TVP TGD will be corrected when these systems are evaluated using the TVP TGD, as required by Act 26.

52. **Comment:** Secondary to this concern is the approach puts an undue burden on the local agencies. (22)

Response: The Department disagrees that the TVP TGD will put an undue burden on the local agencies. The TVP TGD has no additional local agency requirements, therefore no additional burden will be expected for local agencies from implementation of the TVP TGD.

53. **Comment:** 2. As listed by others, the guidance makes statements that are factually wrong and the guidance may adversely impact existing systems that have been installed and approved for use in Pennsylvania. The delisting of approved systems raises concerns with respect to liability, health and safety, and planning issues, i.e., permits may or may not be issued and systems may or may not have been built. If so, what is the status of the lot, permit, or system in either case? (22)

Response: The TVP TGD will have no impact on previously installed systems. Currently classified alternate technologies that are unable to meet the performance standards and field

testing requirements may not be able to be permitted. The Department does not agree that this will cause liability, health and safety, and planning issues. On the contrary if a technology is unable to meet a performance standard, by not allowing the technology to be permitted, the Department is preventing liability and protecting health and safety. In cases where a technology was planned for and no longer able to be permitted, another technology will need to be used instead.

54. **Comment:** I have reviewed the submitted comments by Duane Mowery with Expert Septic and Tom Ashton with American Manufacturing. I consider both of these men to be colleagues in this industry. Tom, Duane and I are all part of the drip dispersal technology side of the industry. Tom and I are competitors at a business level but with regards to technology we are on the same page. I respect Tom's technical knowledge and experience and want to say that I support his comments. This is the same for those made by Duane. Tom did remark that DEP allowed a technology a few years ago to be listed as under the alternate technology listing without extensive testing. The fact was the technology had already been vetted by DEP. In that move, it showed that DEP understood drip dispersal as a technology and not some unknown, ever changing box of parts. A change of the name did not change the proven effectiveness of the technology. Since that was the case in the situation of drip dispersal just a few years ago, why now does DEP appear to be acting as if the experiences and lessons learned over the past years no longer apply. That makes no logical sense. ACT 26 did not say to go backwards. On the contrary, it was a mandate to move forward. (23)

Response: Act 26 requires the Department, in consultation with SAC, to "... develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system in accordance with 25 Pa. Code § 73.72 (relating to alternate sewage systems) shall be based." All existing classified alternate technologies will be reviewed based on the new standards as required by Act 26.

55. **Comment:** Much of the 41 page document that I reviewed was dedicated to an attempt at measuring the success of the various alternate technologies. However, at the same time it leaves the rather old, archaic conventional technologies alone with the unsupported understanding that they are working and protecting the waters of the state and Pennsylvania's citizens. Unfortunately, I do not see how that can be supported. (23)

Response: Act 26 of 2017 requires the Department to develop scientific, technical, and field testing standards for alternate technologies and to evaluate existing alternate technologies against those standards. Act 26 does not require the Department to develop standards for conventional technologies. Any changes to conventional technologies would require a regulation update. When updating the regulations, the Department will consider updating the standards for the conventional technologies as appropriate.

56. **Comment:** 1) After adoption of this document will SEO's still retain their existing approvals to issue alternate permits or will they be required to become recertified for all alternate technologies? (24)

Response: The Department has not reviewed the data for the current technologies to determine if technologies meet the standards as stated in the TVP TGD. Therefore, the Department is unable to determine if there will be significant changes to the currently approved technologies that would require SEOs to complete additional training for those technologies.

57. **Comment:** 3)Page 10, 10. b. Text just trails off and does not complete the section “ the manufacturer thereof, and” And what? (24)

Response: During the update of the TVP TGD this language was updated.

58. **Comment:** 10)As this document is currently presented it appears to be incomplete and in need of further review by the Department.” (24)

Response: The Department has reviewed and updated the TVP TGD based upon public comments and internal review.

59. **Comment:** As an onsite wastewater company based in New Hampshire, we are concerned that the draft Technical Guidance Documents are too narrow and are prescriptive in regulatory scope. The draft regulations need to be broad enough to embrace the constantly changing onsite industry and the introduction of new and improved technologies. Currently, the Technical Guidance documents restrict the introduction and use of innovative products by continuing to prescribe regulatory standards that are a continuation of prescriptive standards dating back to the 1960’s. Today’s technologies in the onsite industry have advanced beyond the prescriptive standards of the 60’s and 70’s, yet these draft documents do not have an adequate mechanism to embrace those advancements. In its current form, these draft documents are prohibitive to the advancement of the onsite industry in Pennsylvania. (25)

Response: The Department disagrees. The commenter did not provide specifics on the TVP TGD where the commenter disagrees with the Department’s approach. When providing comments on these and other guidance documents, it would be helpful for commenters to provide the specific basis for their comments. The TVP TGD provides: a consistent approach for the submission, review, and approval/disapproval of new and existing technologies that were not provided in previous policy; an approach to the verification of a technology that is scientifically, technically and legally defensible; and a level playing field for the review of all treatment technologies, passive or active.

60. **Comment:** The rules should be forward looking and allow for a mechanism for introducing new technology into Pennsylvania. This can be achieved in several different ways, such as allowing for technology that meets the intent of the statutes, or products that are approved through a pilot protocol, but now is the time to create an avenue in the rules that outlines the procedure. For example, Massachusetts allows for new technology if it’s either been in use for 2 years in neighboring states, or through a pilot protocol that allows for in-state evaluation. (25)

Response: The TVP TGD was developed, in consultation with SAC, as per the requirement in Act 26 of 2017, and is based upon a review of other states’ experiences with performance standards and on the Department’s literature review of pathogen removal and inactivation in soils. The technology verification procedure established in the TVP TGD also provides the manufacturers with a fair and equal process for the approval of their pretreatment technologies. The Department reviewed Massachusetts’s new technology approval. The Massachusetts pilot program is very similar to the Department’s Field Testing Protocol. Some differences are the number of systems to be tested (15 systems, instead of 12), and a minimum of 18 months of testing, compared to the Department’s 12 months. Massachusetts’s “Provisional Use” allows for up to 50 “alternate systems that appear technically capable of providing levels of protection at least equivalent to those of a standard on-site disposal system.” Continued inspection and testing

is required on a regular schedule, as approved. The Department is concerned that allowing “Provisional Use” systems to be installed may result in failures, thereby resulting in a homeowner having to replace the systems. The Department is confident that by following the steps for approval in the TVP TGD that there will be minimal failures of the approved systems related to the technology. Additionally, after approval, these technologies will be verified to continue to meet the required standards in the field through the performance audit, thus assuring homeowners who install or purchase a property with an alternate technology installed that their system is protecting public health, safety, environment, and their property value.

- 61. Comment:** Technology manufacturers may be adverse to bringing their products to Pennsylvania because of the large initial expense (testing) and the long delay in receiving a return on their investments. **(28)**

Response: The technology verification procedure established in the TVP TGD provides manufacturers a standard approach where alternate systems can be evaluated and approved for use in Pennsylvania. The procedure also provides the manufacturers with a fair and equal process for the approval of their pretreatment technologies.

- 62. Comment:** The testing policy is discriminatory against smaller and start-up companies and favors larger corporations that can afford the high costs of testing. **(28)**

Response: The Department disagrees. The technology verification procedure established in the TVP TGD provides manufacturers a standard approach where alternate systems can be evaluated and approved for use in Pennsylvania. The procedure also provides the manufacturers with a fair and equal process for the approval of their pretreatment technologies. The testing requirements were developed to provide the data necessary to evaluate the technology against relevant performance standards. The data will be used to meet the requirement in the Act to reclassify alternate technologies as conventional.

- 63. Comment:** The Step One and Step Two testing would be very expensive and time consuming. This may negatively impact the Pennsylvania On-Lot Program. **(28)**

Response: The process will be additional cost to the manufacturer and there will be additional time in getting approval for use as an alternate in Pennsylvania. However, these steps are necessary to ensure the technologies that are approved for use protect the waters of the Commonwealth, the citizens of the Commonwealth, and property values in the Commonwealth. Lots will be created, and homes will be built using these technologies. If these technologies don’t provide sufficient treatment and disposal, the homes will be of little value and the environment will be negatively impacted.

- 64. Comment:** In Section IV Subsection A (Page – 5) delete the working “...provided in an excel workbook in the electronic submission”. Replace it with, “...provide in an electronic format as designated by the Department”. This will allow for the changing of the format should excel no longer be the preferred choice or should Microsoft change the name of the product. **(28)**

Response: The Department updated the language to reflect the suggested language.

65. **Comment:** Page – 8 - Step Three - Point #4: Timed dosing should be defined with the frequency of the dose included in the definition. (28)

Response: The manufacturer will determine the frequency of the time dosing in conjunction with the Department.

66. **Comment:** Page – 28 – Point #6.16: Last paragraph. Change “...we must transform...” to “...the Department must transform...” (28)

Response: The Department has removed the use of “we” throughout the section.

67. **Comment:** The Department has taken what most of us thought was going to be a reasonably simple piece of Legislation (Act 26) to implement and created a massive and time consuming situation to implement some day far down the road based on the Departments interpretation on how to get to the end of the tunnel. At our May 3rd meeting Mr. Patel actually discussed 2 to 3 years to bring this online. That is not satisfactory. (29)

Response: The Department developed the guidance in conformance with the requirements of Act 26, the rest of Act 537, and it’s implementing regulations, 25 Pa. Code Chapters 71 – 73. After finalizing the TVP TGD, the Department will start the review of the currently approved alternate technologies. The timeframe for this review will be dependent upon the availability of data from the manufacturers and their timely responses to the Department’s requests. This process will not take two to three years; the Department expects that it will take no longer than six months from the start of the review for all current technologies to go through the process. Mr. Patel was discussing the process for the development of regulations when he referred to the two- to three-year timeframe.

68. **Comment:** We now find that the Department no longer believes that the systems which had been used throughout Pennsylvania for years in all Soil Types and conditions as exists throughout the State with no or very limited malfunction rates for thousands of these systems can no longer be used unless further testing is done. The new requirements and testing as outlined in the Onlot Waste Water Technology Verification Protocol (TVP) just released seem to many of us on SAC to be unnecessarily difficult and time consuming to start testing as if we had just discovered these Systems even though so many are in place and permitted. (29)

Response: Act 26 of 2017 required the Department to develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate on-lot sewage system. The standards and testing protocols developed in the TVP TGD were developed to meet this requirement in Act 26. Current classified alternate systems will continue to be allowed for use until the evaluation of the technologies are complete. The TVP TGD was developed in consultation with SAC, as per the requirement in Act 26, and is based upon a review of other states’ experiences with performance standards and on the Department’s literature review of pathogen removal and inactivation in soils. The technology verification procedure established in the TVP TGD also provides the manufacturers with a fair and equal process for the approval of their pretreatment technologies.

69. **Comment:** Another important issue discussed at the May 3rd SAC Meeting, as noted by Mr. Patel to the entire group in attendance was that “Existing Lots of Record” at this time could and would be allowed to use “Alternate Systems” for Sewage Treatments on said Lots subject to

existing regulation and permitting requirements. This should be communicated to every Organization Represented on SAC and to all Sewage Enforcement Officers throughout Pennsylvania at this time. This is a big deal. It will clear up that we are not talking about not being able to use Alternate Systems on all current Lots of Record but for new Lots to be created in the future. Getting this across to everyone in an organized manner will make sure that all parts of the State are handling this in the same way and that there is no misinterpretation of this fact. (29)

Response: Existing lots of records will be allowed to use approved alternate systems and/or components subject to existing regulations and permitting requirements.

70. **Comment:** How will they watch over this part of the program to make sure that these independent companies that are to be hired are qualified and do not have any ethics or conflict of interest violations. That is a problem that exists currently in some areas of the state and has for many past years. (30)

Response: The Department's procedures in the TVP TGD and in internal standard operating procedures should prevent these issues. However, without complete oversight of all testing, which is not feasible, the Department cannot guarantee there will not be unethical behavior. The Department trusts that those involved with the testing will maintain high ethical standards.

71. **Comment:** Another point to make is DEP has six regions in PA. This is the way that it should be set up and has been forever. Each region has its own regional head. This is a proper way to run any type of business or large entity. The problem lies in the fact that these region heads seem to be allowed to run their region with no regard for the regulations as set forth in Act 537 or Act 26 which are state wide regulations. This is not a new problem but with the new ACT 26 has gotten worse. There is one region that has refused to either accept or approve any planning modules that applies to Act 26. (30)

Response: The TVP TGD will be administered out of the Department's Central Office which will provide consistency during the review and approval process for new technologies and during the performance audit process.

72. **Comment:** These are a few examples and not a complete list as many pages of comments have been sent to DEP for review. PASEO as a group through SAC is more than willing and able to work with the DEP personnel on these matters as was set forth in Act 26. There needs to be policy developed and implemented in a way that is not discriminatory towards any group of people weather SEOs, Soil Scientists, contractors, Home or land owners or the companies supplying the products or components of the on-lot systems used in Pennsylvania. (30)

Response: The TVP TGD is consistent with current law and is not discriminatory towards any individual or group. The commenter does not indicate where in the TVP TGD the Department discriminates towards an individual or group, so the Department is unable to address the comment further.

73. **Comment:** The Department did not consult, as per Act 26, with the sewage advisory committee when developing the TVP technical guidance document. (14, 17)

Response: The Department disagrees. The Department discussed development and drafts of guidance documents to implement the provisions of Act 26 with SAC at meetings held on November 2, 15, and 30 of 2017 and on May 3, 2018; the Department considered all comments and recommendations made by SAC and its members. Based upon these comments and recommendations, professional knowledge of soil-based treatment, a comprehensive literature review and a review of other states' performance standards, the Department developed the TVP TGD. The guidance provides: a consistent approach for the submission, review, and approval/disapproval of new and existing technologies that was not provided in previous policy; an approach to the verification of a technology that is scientifically, technically, and legally defensible; and a level playing field for the review of all treatment technologies.

74. **Comment:** Why didn't the Department consider SAC's recommendation to not have a fecal coliform requirement on sites with < 20 inches to a limiting zone? (3, 21)

Response: The Department seriously considered all of SAC's recommendations and developed the fecal coliform standard based on professional understanding of soil-based treatment, a comprehensive literature review and review of other states' performance standards.

75. **Comment:** The Department did not seriously consider SAC's recommendations and chose to embrace a costly, complex, controversial and highly regulated interpretation of Act 26. (17, 18, 21, 30)

Response: The Department disagrees. There was robust discussion of the development and drafts of guidance documents to implement the provisions of Act 26 among the membership of SAC at several SAC meetings. In developing the TVP TGD, the Department seriously considered all comments and recommendations from SAC and SAC members in addition to Department staff's professional understanding of soil-based treatment, a comprehensive literature review and review of other states' performance standards. The guidance provides: a consistent approach for the submission, review, and approval/disapproval of new and existing technologies that was not provided in previous policy; an approach to the verification of a technology that is scientifically, technically, and legally defensible; and a level playing field for all treatment technologies.

76. **Comment:** The modified Tyler Table has errors and if the Department wishes to incorporate the Tyler Table they should use the industry accepted version of the table instead. (1, 5, 17, 18, 19, 20, 22)

Response: The table has been removed from the TGD. The soil infiltration loadings rates from the "Tyler Table" are used to determine the level of pretreatment for soils with shallow limiting zones as noted in Section VI and Tables 1 and 2 in the draft TVP TGD, and in Section VII and Appendix A2 of the final TVP TGD. On-lot alternate absorption area technologies that are for use on soils with shallow limiting zones may have the full "Tyler Table" included in the On-lot Alternate Technology guidance document.

77. **Comment:** The requirements in the TVP technical guidance document goes beyond the legislatures intent when passed into law Act 26 of 2017. (2, 6, 8, 17, 18, 19, 22, 25, 29, 30, 31)

Response: The Department disagrees. As required by Act 26 of 2017, the Department has extensively consulted with the Sewage Advisory Committee in the development of the technical guidance documents relating to the evaluation of alternate on-lot sewage systems. Act 26 provides, in part, that the "... department shall, in consultation with the advisory committee, develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system..." within 180 days of the effective date of Act 26. Note that Act 26 specifies that the Department is to develop "standards" within 180 days of the effective date of Act 26, not promulgate "regulations". The development of a regulation requires a rulemaking process which consists of the development of a proposed rulemaking, review and approval of the proposed rulemaking by the Environmental Quality Board (EQB), public comment, review and responses to public comment, review and approval of the final rule by the EQB, review and approval by the Independent Regulatory Review Commission then the Office of the Attorney General. At a minimum, this process would take 18 months. The commenter does not indicate how the approach taken by the Department conflicts with the goals of Act 26. As noted above, the Act requires the Department to develop standards for the evaluation of alternate on-lot sewage systems within 180 days of the effective date of the Act. There is no way a full rulemaking could be accomplished within this time frame. Therefore, in the interest of developing a process for the review and approval of alternate on-lot sewage systems under existing authorities in a short period of time, the Department developed technical guidance documents as a bridge toward the development of a proposed rulemaking, which would include full implementation of Act 26. Statutory language is conclusive unless there is a clearly expressed legislative intent to the contrary. *United States v. Bey*, 736 F2d 891, 893 3d Cir. 1984. With respect to Act 26, the legislature did not clearly express a preferred approach to its implementation. The legislature merely indicated that standards be developed but did not indicate how those standards are to be developed or what process it entailed. It is assumed that the legislature intended pre-existing statutory law to continue unless otherwise indicated. *Young v. Young*, 320 Pa. Superior Ct. at 277, 467 A.2d at 37. The Act 26 amendments, which amended section 5 of the Sewage Facilities Act, must be read in the context of the whole Sewage Facilities Act and its implementing regulations. Act 26 does not repeal any provision of the Sewage Facilities Act or its implementing regulations. The Department must implement Act 26 in a way that gives meaning to the whole of the Sewage Facilities Act.

78. **Comment:** The TVP TGD will prevent new technologies from entering Pennsylvania markets. (25, 28)

Response: The technology verification procedure established in the TVP TGD provides manufacturers a standard approach where alternate systems can be evaluated and approved for use in Pennsylvania. The procedure also provides the manufacturers with a fair and equal process for the approval of their pretreatment technologies.

79. **Comment:** Due to the extent of the modifications please extend the comment period by 30 days. (3, 17)

Response: The Department extended the comment period 30 days.

80. **Comment:** The Department should remove the term “Soil Group” and define “Soil Type.” (5, 18, 19)

Response: The terms Soil Group and Soil Type have been removed. The determination of the level of pretreatment needed is now based on the soil infiltration loading rates which are dependent on soil characteristics.

81. **Comment:** The implementation of the guidance, as proposed, will have a direct impact on the cost of land development and sewage disposal in Pennsylvania. This increase cost will likely not be limited to the land developers and future homeowners, but the local municipalities, small businesses, and citizens. (8, 17, 21, 22, 23, 28)

Response: The process will be an additional cost to the manufacturer and there will be additional time in getting approval for use as an alternate in Pennsylvania. However, these steps are necessary to ensure the technologies that are approved for use protect the waters of the Commonwealth, the citizens of the Commonwealth, and property values in the Commonwealth. Lots will be created, and homes will be built using these technologies. If these technologies don’t provide sufficient treatment and disposal, the homes will be of little value and the environment will be negatively impacted. It is solely up to the manufacturer to determine if the additional cost is passed down to the developers and/or homeowners in Pennsylvania. Some manufacturers may be able to absorb the costs, partially or in full, and still be competitive; some may be able to use the data obtained in Pennsylvania to obtain approval in other states and/or countries, thereby offsetting the additional cost; and some may be able to improve the design of their technologies with the data collected resulting in a better designed and more cost-effective product.

Topic – SAC Recommendations

82. **Comment:** In the opinion of an overwhelming majority of participating members of the SAC, the proposed fecal coliform reduction requirements have not been shown to be a necessary component of the Implementation Strategy. (32)

Response: Sewage contains pathogens. These pathogens pose a risk to humans when introduced to water supplies (groundwater or surface water). There are many documented cases of disease outbreak caused by improperly treated sewage. EPA’s *Source Water Protection Practices Bulletin: Managing Septic Systems to Prevent Contamination of Drinking Water* (EPA 816-F-01-021, July 2001) states, “Septic systems (also known as onsite wastewater disposal systems) are used to treat and dispose of sanitary waste.” The bulletin goes on to state, “... improperly used or operated septic systems can be a significant source of groundwater contamination that can lead to waterborne disease outbreaks and other adverse health effects.” One of the questions posed by SAC was, “If sewage is currently contaminating ground water then why aren’t there more documented cases of sickness and disease caused by sewage contaminated drinking water?” Mild gastrointestinal illness is often unreported since it can be treated with over-the-counter medicine. If the gastrointestinal illness does require a visit to physician, it is unlikely that the cause of the illness is contemplated or even discussed. In January 2008, the Ohio Department of Health released a *Report to the Household Sewage and Small Flow On-site Sewage Treatment System Study Commission*. The Ohio Legislature directed the Department of Health to prepare a comprehensive analysis and report on the types of alternative systems. The report describes literature that the Center for Disease Control and

Prevention (CDC) has published on “... disease outbreaks and epidemiological studies related to failing onsite sewage systems.” The CDC survey indicates the following trends have been related to outbreaks: 1) intermittent use of drinking water and wastewater systems (fairs and gatherings); 2) onsite sewage systems installed in unsuitable soils or vulnerable geologic conditions; and 3) extreme precipitation events such as storms and hurricanes.

Subsurface on-lot treatment systems have shown to be an effective way to remove pathogens when designed appropriately, accounting for soil type and depth to a limiting zone.

Unfortunately, there is no one universally accepted study or research that definitively states based on soil types, soil conditions, effluent quality, groundwater aquifer type, and depth to groundwater, that effluent fecal coliform concentrations should meet a certain standard prior to disposal to the absorption area that will ensure protection. Previously, the Department did not require the effluent from on-lot systems to meet a fecal coliform standard when disposing the effluent to subsurface soil absorption. To assess the most up-to-date science on the soils’ ability to remove pathogens, the Department completed a literature review, and a review of other states with performance standards (Literature review of pathogen removal and inactivation in soils, First Draft October 2017). Based upon this review, the Department determined there is a potential for bacterial and viral contamination of the waters of the Commonwealth, resulting in a potential negative impact to public health and safety. Here is the verbatim copy of the conclusions drawn in the literature review document:

- The states that have fecal coliform standards, (WA, OH, MN, NC) tended to reserve these standards for soils of 24 inches or less to a limiting zone. The standards range from 200 to 10,000 CFU/100 ml. Of the four states WA appears to have done the most research on the use of performance standards including fecal coliform. WA reserves the highest pretreatment and fecal coliform standard, 200 CFU/100 ml, for highly permeable soils, depth to limiting zone of less than 12 inches, and when violating horizontal isolation distance to a public drinking water well during repairs. MN appears to have used WA’s standards and other regulatory language in their regulations.
- There are many factors that determine the ability of a soil to remove pathogens; soil type, organic content of the effluent, pathogen content of the effluent, pathogen type and counts in the effluent, pH of the soil and the effluent, soil moisture, organic matter in the soil, microflora in the soil, and depth of soil to groundwater all play a role in the soils ability to remove pathogens. It is very difficult to analyze soils on a site to account for all the mechanisms of pathogen removal. A risk-based approach to a fecal coliform standard would provide an assurance that systems would be protective of the public health and water quality.
- Higher organic effluent allows for the development of a clogging zone at the infiltrative surface improving pathogen removal.
- Highly pretreated effluent lacks the organic content and bacteria necessary to develop a clogging zone, thereby limiting the ability of the absorption area to remove pathogens.
- Due to size and characteristics of viruses, the soils ability to remove and/or inactivate them without a clogging zone, is limited. Highly permeable soils further inhibit the removal and/or inactivation of viruses.

- A properly operating secondary or advanced pretreatment should result in a minimum of 3-log removal of pathogens as compared to primary treated effluent.
- Increasing infiltration loading rates when using highly pretreated effluent, thereby reducing the size of the absorption area, may result in inadequate pathogen removal especially in soils with high permeability and/or with minimal vertical separation to groundwater.
- Time dosing with even distribution increases the ability of the absorption area to remove pathogens from pretreated effluent.
- Generally, fecal coliforms are significantly removed and/or inactivated when you have mineral soils of 24 inches or more to a limiting zone. The exception are soils with high permeability such as coarse sand, where 36 inches or more of mineral soils may be necessary to remove and/or inactivate pathogens to an acceptable level before entering the groundwater.
- Fecal Coliform reduction is necessary to protect public health and safety in highly permeable soils and when mineral soil depth is less than 20 inches to a limiting zone.
- The level of fecal coliform reduction needed should be determined by soil type, mineral soil depth, and horizontal distance to a public drinking water well.
- There is no simple method for determining when a soil can remove pathogens to a level that will ensure protection of ground water and public health and safety. There are too many factors that influence the process of removal and inactivation of pathogens to develop a one size fits all performance standard for every situation.

Systems sited on soils with shallow limiting zones or highly permeable soils are the highest risk situations. The Department's determination of a fecal coliform standard assumes that the treated effluent should meet the Pennsylvania water quality standard for bacteria at the infiltrative surface (i.e., before effluent meets the soil). Although the existing water quality standard is based on the risk of human contact rather than treatment for prevention of contamination via groundwater discharge, given that in most cases, the effluent will be provided some treatment in areas down gradient prior to reaching surface waters or groundwater, then 200 MPN/100 ml at the infiltrative surface will be sufficiently protective. The Department must reiterate that the soils' ability to remove pathogens from effluent is dependent on several uncontrollable attributes, so the Department must rely on the advance pretreatment system component for most of the fecal coliform removal.

- 83. Comment:** The SAC concurs with the CBOD and TSS limits of 10 mg/L for shallow limiting zone system applications. **(32)**

Response: Thank you for the comment.

- 84. Comment:** The SAC supports Operation and Maintenance of onlot sewage alternate technology systems as necessary. The specific maintenance requirements should be developed in a collaborative effort with the manufacturers of those technologies. **(32)**

Response: Thank you for the comment.

85. **Comment:** The SAC supports allowing those technologies with NSF 40 certification, and meeting DEP advanced treatment standards, to move directly to the Annual Performance Audit phase without the need to show compliance with the Field Testing Standard. (32)

Response: The Department considered the SAC recommendation but believes the field testing requirement is an important step in the process. Without acceptable field testing data, the Department does not believe a technology has demonstrated it can and will perform as per the established standards in real-world conditions. Test center certification testing is completed in a controlled environment and may not represent real-world variabilities that occur with homeowner's usage.

86. **Comment:** The SAC supports continuing to follow onlot system isolation distances as specified in Chapter 73, with an additional 2' of separation to drip irrigation tubing, and any additional separation as deemed necessary by a soil scientist performing a site evaluation. This additional separation recommendation should be clearly stated in the soil scientist report. (32)

Response: The TVP TGD does not address this SAC recommendation. Additional isolation distances, outside what is specified in Chapter 73, will be addressed in the On-lot Alternate Technology guidance document for each technology.

87. **Comment:** The SAC recommends that, for new land development planning purposes, the minimum vertical separation to limiting zone should remain at 10" to a seasonal high water table and 16" to rock. (32)

Response: The Department has updated the TVP TGD removing the 12" minimum soil depth requirement for new land development. The Department has determined that the standards set forth in the final TVP TGD for siting on-lot systems on soils with limiting zones under 12" to a seasonal high water table will be protective; therefore, the Department has agreed to remove the minimum 12" requirement for new land development. New land development will have the same minimum limiting zone requirement as repairs: 10" to a seasonal high water table and 16" to rock.

88. **Comment:** The SAC recommends that all shallow limiting zone systems should incorporate time dosing if a pump is used to pressurize the distribution lateral network. (32)

Response: The Department believes equal distribution of effluent enhances the ability of the soil to remove pathogens by maximizing the surface area used to renovate the effluent, therefore protecting public health and safety and the environment. Additionally, this practice will maximize the life of the absorption area providing cost savings to the homeowner while helping to prevent malfunctions. Equal distribution is especially important for when a system discharges to soils with a shallow limiting zone.

89. **Comment:** The SAC recommends that a fail-safe mechanism or physical barrier be incorporated into onlot systems so that untreated or partially treated effluent is prevented from entering the soil absorption area. (32)

Response: The Department agrees and has added this requirement in the Final Approval Process in the final TVP TGD.

90. **Comment:** We would like to thank your staff for attending the workgroup meetings and for engaging those in attendance in discussions and providing their reasoning for proposed standards. We look forward to continuing to work with the Department to implement Act 26. (32)

Response: Thank you for the comment.

91. **Comment:** At the most recent SAC meeting held March 13, 2019, the committee voted to advance additional comment to you regarding Guidance document 385-2208-003, Alternative On-lot Sewage Pretreatment Technology Verification Policy (TVP). The committee is reiterating two recommendations made in previous correspondence dated December 17, 2017 and offering one new comment. The primary reason for the reiterations is because professionals represented on the SAC, with vast experience in soils (both academically and as field practitioners), are unable to support the imposition of fecal coliform reduction requirements and see no need for an increase in the minimum depth to limiting zone of 12". The committee believes that soil based sewage system absorption areas operating in unsaturated conditions on sites meeting current minimum depth to limiting zone of 10" to seasonal soil wetness and 16" to a rock limiting zone are protective of the waters of the Commonwealth, water supplies, and property values". In the absence of data indicating a public health hazard following nearly 20 years of system siting in PA based on the minimum 10" to seasonal soil wetness and 16" to rock, increasing the minimum depth to limiting zone to 12" will deny many property owners, who currently can utilize those properties for home construction, certain property rights without justification. (32)

Response: The Department has updated the TVP TGD removing the 12" minimum soil depth requirement for new land development. The Department has determined that the standards set forth in the document when siting on-lot systems on soils with limiting zones under 12" to a seasonal high water table will be protective and therefore has agreed to remove the minimum 12" requirement for new land development. New land development will have the same minimum limiting zone requirement as repairs: 10" to a seasonal high water table and 16" to rock.

92. **Comment:** Because long term acceptable operation of onlot sewage systems is our goal and because excessive resources will be required to support performance monitoring, the SAC recommends that mandatory operation and maintenance in accordance with technology manufacturer's recommendations be required in lieu of performance monitoring. It is the belief of the committee that maintenance in accordance with manufacturers recommendations will largely achieve the goal of proper operation of systems without the significant increase in Department workload that will accompany performance auditing. (32)

Response: The TVP TGD has been updated so that the performance audit is voluntary, and only required for those manufacturers who wish to pursue classification as a conventional system. For those manufacturers who wish to continue as an alternate, and not proceed with a performance audit, performance monitoring will occur at the local agency level, with the requirement that all alternate systems be inspected and sampled, for parameters noted in their OAT guidance document, yearly; this requirement will be detailed in the OAT guidance document. Though O&M provides assurance that a system performs well, it does not measure whether the technology is meeting the performance standards. The performance audit provides ongoing field testing data that the Department will use to reclassify an alternate system as a conventional system. Section 5(c.2)(1) of Act 537, as amended by Act 26, states "...the

department shall, in consultation with the advisory committee, develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system in accordance with 25 Pa. Code § 73.72...” The performance audit verifies that the proposed alternate technology meets the scientific, technical and field testing standards. Though the Department understands the performance audit is a burden on those manufacturers who are seeking classification as a conventional technology, the Department believes the data collected will allow the Department to evaluate alternate technologies to determine not only that they continue to function as designed, but to reclassify the technology as conventional, satisfying the Department’s obligation under the Act.

Topic – Performance Standards

- 93. Comment:** Page 15, traditionally secondary has always been 30/30 BOD and TSS. Why now decrease BOD to 25? **(17)**

Response: 25 mg/L is CBOD not BOD. CBOD (carbonaceous biochemical oxygen demand) is the preferred test when nitrification of ammonia is not complete, as in the case of septic effluent. In circumstances where nitrification is not complete, ammonia levels are typically high, and false BOD readings may occur.

- 94. Comment:** 1. Quantitatively and qualitatively determine the level of performance of conventional systems (including Elevated Sand Mounds and Individual Residential Spray Irrigation Systems) at the limiting zone and use it as the basis for establishing performance standard for new alternate technologies.

Because DEP has based their claim that the limits on performance to be applied to alternate onlot treatment and dispersal technologies are necessary in order to “...be protective of the waters of the Commonwealth.”, we should not presume that the limits established in this guidance are appropriate or necessary. Conventional onlot systems have been in use for over 50 years in PA and there has been no evidence of ground or surface water contamination as a result of properly designed, installed, operated and maintained systems. Therefore it stands to reason that their level of performance is acceptable. DEP must evaluate the performance of conventional systems in order to determine the standard by which alternate technologies shall be evaluated. Simply because a proprietary product is sold by an entity that can be required to invest a significant amount of money in order to prove performance does not absolve DEP of the obligation of empirically show that currently acceptable systems perform to that same level. By not demonstrating the basis for acceptable conventional system performance, DEP is arbitrarily penalizing the private sector without just cause. **(21)**

Response: The Department was not tasked by Act 26 of 2017 to evaluate conventional technologies before developing scientific, technical and field testing standards and does not believe the testing of conventional systems is an appropriate starting point in developing standards for alternate technologies. The Department has an obligation to protect surface water and groundwater rather than react to pollution after it has occurred. The fact that widespread pollution of groundwater from on-lot systems is not a prevalent issue indicates that the existing levels of protection may be sufficient. The existing level of protection includes the fact the alternate systems have not been used to establish general site suitability in accordance with the existing regulation prior to Act 26. Now that new lots are being created through the proposed

use of alternate systems, the standards that establish alternate system design and use must be protective as well.

In many areas of Pennsylvania, well testing indicates the presence of both total and fecal coliforms. The exact source of these organisms is not specifically known; however, the contamination may come from any number of sources, including on-lot systems. The Department's approach to protecting groundwater by employing the approach that utilizes surface water quality standards at the point of discharge is consistent with past and current permitting practices. In the case of discharges from on-lot systems in situations where soils have shallow limiting zones, the Department is giving soil the credit for a portion of treatment. The Department conservatively assumes that the discharge should at least meet surface water quality standards prior to moving from the absorption area. Meeting water quality standards protects the most limiting condition of groundwater being present just past the limiting zone or in the event that the discharge surfaces somewhere closely downgradient of the absorption area. In many areas that utilize on-lot systems for sewage disposal, private wells are the predominant or only source of drinking water. No level of total or fecal coliform contamination of drinking water is acceptable from a drinking water standpoint, so protection of these source waters is integral to long-term viability of the drinking water source. Treating the drinking water microbial contamination at the source rather than at the wellhead is necessary.

Topic – Performance Audit

95. **Comment:** 5. Field performance audit process – Step 3 We applaud the fact that PA DEP included this Step into their requirements. Annual random field audits have been demonstrated to be an efficient indirect enforcement tool in many jurisdictions. We believe that meeting and respecting the objectives set out by Act 26 reside importantly on random annual field performance audits. The primary principle underlying a sound approval process is to demonstrate the general compliance of a system over time and actual usage and maintenance (3)

Response: Thank you for your comment.

96. **Comment:** i. Determination if a site qualifies or not for audit: p.9, Section V. A. 1. states that:
- On an annual basis, the manufacturer should provide PA DEP with an updated list of all systems the manufacturer has installed in the state.
 - PA DEP will refer to that list to randomly select several sites for the audit process.
- PA DEP must make sure that there is a maintenance contract in place prior to Audit and only systems with a valid maintenance contract should be in the list for random sites selection - operated and maintained as per manufacturer specifications.
- PA DEP shall request that the list of systems installed per county clearly indicates for each site if a valid maintenance contract is in place or not. This listing will translate also into a useful tool for local authorities to support the enforcement of maintenance requirements. (3)

Response: The Department understands the commenter's concerns and will consider removing sites that do not have a valid maintenance agreement. The Department will evaluate all systems installed to determine if they should be a part of the performance audit and take necessary action when a system is not being maintained as per a local sewage management program and/or the manufacturer recommendations for operation and maintenance.

97. **Comment:** ii. Determination of site functionality: p.10, Section V. A. 8.: If a system is not functioning correctly, it must be put back in compliance (if it is demonstrated that it is only the system/component itself, subjected to the audit, that is not functioning properly) and then be rescheduled for sampling. Nonfunctionality of a system shouldn't be recorded as a failure. (3)

Response: An individual system not functioning as expected during the performance audit does not count as a "failure"; sample parameters outside the "Action Level" are a trigger for a manufacturer to develop a corrective action plan. The "failure" language has been removed from the performance audit section of the TVP TGD. A system not functioning properly should be investigated by the manufacturer to determine the reason, and the results of the investigation should be provided to the Department. This may result in further O&M, sampling, and/or a corrective action plan needing to be developed by the manufacturer.

98. **Comment:** iii. PA DEP should define a time frame to undertake audit process
1. Jan-Feb: manufacturers providing complete listing of installed systems and selection of auditor/testing organization
 2. March: site selection process by PA DEP
 3. April: site qualification validation by PA DEP
 4. May- beginning of audit until December. (3)

Response: The Department will consider your request but will not be adding sampling timeframe language to the TVP TGD. The process for completing performance audits will need to be developed in more detail with involvement by the manufacturers before the Department is able to provide a sampling timeframe for the performance audit.

99. **Comment:** iv. It is important to clearly state that ALL proprietary pretreatment systems approved and listed for use in PA must fulfill with the field audit requirement and must be equipped with an efficient sampling device or port allowing collection of representative sample. (3)

Response: For newly installed systems approved under the new policy and standards, the Department agrees with this comment. The details of this requirement will be provided in the On-lot Alternate Technology approval document.

100. **Comment:** PASEO supports the notion that new technologies should be field testing and spot-checked over a period to ensure their effectiveness. However, we question the practicality of some provisions of the proposed annual performance audit protocol. The testing is to be performed hourly over a 24-hour period, on a monthly basis. This will prove burdensome for a homeowner. What if a property owner declines to have their system tested as part of the performance audit? Is it the Department's intention to make participation compulsory for the identified property owners? If so, what penalties does the Department envision for unwilling home owners? (12)

Response: Testing will occur hourly over a 24-hour period, once a year, for only those systems randomly selected, not monthly. For those manufacturers who choose to participate in the performance audit, all homeowners who wish these technologies to be installed on their property will need to agree to allow a third party to enter the property and sample. Unwilling homeowners will not be allowed to have these systems installed on their property. If a homeowner, after signing an agreement with the manufacturer and having an alternate system

installed on their property, refuses to allow a third party to enter and sample, the Department will not penalize the homeowner. The manufacturer may pursue damages, and/or the local agency may pursue penalties, but that will be up to those entities, not the Department. The Department may pursue other methods of obtaining a sample from the property, including, but not limited to requiring the homeowner to have a service provider sample yearly for the life of the system due to their system no longer being a part of the performance audit process; this would be reflected in the required operation and maintenance agreement with the homeowner's service provider.

- 101. Comment:** The potential for systems to be included in an audit will need to be tied to the property via deed restriction so that future owners understand the implication of using an alternate technology. Presumably selection for an annual performance audit will extend to include technologies installed prior to the effective date of the draft guidance document. These properties have not internalized the market cost of potentially participating in an audit. Has the Department considered the implication this new externality will have on an existing property's value? (12)

Response: The performance audit will only include alternate on-lot systems installed prior to the TVP TGD effective date if the manufacturer requests these systems to be included and has the necessary agreements in place with the homeowner to allow a third party to enter the property and sample. The Department believes that verifying the performance of approved alternate technologies through the performance audit will provide assurance to current and future property owners that the septic system will work for the expected life of the technology, therefore minimizing the risk that the system may negatively impact the value of the property.

- 102. Comment:** Does the Department intend for the annual performance audits of a technology to continue forever? Annual testing of technology in perpetuity is excessive to demonstrate whether the technology is working sufficiently in Pennsylvania. Alternatively, the Department should consider annual audits for a defined period (e.g., the first five years following approval), then spacing the testing to every three years for a defined period (e.g., over the next 12 years), then fully accept the technology. Should there not be a clear path for a system to ultimately become considered "conventional"? Conducting annual performance audits without end will perpetuate a two-tier system of technologies and impose unreasonable costs to technology manufacturers. (12)

Response: The Department does not plan for the performance audit to continue forever and will determine when the performance audit will end for an individual technology based upon the consistency of the technology's performance. Annual inspection and sampling, by a service provider, of every alternate technology installed as detailed in the OAT guidance document will continue for the life of the system for those manufacturers who choose to maintain classification as an alternate technology.

- 103. Comment:** 3. With regards to section V. Annual Performance Audit, specifically Section A.4. and Section A.6. requirements regarding notice of and requirements for selected field audit systems, I suggest the following changes to Section A.4. and A.6.:A.4. Once the locations have been determined by DEP, DEP will contact the manufacturer and the approved testing organization, provide it with the locations, and in consultation with the testing organization, determine the dates and times for the audit inspections. Before proceeding with the inspections, DEP will inform the manufacturer, tenthirty (1030) days before the inspection, of the locations and dates of the scheduled samplings. The testing organization will not provide this information

to the manufacturer unless requested by DEP.A.6. The manufacturer and/or a representative of the manufacturer may not contact the owner, visit the location, or provide any maintenance outside of the O/M agreement, to the selected components and/or systems within ten (10) days of the scheduled audit. The manufacturer and/or a representative of the manufacturer may accompany the testing organization to one or more of the audit locations. Rationale: The proposed annual performance audit is overly onerous. Certification requirements within the proposed rules are a true test of the pretreatment technology, while in our experience field audits are a test of the individual homeowner's habits. In field audits there are many variables that are out of the control of the manufacturer and this should be a consideration during the design of any field audit process. The manufacturer should be able to review the sites selected and perform maintenance if required prior to sampling. This will allow manufacturers to confirm with the homeowner for example that no material changes to the system or house have been made since the last servicing, whether or not the system will be in use during the proposed sampling time, how long the system has been in use, that the number of occupants and water usage during the sampling period is representative of the design flow, that any requested actions from previous maintenance visits such as pump outs were performed, that no control panel settings have been changed, that other conditions that would negatively affect treatment performance are not present (e.g. occupant undergoing chemotherapy), etc. It is worth noting that the BNQ Certification Field Audit allows approximately 30 days' notice to the manufacturer and has no restrictions on contact with the homeowner or system maintenance prior to audit sampling. This proposed change would allow manufacturers to confirm prior to performance audit sampling that the site is in use and is being operated as designed. (13)

Response: The Department does not agree with the proposed solution but understands the commenter's concerns. The Department believes the significant changes made to the performance audit process since the original draft provides the Department flexibility in dealing with manufacturers' concerns related to homeowners not maintaining their systems. The Department will work with manufacturers to deal with these concerns during the final approval process for each technology. The solution proposed by the commenter will allow manufacturers access to performance audit sites 60 or more days before the actual audit. This will allow a manufacturer the ability to fine tune an on-lot treatment system prior to the audit, defeating the audit's purpose of randomly testing systems in the field throughout the life of a system to determine if the technology is consistently capable of meeting the standards for which the technology was approved under.

- 104. Comment:** Act 26, paragraph c.2., requires the DEP in consultation with SAC to produce a standard which uses scientific, technical and field testing standards to evaluate each alternative system. The TVP produced by DEP goes beyond the requirements of paragraph c.2 with the creation of the Annual Performance Audit. At this point in the document, the DEP shifts an enormous burden onto the alternative technology community that is not part and never has been part of any conventional or alternative technology protocols in Pennsylvania. The TVP document oversteps the authority given to DEP from ACT 26. The TVP process at its core is there to evaluate new technologies in the state of Pennsylvania and ensure that those technologies produce effluent in line with their classification. The products going through this process are required to have an expensive 3rd party report and then a lengthy in situ study. Technologies earn alternative status once the process is complete and a reviewed by the DEP and SAC. This verification should be the ending point for the document, but it goes on to place another hurdle in front of the alternative technologies that will make them undesirable to the end user and costly for the manufacturer. The process is chapter 5 of the TVP; Annual Performance

Audit. Conclusion ACT 26 had the goal to bring the alternative marketplace into line with the conventional applications. Having common ground between technologies, alternative and conventional, should include testing scenarios and the same level of scrutiny. The inclusion of conventional systems is necessary to make this happen as well as the ability for the alternative systems to gain conventional status. Without the documentation or data to support paragraph 3, the logical maneuver is to remove the arbitrary and capricious burden constructed by chapter 5 of the TVP. With the removal of that section, the alternative technologies would have a path to conventional status and would not create a second class of products that were less desirable to the end user due to government regulation. (14)

Response: The TVP TGD has been updated so that the performance audit is voluntary, and only required for those manufacturers who wish to pursue classification as a conventional system. For those manufacturers who wish to continue as an alternate, and not proceed with a performance audit, performance monitoring will occur at the local agency level, with the requirement that all alternate systems be inspected and sampled, for parameters noted in their OAT guidance document, yearly; this requirement will be detailed in the OAT guidance document. The performance audit provides ongoing field testing data that is necessary for the Department to reclassify an alternate system as a conventional system. Section 5(c.2)(1) of Act 537, as amended by Act 26, specifically states "...the department shall, in consultation with the advisory committee, develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system in accordance with 25 Pa. Code § 73.72..." The performance audit verifies that the proposed alternate technology meets the scientific, technical and field testing standards so it can be reclassified as a conventional system.

105. **Comment:** Page 3. First full paragraph stated once approve it must then be field verified. Well then it wasn't approved was it? (17)

Response: The first full paragraph on page 3 of the draft TVP TGD did not state "once approve[d] it must then be field verified." The cited paragraph addresses the performance audit process. Technologies must first be approved in Pennsylvania before entering the performance audit or performance monitoring process. The performance audit or performance monitoring process is not part of the approval process. The performance audit or performance monitoring process is a verification process to determine if the technology consistently performs to the approved standards over the technology's lifetime. The performance audit is also the method which alternate technologies may be reclassified as conventional.

106. **Comment:** ...Who pays for the repair? (17)

Response: The audits measure the technology's ability to meet the applicable performance standard. If a technology does not meet the standard, the manufacturer will take measures to remedy the shortcomings. An individual homeowner will not be responsible to address failed audits. If maintenance issues are found during the audit or performance monitoring process, the homeowner will be responsible to address those issues unless they have an agreement with a maintenance provider to address those issues. If an individual system's sample result falls outside of the acceptable range, that system may not be malfunctioning. However, if a system has untreated or partially treated sewage on the surface of the ground, entering a surface water of the Commonwealth, backing up from the absorption area into a component of the OAT, or

backing up into a structure during an audit or performance monitoring, the local agency SEO must be notified, and the malfunctioning on-lot system must be addressed.

- 107. Comment:** Page 12 paragraph B. if a system or component fails a second audit, who or what protects the property owner from prosecution? They deserve protection if the system was operated properly. **(17)**

Response: The Department has removed this language.

- 108. Comment:** What protections are provided to the property owner, should that system fail an audit, against prosecution for having a failing on lot system? **(17)**

Response: The performance audit provides a measure of whether systems that have been installed are performing in accordance with expectations. The systems that reach the point of being involved with a performance audit have shown that they can meet the necessary standard under controlled conditions and during manufacturer oversight in the field. The intent of the performance audits is not to label an individual installed system as a malfunctioning system. There may be several potential remedial actions based on a failed audit; retesting, additional O&M, increased frequency of O&M, and/or homeowner education are some of the steps that may be taken when a system fails the performance audit. Systems that fail the performance audit process, where no remedial action provides a remedy to the performance issues, may result in removal of that system as being approved for use and unavailable for future installations. Performance audits are the responsibility of the manufacturer of the system or component. Homeowners will not be required to remove and reinstall a new system solely based on the failure of performance audit. However, if the system is malfunctioning as determined by the local agency, the malfunction will need to be addressed.

- 109. Comment:** 2. Replace the requirement for annual performance auditing of alternate treatment technologies with a far more beneficial requirement of proof of manufacturer required maintenance. The annual performance audit is nearly an insurmountable burden. Maintaining a list of all systems installed, installing monitoring equipment on EVERY system, paying for random sampling and analysis, obtaining permission from property owners, and cumbersome performance audit reports with corrective action plans for any nonconformity are unreasonable. There are other more reasonable options to assure proper future operation including requiring documentation of compliance with the manufacturers O&M requirements. Once a system's performance has been established, a requirement to perform necessary O&M will, in my opinion, yield far greater benefit than creating an entirely new regulatory process that will be needed to administer the annual performance auditing program. O&M is easy to verify – performance auditing is a complex process rife with exceptions to adherence to performance standards due to individual system usage and input to the system and one that will consume unknown and unavailable resources within DEP. In fact, if performance monitoring is required of alternate onlot technologies, it should similarly be required of conventional systems. There are more conventional systems in PA, by orders of magnitude, than there are alternate systems. According to a 2008 study by The Center for Rural Pennsylvania, a legislative agency of the PA General Assembly, approximately 25% of Pennsylvanians are served by onlot septic systems. At the time that meant more than 1.3 million onlot systems, nearly all of which were installed prior to the existence of today's alternate technologies. The study concluded that each year, approximately 1% (and more likely closer to the national average of 2%) of onlot systems were issued a repair permit equating to well over 10,000 repair permits per year. If there are

10,000 repair permits issued each year for conventional systems, the intense focus solely on alternate technologies and systems is arbitrary, capricious and unjustified. The concerns expressed by this policy regarding on-going performance of alternate technologies are magnified exponentially as they relate to conventional systems. In terms of return on investment, you cannot ignore the benefit of consistent application of operation, maintenance and monitoring of all systems if you believe them necessary for some. (21)

Response: The Department disagrees with the commenter's opinion regarding the performance audit process. Without data showing a system's performance, there is no way to assess whether the technology is meeting any standard and therefore protecting the waters of the Commonwealth and public health and safety. Though O&M is important for the proper functioning of a system, O&M does not assess if the technology is meeting the standards.

110. **Comment:** 4)Page 11, Will the property owners involved in the audit be made aware of the corrective action plan? And their approval obtained? (24)

Response: The agreement between the manufacturer and the homeowner will detail the responsibilities of the manufacturer, the homeowner, and the third-party testing organization. The Department will review the standard language of the agreements before the technology is approved for use in the Commonwealth. Informing the homeowner of additional responsibilities included in the Corrective Action Plan will be expected to be included in these agreements. Ultimately the homeowner is responsible for the proper operation and maintenance of the system and should be informed of all issues with the system and the necessary measures needed to correct these issues.

111. **Comment:** Conceivably there will be dozens of technologies approved under this policy each with up to 10 systems tested monthly under the Annual Performance Audit. Does the Department have enough personnel to scrutinize the results or will the testing be a grand waste of money? (28)

Response: Yes, the Department has the resources to review the results. Please note that the testing will include a maximum of 10 systems tested annually, not monthly, for each technology approved.

112. **Comment:** While I concur with the concept of the annual performance audit (Section V Page – 9) of no less than 5 and no more than 10 locations, I question the practicality of the current proposal. (28)

Response: The performance audit provides ongoing field testing data that is necessary for the Department to reclassify an alternate system as a conventional system. Section 5(c.2)(1) of Act 537, as amended by Act 26, specifically states "...the department shall, in consultation with the advisory committee, develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system in accordance with 25 Pa. Code § 73.72..." The performance audit verifies that the proposed alternate technology meets the scientific, technical and field testing standards. Though the Department understands the performance audit is a burden on those manufacturers who are seeking classification as a conventional technology, the Department believes the data collected will allow the Department to evaluate alternate technologies to determine not only that they

continue to function as designed, but to eventually reclassify the technology as conventional, satisfying the Department's obligation under the Act.

- 113. Comment:** Page – 10 Point #6: Change "...systems within ten (10) days of the scheduled audit". To "...systems within ten (10) days prior to the scheduled audit". **(28)**

Response: During the finalization of the TVP TGD, this language was removed.

- 114. Comment:** The performance audit requirement will create an unnecessary burden on alternate technologies. If the Department is determined to require a performance audit, conventional technologies should be included to create a level playing field. **(12, 14)**

Response: The Department disagrees. Alternate technologies, though demonstrated to work, are not equivalent to conventional systems. For an alternate to be considered conventional, data is needed to show these technologies don't just meet the standards initially, but do so consistently over the life of the system. The performance data will provide the Department the necessary documentation to determine whether an alternate technology may be considered conventional technology. In order to make an alternate system a conventional system, a rulemaking is required.

- 115. Comment:** How will the Department address seasonal or periodically operating systems when selecting sites for the performance audit? **(13, 28)**

Response: The Department has added language stating the system needs to be operating continuously for at least 60 days or for a time agreed to with the manufacturer.

Topic – Property Access for Sampling

- 116. Comment:** If this protocol is adopted, there would need to be language in the sewage permit to authorize access and ability to sample systems in perpetuity by not only the SEO and DEP, but also third-party entities. **(15)**

Response: The Department has updated the language for the performance audit to address this concern. The specific language will be added to the on-lot alternate technology approval document under the permitting section. Access to the property for sampling during a DEP authorized performance audit will be a condition of the permit. Alternate on-lot sewage systems may not be installed on lots where a property owner is unwilling to allow access for performance audits.

- 117. Comment:** 5) Page 12, # 16 what agreements are required? **(24)**

Response: The Department has updated the language regarding agreements with the homeowners. The purpose of the TVP TGD is to provide guidance to the manufacturers. The manufacturers will need to develop the agreement(s) necessary with the homeowners to meet the Department's expectations.

- 118. Comment:** 2) There is nothing in the TVP that address property owner's permission to access the sewage disposal or refusal of participation for a property selected by DEP. **(24)**

Response: All agreements with the homeowner need to include a provision authorizing a testing organization to enter the property to perform an audit and need to be legally binding before the alternate technology is permitted and installed on the homeowner's property.

- 119. Comment:** What provisions will be made should a property owner prohibit the testing firm from entering the property? **(28)**

Response: All agreements with the homeowner need to include a provision authorizing a testing organization to enter the property to perform an audit and need to be legally binding before the alternate technology is permitted and installed on the homeowner's property.

Topic – Field Verification Testing

- 120. Comment:** B. Test plan: Quality Assurance Project Plan - P.32. 4th bullet point from the top of the page: "...list of raw material that have been verified or tested..." The certification process already ensures the conformity of the system in term of manufacturing, i.e. list and source of raw material. Through the certification process, manufacturing is audited and controlled annually. We deem inappropriate to provide this level of information for state approval because it adds only to the complexity of the process. **(3)**

Response: The bulleted language was to address aggregate used as fill and in the construction of absorption areas, not the material used in the construction of tanks, motors, pumps and other appurtenances. The language has been updated to provide clarity.

- 121. Comment:** Sampling 12 sites each month over a 12-month period will be cumbersome and quite demanding in terms of budget and resources. It may generate, as an unintended consequence, to price PA out of new innovative technologies. Estimated budget for Step 2 is around \$150,000 to \$200,000 USD. An alternative to render this process more affordable for new technologies could be to reduce sampling requirements of the field performance demonstration program to once every 2 months (ex: sampling 6 sites per month). **(3)**

Response: The Department agrees and has updated the language to address the comment.

- 122. Comment:** 3. Field performance demonstration requirement – Step 2 PA SAC 4th recommendation was in support of allowing those technologies with NSF 40 certification (or equivalent), and meeting DEP advanced treatment standards, to move directly to the Annual Performance Audit phase (Step 3) without the need to show compliance with the Field Testing Standard. Thus, Step 2 of proposed guidance is contrary to PA SAC recommendations. If they meet the requirements of Step 1, alternate systems already approved in the state of PA, being already under some sort of management program and presenting a good track record in term of system maintenance and performance demonstration, should be grandfathered and be allowed to move to Step 3. Of course, during Step 1 evaluation process, the authorities must make sure that said systems are designed with a physical "treatment" barrier or a fail-safe mechanism to ensure that untreated or partially treat sewage will not be discharged to the absorption area ("Onlot Wastewater Technology Verification Protocol (TVP)", p.8, Section IV., D. (which shall be B.) **(3)**

Response: The Department considered the SAC recommendation but believes the field testing requirement is a very important step in the process. Without acceptable field testing data, the Department does not believe a technology has demonstrated it can and will perform as per the established standards in real-world conditions. Test center certification testing is completed in a controlled environment and may not represent real-world variabilities that occur with homeowner's usage.

- 123. Comment:** We strongly encourage the Department to evaluate and consider for adoption the commonly used, national model of system approval that exists in other states. It represents a comprehensive set of requirements that would fulfill the goals of Act 26 while reducing the burden of PA DEP staff in technology reviews, reduce the time to achieve treatment system approvals, reduce the cost burden of treatment system manufacturers, enhance the number of alternative onlot technologies available to SEO's, municipalities, and homeowners, while continuing to provide proper wastewater treatment with demonstrated measures of performance and compliance. Many of the elements used successfully in other states are also included in the proposed requirements of 385-2208-003 and which we support. The broadly applied and accepted elements include use of the NSF/ANSI Standards for product evaluations, certification by an ANSI accredited third-party certification organization to address both initial performance and ongoing field assessments, and long-term service and maintenance obligations of the homeowner. The scope of the initial and ongoing evaluations and associated cost to the industry in meeting these requirements is substantial. However, the benefit is a level playing field for the industry, broader acceptance of our technology and many others throughout the country, and reduced burden on state and local agencies in meeting public health and environmental goals. The additional layers of requirements as proposed in 385-2208-003, such as additional analysis of data generated under the NSF/ANSI standards, field sampling of effluent, and others, only adds further, unnecessary costs to the industry, to the Department, and ultimately the homeowners. We recommend that 385-2208-003 be modified to reflect that of other states who rely on a proven and successful model of treatment system certification to the appropriate NSF/ANSI Standard by an ANSI accredited third-party product certification body. As has been demonstrated, this model provides properly evaluated alternate onlot treatment technologies, both initially and long-term, while avoiding significant and unnecessary cost burdens to the Commonwealth and to the treatment system industry. Further, we believe it fulfills the directives of Act 26 by enabling advanced technology use in broader applications with a clear, standardized process of approval. **(8)**

Response: It is not clear what the commenter means by "national model," since the commenter did not specifically identify the model. In reviewing the wastewater technology approval processes of other states, the Department did not discern a consistent model for verification of on-lot treatment technologies. If commenter is stating that technologies certified by ANSI/NSF 40/245/350 as the "national model," and that achieving those certifications should be sufficient without the need to have field verification and performance audits, then the Department disagrees. The Department does agree that ANSI/NSF 40/245/350 certification is a good first step in verification of an on-lot technology. The Department has reviewed the requirements under ANSI/NSF 40/245/350 certification and does not believe that such certification is sufficient to ensure certified on-lot sewage systems perform adequately in the field over the life of the system. The Department developed the field testing protocol and performance audit to help ensure the certified on-lot treatment technologies are performing at a level that protects public health, safety and the waters of the Commonwealth. In addition, the data collected

through the performance audits will allow the Department to determine if a technology can be classified as conventional.

- 124. Comment:** Thank you for all your work on the “Draft Technical Guidance: Onlot Wastewater Technology Verification Protocol (TVP)”. We appreciate the time you and your staff have made in developing this document to make improvements to the Commonwealth of Pennsylvania. With that being said, Norweco would ask to have all previously approved manufacturers move directly into Step III for the annual audit and bypassing the field test protocol. Norweco would be eager to work with DEP on getting Step III ready for implementation in the near future. **(11)**

Response: The Department has reviewed your suggestion to skip the Field Testing Verification. The Department believes the field testing is necessary to ensure that the on-lot treatment technology is performing in the field at the level of treatment the technology is seeking approval for in the Commonwealth.

- 125. Comment:** Page 7. This section could easily and should be changed to reference the USDA plant hardiness Zones. In Pa. those zones range from 5a to 7b. Any testing that occurs in a plant hardiness zone of 7b or colder should be acceptable for use in Pa. The current wording is too discretionary to DEP. **(17)**

Response: The Department agrees and has updated the language to address the comment.

- 126. Comment:** This section is confusing and inconsistent with page 22. Must every system have field verification or not. Must that verification occur in Pa or can it be in other jurisdictions with equal to or colder climates? If the verification must occur in Pa. that process goes against the will of the legislature in making alternate systems, more accessible, not less accessible in Pa. **(17)**

Response: The Department has updated the language to address the comment. Specifically, technologies may use other third-party tested data from outside of Pennsylvania in climates similar to or colder than the climate in Pennsylvania.

- 127. Comment:** Page 17 it would seem that if a technology is approved in areas with a plant hardiness zone colder than 7b and, should any disapproval be overturned or reversed, that field verification in Pennsylvania is NOT necessary as it would be a needless cost to the manufacturer and a needless delay to that technology's use in Pa. **(17)**

Response: In the final TVP TGD, *Appendix B: Application Administrative Requirements* (which was Appendix C in the draft TVP TGD), only refers to the information the Department needs during the technology verification process. The field verification of a technology is necessary to determine if the technology can maintain similar performance in the field to that maintained during test center certification. Though ambient temperature during testing is an important parameter in determining a technology's performance, it is not the only parameter measured during field testing.

- 128. Comment:** I would like to respectfully provide comments on the Draft Technical Guidance Onlot 800-348-9843 Wastewater Technology Verification Protocol (TVP). (385-2208-003) This policy will require some onlot sewage system manufacturers to go through the TVP again, even though these manufacturers have already complied with the TVP as previously required. This is

the case with Orenco Systems, Inc. Orenco worked with NSF orenco.com on this TVP, submitted a detailed QAPP, and met all the requirements in the TPV. Requiring a manufacturer to re-verify technology performance, after expending considerable financial resources, and time, to comply with the previous TVP requirements puts an unfair burden on that manufacturer. Manufacturers should be able to supply additional third-party information on TN, BOD, and TSS removal treatment technologies that have already demonstrated that they can meet the requirements of the PA onsite regulations. The main difference between the previous and current TVP is the requirements for FC reduction. Several manufacturers have tested treatment units during NSF Standard 40 testing, for FC reduction to meet the State of Washington requirements. Manufacturers should be able to submit this test data to the PA DEP to meet the requirements of 3852208-003. (27)

Response: The TVP TGD allows for the use, on a case-by-case basis, of third-party testing data from outside of Pennsylvania as a substitute for testing in Pennsylvania, under certain conditions, to meet the Department's field testing requirements. For a technology that previously completed the field testing requirements in Pennsylvania following finalization of the previous TVP TGD in July 2004, the Department will review the data to verify if it meets the current standards and based upon the review determine if additional data and/or field testing is required.

129. **Comment:** Once a month 24 hour composite sampling during the Field testing verification phase will be costly to the manufacturer and intrusive to the homeowner. Consider reducing the frequency of sampling to quarterly. (28)

Response: The Department has done further research and has determined that reducing the sampling to every other month (i.e., 6 samples per site over a 12-month period) will provide sufficient data to evaluate the performance of the alternate technology. The TVP TGD has been updated to reflect this change.

130. **Comment:** This field testing should be done with a tiered time frame and has to be done in a way that will allow the public to feel comfortable with a presents coming on to their property and know that this system evaluator has a limited time frame for this testing to be completed. (30)

Response: The Department believes the TVP TGD provides the procedures necessary to allow for a homeowner to feel comfortable with the process. One of the keys will be for the manufacturer and designer of the system to provide the homeowner with the information to understand the procedures. Once the homeowner fully understands the process, their comfort level should be addressed. The Department will develop a fact sheet that helps to explain the process to a homeowner.

Topic – Conventional and Alternate Systems

131. **Comment:** The state must collect data on conventional systems in the same fashion as the alternative systems to have a standard that will allow alternative technologies to achieve conventional status. The lack of data and collection from annual audits on conventional systems is the clear reason why the industry in Pennsylvania needs to be adamant that ALL technologies are equal when comes to an Annual Performance Audit. Data on conventional systems has not been collected in the manner that DEP is recommending for alternative technology and is required if any regulatory or advisory committee can make an informed decision on equivalency. (14)

Response: As per Act 537, conventional systems are “... system[s] employing the use of demonstrated on-lot sewage treatment and disposal technology in a manner specifically recognized by the regulations promulgated under this act. The term does not include alternate sewage systems or experimental systems.” The “regulations promulgated” refers to 25 Pa. Code Chapter 73. Act 26 of 2017 does not require the development of scientific, technical and field testing standards for conventional systems. Act 26 requires that such standards be developed for alternate systems only. The TVP TGD specifically deals with alternate systems as specified in Act 26.

- 132. Comment:** There are two substantial concerns with the creation of chapter 5 of the TVP. The first is that the Annual Performance Audit guidance does nothing to address the unique challenges faced by passive treatment systems in the course of collecting a representative sample in accordance with the protocol. Attempting to apply identical sampling techniques to all systems is not justified nor are the incredible costs. This entire TVP document would need to be modified if not abandoned if DEP were to consider including the conventional systems of Pennsylvania with this protocol. Without including the conventional systems in this document, DEP has created two classes in the marketplace. **(14)**

Response: The Department disagrees. For the Department to consider on-lot alternate technologies equally, based on a standard, representative samples need to be collected to verify the technology meets the standard. Conventional technologies have proven over decades of use to be protective of waters of the Commonwealth and public health and safety when designed and maintained as described in the Department’s regulations. Not all alternate technologies have these decades of use and standards of design to verify they are protective of the waters of the Commonwealth and public health and safety. Historically, alternate technologies have been used to address malfunctioning on-lot systems, to provide systems on sites that meet general site suitability per the regulations either as a replacement area during planning or in lieu of a conventional system, or on existing lots where conventional systems cannot be used. The process described in the TVP TGD will allow these alternate technologies to show they perform at a level necessary to protect the waters of the Commonwealth and public health and safety.

- 133. Comment:** A) Does the alternative systems that are approved by PADEP for use when the limiting zone is 20 inches or more, meet the same equivalent standard as the systems written in the law and called conventional. Professionally, my answer would be YES and since PADEP has approved them as alternatives, their answer must be YES. **(22)**

Response: As per Act 537, conventional systems are “... system[s] employing the use of demonstrated on-lot sewage treatment and disposal technology in a manner specifically recognized by the regulations promulgated under this act. The term does not include alternate sewage systems or experimental systems.” Until an alternate sewage system is recognized in regulation, it cannot be considered conventional.

Topic – Limiting Zone

- 134. Comment:** The proposed depth requirement limits are inconsistent with established soil science classification standards. Non-proprietary design standards are currently used to size existing shallow limiting zone at-grade absorption areas. **(19)**

Response: In order to address the comment, the depth limits the commenter believes are inconsistent with “established soil science classification standards” need to be clarified. The commenter did not provide data, publications, studies, or other peer-reviewed material that supports the assertion that the proposed limiting zone depth limits are inconsistent with established soil science classification standards. The Department has updated the TVP TGD removing the 12” requirement for new land development based on comments from SAC and the public. The Department has determined that the performance standards set forth in the TVP TGD, when siting on-lot systems on soils with limiting zones under 12” to a seasonal high water table, will be protective and therefore has agreed to remove the minimum 12” requirement for new land development. New land development will have the same minimum limiting zone requirement as repairs: 10” to a seasonal high water table and 16” to rock.

- 135. Comment:** The Department states in the TVP TGD that shallow limiting soils, soils with depth to limiting zones of <20” do not provide treatment of effluent. **(1, 17, 19)**

Response: The TVP TGD does not state or imply that soils with shallow limiting zones do not provide any treatment of effluent.

- 136. Comment:** The Department did not provide sufficient evidence to change the minimum limiting zone for seasonal high water table from 10” to 12” for new land development and the minimum limiting zone from 10” to 8” depth to seasonal high water table for repairs. **(1, 7, 12, 15, 17, 19, 20, 21, 22, 24, 28, 30)**

Response: The Department has updated the TGD removing the 12” minimum soil depth requirement for new land development and the 8”-12” minimum soil depth requirement for repairs based on comments from SAC and the public. The Department has determined that the standards set forth in the document when siting on-lot systems on soils with limiting zones under 12” to a seasonal high water table will be protective and therefore has agreed to remove the minimum 12” requirement for new land development. New land development will have the same minimum limiting zone requirement as repairs: 10” to a seasonal high water table and 16” to rock.

Topic – Equal Distribution

- 137. Comment:** 4. Time dosing requirement - P.8, Section IV., D. (which shall be B.), Step Three, bullet point #6: “... effluent discharge to soils less than or 20-inches should incorporate a mean to distribute/damp daily peak flows time and pressure dosing of the absorption area into the system design. “This language should allow alternative means of achieving time dosing. **(3)**

Response: The Department agrees and has updated the language to address the comment.

- 138. Comment:** 6. Require time dosing for all systems using a pump for pressure dosing
I am also encouraged by the mention of pressure and time dosing as an advantage for shallow

limiting zone applications. Ultimately, the goal of dosing to onlot systems is to maintain an unsaturated flow regime in the soil dispersal area to maximize treatment efficiency. Time dosing is infinitely superior to demand dosing in this regard. (21)

Response: The Department agrees and thanks you for your support.

- 139. Comment:** Below is an example of a requirement in the draft TVP that restricts the use of alternative passive wastewater technologies: The recommended standard for alternate technologies that provide for the distribution of effluent is the following – Alternate System Components that provide distribution of effluent are required to equally distribute effluent over the absorption area with the goal of maximizing the renovative and dispersal capability of the infiltrative surface. Evidence of equal distribution must be demonstrated to the satisfaction of the Department for alternate component approval. The draft requirement referred to above appears to be written for the purpose of excluding the use of advanced passive Combined Treatment and Dispersal systems, or at a minimum, hold passive advanced treatment technologies to a different standard. Passive wastewater treatment technologies exist and are utilized throughout the United States as well as in adjoining states and are proven to be effective, require less maintenance, and less expensive. The Pennsylvania DEP has an obligation to review technology in use in the region and across the United States, and as a matter of public policy it should be obligated to adopt any and all technology that has been proved successful in the onsite industry. (25)

Response: Equal distribution of effluent enhances the ability of the soil to remove pathogens by maximizing the surface area used to renovate the effluent, therefore protecting public health and safety and the environment. Additionally, this practice will maximize the life of the absorption area providing cost savings to the homeowner while helping to prevent malfunctions. The Department does not agree that this requirement will restrict the use of “passive” systems.

Topic – Fecal Coliform Standard

- 140. Comment:** The section addressing Microorganisms from STATE OF THE SCIENCE: REVIEW OF QUANTITATIVE TOOLS TO DETERMINE WASTEWATER SOIL TREATMENT UNIT PERFORMANCE, 2009 by the Water Environment Research Foundation provides further support to the shallow limiting zone design approach in Pennsylvania. This document, in addition to the subsequent QUANTITATIVE TOOLS TO DETERMINE THE EXPECTED PERFORMANCE OF WASTEWATER SOIL TREATMENT UNITS 2010 by the Water Environment Research Foundation represents what is likely the most exhaustive and comprehensive characterization of the soil treatment unit to date. From the second paragraph of 2.5.1 Background: “Among the most important OWTS design parameters are the distance to the ground water or surface water, HLR, and/or dosing schedules. Most onsite codes require a separation distance of 45 cm between the infiltration zone of the STU and the seasonal highwater or saturated, irrespective of the soil characteristics (U.S. EPA,2002a). However, the effectiveness of these separation distances can be significantly influenced by the loading rate and dosing pattern, as well as by soil properties, and are not necessarily designed for removal of all types of pathogens.” Considering the above statement addresses the routine application of septic tank effluent, this assertion validates the comprehensive alternative system soil evaluation and design methodology as developed in Pennsylvania over the last 15 - 20 years utilizing secondary treated effluents. (1)

Response: The Department completed a literature review and a review of other states with performance standards. The documents cited in the comment were reviewed by Department staff during the literature review but were not cited. The Department does not agree with the commenter's conclusion that the statements cited don't support the Department's current methodology. Considering more recent scientific and statutory developments, the Department's previous process for the technical evaluation of alternate on-lot sewage systems is no longer sufficient to protect public health, safety and the waters of the Commonwealth, especially with regards to soils with shallow limiting zones consisting of mineral soils less than 20" to a limiting zone.

- 141. Comment:** As noted in a review of technical literature conducted by PA DEP, conventional septic systems use a septic tank to remove settleable solids, then a large horizontal area and a certain thickness of unsaturated natural occurring soil or imported fill to reduce contaminants, including pathogens. The formation of the biomat plays an important role in the reduction of organic contaminants, as well as providing some bacterial removal. Pathogens also continue to be removed throughout the unsaturated zone below the biomat. Indeed, in the unsaturated soil zone forming a conventional soil-based system, pathogenic organisms continue to be physically filtered out in the pores of the sand material and are also adsorbed to the surface of the soil particles.¹ Multiple studies have shown that for each 1 foot depth of unsaturated soil in the bed, a 99% (i.e., 2-log) removal of pathogens is achieved. ² This has been demonstrated both in laboratory column studies as well as in field studies in existing sewage systems. Metcalf and Eddy³ report that typical fecal coliform levels in septic tank effluent are in the range of 10³–10⁶, and by the time the effluent reaches a depth of 1 foot below the bottom of the leach field trench, they are reduced to 0 to 10². Per Tehrani, a 3-log reduction in *E. coli* concentration occurs within the first 3/8-inch depth of soil in the bed.⁴ Lusk, M., Toor, G.S. and Obreza, T. "Onsite Sewage Treatment and Disposal Systems: Bacteria and Protozoa." University of Florida IFAS Extension, 2013. <http://edis.ifas.ufl.edu/ss552.2> Service Ontario Publications, "Septic Smart! Understanding Your Home's Septic System." Booklet Number 1 – AF139, 2011.⁵ Metcalf & Eddy Inc. "Wastewater Engineering Treatment, Disposal, and Reuse." 3rd Edition, 1991⁶ Tehrani, P.S. "Efficiency of Sand Filter Beds for the Removal of Bacteria from Residential Wastewater." University of Guelph, 2009. As mentioned above, imposing standard on fecal coliforms prior to final dispersal into natural occurring soil will unfairly and unintendedly increase the burden on alternative technologies and on homeowners. This will increase the cost and maintenance requirements for the system as well as the risk level related to the multiplication of treatment systems components and system complexity (additional components and electro mechanical devices). PA DEP should, at least for the case of figure that represents the lowest risk level (12" < VS < 20" Group soil II-IV), analyze this from another angle, i.e. evaluate backwardly the level of pathogens from treated effluent that could be applied onto the dispersal area in order to achieve and ensure the level of treatment targeted at the point of final release into the environment (performance boundary). Presence of soil shall not be neglected. If PA DEP maintains its position that fecal coliforms count shall not exceed 200 CFU/100 mL at the performance boundary – after 12" to 20" of soil Group II-IV, and considering that a 12" of unsaturated soil contributes to 2-log abatement of pathogens⁵, concentration in fecal coliforms applied onto the dispersal zone should not exceed 4.3 log, i.e. approximately 20,000 CFU/100 ml. This value is considering only 12" of soil and do not consider that soil depth could reach up to 20". Thus, based on the above, and to prevent and/or minimize the unintended additional burden on alternate technologies and end users, PTA believes that a more reasonable approach would be: Requiring < 20,000 fecal counts at advanced treatment unit effluent, assessed against the mean plus 2 standard deviation (probability of 95%), for site

conditions of a depth to limiting layer between 12 and 20 inches in presence of soil group II-IV. Such level of fecal coliforms standard is consistent with requirements of some other jurisdictions, without limitation, for similar group of soils (group II-IV): • Minnesota: Treatment level B (TLB): < 10,000 CFU/100 mL with soil depth to limiting layer between 18 to 23 inches; • North Carolina: Treatment standard 1 (TS1): < 10,000 CFU/100 mL with only 12" of soil; • Ohio: for < 10,000 CFU/100 mL a foot of soil depth credit is granted. For < 1,000 CFU/100 mL 2 feet of soil depth credit is granted; • Ontario: No requirements for fecal coliforms, minimum soil depth required 12 inches; • Quebec: Class III: < 50,000 CFU/100 mL with only 12" of soil to the limiting layer. Class V: < 200 CFU/100 mL required only for direct surface discharge; • Vermont: No requirements for fecal coliforms, minimum soil depth required 24 inches; • Virginia: No fecal coliforms standard except where soil depth is less than 6". In this case the standard is < 200 CFU/100 mL; 5 Multiple studies have shown that for each 0.3 m (1 foot) depth of unsaturated soil in the bed, a 99% (i.e., 2-log) removal of pathogens is achieved. Lusk, M., Toor, G.S. and Obreza, T. "Onsite Sewage Treatment and Disposal Systems: Bacteria and Protozoa." University of Florida IFAS Extension, 2013. <http://edis.ifas.ufl.edu/ss552>. Service Ontario Publications, "Septic Smart! Understanding Your Home's Septic System." Booklet Number 1 – AF139, 2011. Metcalf & Eddy Inc. "Wastewater Engineering Treatment, Disposal, and Reuse." 3rd Edition, 1991 Tehrani, P.S. "Efficiency of Sand Filter Beds for the Removal of Bacteria from Residential Wastewater." University of Guelph, 2009. In addition, in each of these jurisdictions credit is granted for surface reduction according to level of treatment in term of BOD5 and TSS. Depending on the jurisdiction, this credit varies between 25 to 40% and usually vary by soil type and/or percolation rate. (3)

Response: In October 2017, the Department conducted a literature review of the effectiveness of pathogen removal and inactivation in soils that focused mainly on field cases and experimental studies with secondary treated effluent (PA DEP 2017). The review showed that there are many factors that determine the ability of a soil to remove pathogens, such as: soil type, organic content of the effluent, pathogen content of the effluent, pathogen type in the effluent, pH of the soil and pH of the effluent, soil moisture, organic matter in the soil, microflora in the soil, and depth of soil to groundwater. All these factors play a role in the soils' ability to remove pathogens. It is very difficult to analyze soils on a site to account for all the mechanisms of pathogen removal. A conservative approach to a fecal coliform standard would provide an assurance that systems would be protective of public health and water quality. The selection of treatment standards should consider all the physical, biological and chemical processes in the soils. Some research shows that pretreatment can be substituted for part of the soil depth; however, it is difficult to predict what level of pretreatment is necessary before the discharge to the soil given the variability of relevant soil properties. Some studies (PA DEP 2017) show that higher organic effluent allows for the development of a clogging zone at the infiltrative surface, improving pathogen removal; other studies show that highly pretreated effluent lacks the organic content necessary to develop a clogging zone, thereby limiting the ability of the absorption area to remove pathogens.

In general, the comment only refers to a few of the studies that the Department reviewed as part of the literature review conducted to inform the standard development process. These references and many additional references were reviewed and evaluated in the decision-making process. The Department does not agree that all the commenter's points are supported by the references indicated in the comment. Please note that the link provided to one of the references, Lusk et al. (2013), points to a 2017 updated version and not 2013 version; the Department could only base its review on the 2017 version (Lusk et al., 2011a).

The commenter states on several occasions that “multiple studies” have shown that 12 inches of unsaturated soil contributes to 2-log removal of pathogens. The Department reviewed the four references provided and only one of the references is a research-based study (Tehrani 2009). The Booklet Number 1 AF139 is a factsheet that does not appear to be supported by any research or field study data; the summary from Lusk et al. (2011a) only states “more than 99% removal of bacteria and protozoa in septic systems and the surrounding environment is necessary to protect public health”; and the Metcalf and Eddy 3rd edition book shows a table with the data that the commenter mentioned (FC concentrations of 0-10² MPN/100 ml) and that is no longer included and new editions of the same book (Metcalf and Eddy 4th and 5th editions). Based on the Department’s review of the references, the statement that 12 inches of unsaturated soil contributes to 2-log removal of pathogens is not supported by the references cited.

The commenter’s statement “pathogenic organisms continue to be filtered out in pores of sand materials...” is not consistent with the reference cited. In short, the reference does not refer to all types of pathogenic organisms since it only refers to removal mechanisms of bacteria and protozoa; it does not include viruses which are much smaller.

“Pathogenic organisms” is a very broad category. Lusk et al. (2011a), based their review document on the findings of Stevik et al. (2004), where the physical straining of bacteria and protozoa through soil requires soil pores smaller than the size of bacteria (diameter ranging between 0.2 to 2.0 µm), such as clay, silt, and fine sand. Some factors may decrease the mechanical filtration such as the presence of macropores and high dosing rates; other factors, such as a clogging, may improve filtration. When the soil pores are larger than the size of bacteria, the prevalent removal process is adsorption to soil surfaces. However, the survival rate of bacteria in soils depends on many factors (soil moisture content, pH, temperature, organic matter content, type of bacteria) and ranges from 1-2 days to 100 days (Stevik et al. 2004, Gerba et al. 1975).

Viruses can also be pathogenic, but – unlike bacteria – mechanical filtration by soils is not going to effectively filter viruses, which are much smaller than bacteria. Virus sizes range from 20-300 nm. The two main removal processes for viruses are adsorption on soil particles and inactivation. The environmental factors influencing removal of viruses are listed by Azadpou-Keeley et al. (2003) as: temperature, microbial activity, moisture content, pH, salts, virus association with soil and particulate matter, virus aggregation, organic matter, and hydraulic conditions.

Lusk et al. (2011a) concluded that increasing the distance between the drain field and the groundwater is an effective way to reduce the possibility of pathogens entering the groundwater.

The commenter suggests that the Department’s analysis “neglects” the soils’ ability to effectively remove pathogens. The commenter also suggests that the Department’s should consider fecal coliforms at the infiltrative surface as the starting point, then work the analysis backwards to the typical number of fecal coliforms in septic tank effluent (STE) to determine the fecal coliform standard for disposal of effluent on soils less than 20 inches deep. In proposing this approach, the commenter stated that, based on one reference, the amount of fecal coliform in STE is 10³-10⁶. In reviewing the literature, the Department found that the variability in STE coliform counts varies more than stated in the cited reference. USEPA 2002 reports concentrations of fecal coliform ranging between 10⁶-10⁸ MPN/100 ml for typical raw residential wastewater.

WERF (2009) reports *E. coli* concentrations in the STE in the range of 10^5 - 10^8 #/100ml. Estimated virus concentrations in a septic tank by Canter et al. (1985) and Charles et al. (2003) range from 10^7 to 10^{10} virus particles per liter. WERF (2009) shows enteric virus concentrations in STE in the range of 0- 10^7 #/100ml and an infectious dose of 1 (# of organisms).

Loomis and Kalen (2014) document a wide variability for STE fecal coliform (FC) concentrations in the literature, and note the conclusion of Crites and Tchobanoglous (1998) that ***there is no “typical wastewater” and that data presented as representative of “typical wastewater” should be used only as a general guide.***

	Anderson et al. (1994)	Converse (2004)	Loomis and Kalen (2014)	Crites and Tchobanoglous (1998)
FC (CFU/100 ml)	$10^3 - 10^5$	$9.96E+06$ ($3.5E+03 - 1.1 E+08$)	$9.54E+05$ ($7.6E+04 - 1.1 E+07$)	$10^6 - 10^8$ (MPN/100 ml)
This table has been adapted after Loomis and Kalen (2014) and shows findings from some published literature on the mean and/or range of the septic tank effluent concentrations.				

The following table is adapted after Siegrist et al. (2000) and shows the representative concentrations in effluents applied to wastewater soil absorption systems (WSAS):

	Relative degree of concern over treatment effectiveness of WSAS	Tank-based treatment unit effluent concentrations					WSAS percolate reaching groundwater at 3 to 5 ft depth (% reduction of effluent applied)
		Domestic septic tank effluent-single family dwelling units	Domestic septic tank effluent with N-removal recycle	Aerobic unit effluent	Sand filter effluent	Foam and textile filter effluent	
FC (org./100 ml)	Medium to High	$10^6 - 10^8$	$10^6 - 10^8$	$10^3 - 10^4$	$10^1 - 10^3$	$10^1 - 10^3$	>99.99%
Specific Virus (pfu/ml)	High	$0 - 10^5$ (Episodically present at high levels)	$0 - 10^5$ (Episodically present at high levels)	$0 - 10^5$ (Episodically present at high levels)	$0 - 10^5$ (Episodically present at high levels)	$0 - 10^5$ (Episodically present at high levels)	>99.9%

Although the Department agrees with the commenter that the baseline assumption starts with the assuming wastewater contains 200 MPN/100 ml at the infiltrative surface, the Department does not agree with the commenter’s assumption on STE fecal coliform content and the resulting conclusion that a 20,000 MPN/100 ml standard will sufficiently protect public health and water quality.

The commenter references experimental work by Tehrani (2009) in Ontario, Canada, which was conducted for a master's thesis and was not a peer-reviewed publication. This study was conducted over one year and evaluated the performance of two filter beds with respect to *E. coli* concentrations at different depths within those filters. Both the filter beds had a 750-mm (2.5-ft) thick layer of sand below the distribution pipe and vertical separation of 900 mm (3 ft) to a limiting layer. Samples were collected at three depths: two in the layer of sand (at depths of 1.23 ft and 2.5 ft) and one in the native soil below the sand (at a depth of 3 ft). A STE effluent was applied to a thick layer of sand and the mean *E. coli* concentrations in the STE were 8.5×10^5 and 6.8×10^5 CFU/100 ml at each site respectively, lower than typical concentrations reported in the literature. Tehrani (2009) concluded that most of the removal occurs in the first 1.23 ft of sand filter and that the addition of 0.5 ft of native soil (from 2.46 to 2.95 ft) did not increase treatment significantly. Even if this study suggests that a sand filter bed has a great impact in reducing the *E. coli* concentrations (3-log removal), the observed reduction is strongly influenced by the initial STE *E. coli* concentrations, loading rates, formation of biomat, and characteristics of the sand in the filter bed. Further, the Department could not find in this thesis work any correspondence to commenter's statement that 3/8 inch of soil in the bed is able to provide 3-log reduction of the *E. coli* concentration, in fact no sampling was conducted at such a depth by Tehrani (2009).

Other States Standards

The commenter suggests that 20,000 fecal counts is consistent with the requirements of some other jurisdictions, and lists standards in other jurisdictions. Although some of the listed standards may be similar, they are not same as the commenter-recommended standard, and they are not applied in the same manner across the board. Subsurface on-lot treatment systems have shown to be an effective way to remove pathogens when designed appropriately, accounting for soil type and depth to a limiting zone. Unfortunately, there is no one universally accepted study or research that definitively states based on soil types, soil conditions, effluent quality, groundwater aquifer type, and depth to groundwater, that effluent fecal coliform concentrations should meet a certain standard prior to disposal to the absorption area that will ensure protection (PA DEP 2017).

Many states have set FC standards for soils with depth to a limiting zone of 24 inches or less. The common standards are set to values of 200, 400, 1000, 10000, and 50000 CFU/100 ml as shown in the following table. In general, the standard of 200 CFU/100 ml is reserved for highly permeable soils, depth to limiting zone of less than 12 inches, and when violating horizontal isolation distance to a public drinking water well during repairs. The following table summarizes the fecal coliform standards that the Department has reviewed.

State	FC (CFU/100 ml)	<i>E. coli</i> (CFU/100 ml)
Virginia (2011)		
direct dispersal of effluent to groundwater	2.2	
North Carolina (2007)		
TS-II	<1,000	
TS-I	<10,000	
Washington (2007/2017)		
Level A	200	
Level B	1,000	
Level C	50,000	
Minnesota (2016)		
Level A	1,000	
Level B	10,000	
OHIO (2015)		
For soil depth credits (1)	10,000	5,150
For soil depth credits (2)	1,000	515
Restricted surface application (3)**	200	103
Unrestricted surface application (4)**	20	10
OREGON		
St-2	<400	
FLORIDA (2018)		
Secondary Treat. St.	200 (yr arithmetic mean) 200 (min 10 samples, geometric mean) 400 ($\leq 10\%$ samples in mo.) 800 (max)	
Advanced Secondary Treat. St.	200 (yr arithmetic mean) 200 (min 10 samples, mo.) 400 ($\leq 10\%$ samples in mo.) 800 (max)	
Advanced Wastewater Treat. St.	Below detectable limits see Fl Code Sec. 64E-6.025(2)(d)	

In conclusion, there are multiple factors that influence the removal and inactivation processes of pathogens in a subsurface on-lot treatment system and a widely accepted method to determining how sufficiently any given depth of soil can remove pathogens to ensure protection of groundwater and public health has not been accepted by the scientific community, the regulatory jurisdictions, or the industry to date.

Most concerning is the ability of soils, especially when highly permeable, to remove and/or inactivate viruses without a clogging zone, due to the small sizes and other characteristics of viruses.

Generally, fecal coliforms are significantly removed and/or inactivated by mineral soils with 24 inches or more to a limiting zone. The exceptions are soils with high permeability such as

coarse sand, where 36 inches or more of mineral soils may be necessary to remove and/or inactivate pathogens to an acceptable level before entering the groundwater. For these reasons, standards for FC concentrations are necessary to protect public health when the depth to a limiting zone is less than 20 inches or in cases of highly permeable soils. These standards should be based on soil type, mineral soil depth, and horizontal distance to a public drinking water well.

The Department's approach is still to give soil the credit of part of the treatment, but ensure that the discharge to the absorption area at least meets relevant surface water quality standards. This approach will ensure protection of the groundwater when the most limiting conditions are present, which will protect the wells that are a source of drinking water in many areas in Pennsylvania.

The literature review conducted by the Department includes scientific and technical studies, peer-reviewed journals and conference papers, and excludes fact sheets, Septic Smart booklets, and general knowledge publications for the public, some of which were cited by the commenter. After reviewing the references cited by the commenter, the Department stands by the conclusions of Department's literature review.

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142. Comment: Section IV. D. 2. C.

Should fecal coliform be defined in the draft as a geometric mean instead of an average? Thank you once again for all your work on these two documents and we appreciate your consideration with our request. **(11)**

Response: The Department agrees and has updated the language to address the comment.

143. Comment: What is DEP's statutory authority to for requiring a fecal coliform standard? **(18)**

Response: Section 5(c.2)(1) of Act 537, as amended by Act 26 of 2017 states, in part, that "...the department shall, in consultation with the advisory committee, develop scientific, technical and field testing standards upon which an evaluation of each on-lot sewage system that has been classified as an alternate system in accordance with 25 Pa. Code § 73.72...shall be based." An existing regulation, 25 Pa. Code §§ 73.72(c)(7)(i) and (v), specifies that among the criteria to be considered in the design of alternate systems is the effect upon the groundwater, including the effect of fecal coliform and other degrading material. Based upon this review, the Department determined there is a potential for bacterial and viral contamination of the waters of the Commonwealth, resulting in a potential negative impact to public health and safety.

144. Comment: In addition a fecal limit for various soil groups was established without any supporting data from systems operating in PA. **(20)**

Response: The Department has minimal data on fecal coliforms from alternate systems operating in Pennsylvania or in any state. The proposed fecal standards were developed based upon the Department's literature review and other states' standards where applicable. When the National Science Foundation (NSF) certifies a technology in another state, Pennsylvania may accept the results even though the technology was not tested in Pennsylvania. All the Department's currently approved alternate pretreatment technologies, and aerobic treatment units, except one, were certified by NSF in locations outside of Pennsylvania. If the Department only accepted data from testing completed in Pennsylvania, then these currently approved pretreatment technologies would not be approved.

145. Comment: The use of fecal coliform markers as the measure of success seems out of place and not truly representative of all technologies. I find it hard to see how technologies that work in unsaturated soil conditions can be expected to capture a representative sample at some unknown distance away from the point water enters the soil from the system. Examples of these technologies include subsurface drip dispersal via drip mounds or plow-in and proprietary systems such as those by Eljen. Both technologies have been a successful part of the onsite industry in Pennsylvania. **(23)**

Response: Fecal coliform is not the only parameter used to determine performance of a system; CBOD₅ and TSS are also parameters that will be evaluated. Sewage contains pathogens. Fecal coliform is the widely accepted measure of level of pathogens in sewage effluent. Pathogens in sewage can be harmful to humans. Measuring performance of technology is critical in determining if the technology is protecting public health, safety, and the environment; it is also important as a way to compare similar technologies. The Department has determined effluent sampling is the only method that ensures the technology performs acceptably, and provides an objective and reliable basis on which technologies can be fairly compared.

146. **Comment:** 8)The additional disinfection requirement for these systems for fecal coliform will most likely be done via UV light. This appears to be overkill and another aspect of the system that will require maintenance which may become over looked and not function as intended. It appears this is being required more so to protect surface water in case there is issue with the proposed revised limiting zone depths for alternate systems. (24)

Response: The Department does not dictate the technology necessary to meet the fecal coliform requirement. UV is just one option that is available. If a design includes the use of UV disinfection, then maintenance will be necessary to ensure functionality.

147. **Comment:** What is the Departments rationale for requiring a fecal coliform standard? (3, 15, 17, 18, 21, 22)

Response: Sewage contains pathogens. These pathogens pose a risk to humans when introduced to water supplies (groundwater or surface water). There are many documented cases of disease outbreak caused by improperly treated sewage. EPA's *Source Water Protection Practices Bulletin: Managing Septic Systems to Prevent Contamination of Drinking Water* (816-F-01-021, July 2001) states, "Septic systems (also known as onsite wastewater disposal systems) are used to treat and dispose of sanitary waste." The bulletin goes on to state, "... improperly used or operated septic systems can be a significant source of groundwater contamination that can lead to waterborne disease outbreaks and other adverse health effects." One of the questions posed by SAC was, "If sewage is currently contaminating ground water then why aren't there more documented cases of sickness and disease caused by sewage contaminated drinking water?" Mild gastrointestinal illness is often unreported since it can be treated with over-the-counter medicine. If the gastrointestinal illness does require a visit to physician, it is unlikely that the cause of the sickness is contemplated or even discussed. In January 2008, the Ohio Department of Health released a *Report to the Household Sewage and Small Flow On-site Sewage Treatment System Study Commission*. The Ohio Legislature directed the Department of Health to prepare a comprehensive analysis and report on the types of alternative systems. The report describes literature that the Center for Disease Control and Prevention (CDC) has published on "... disease outbreaks and epidemiological studies related to failing onsite sewage systems." The CDC survey indicates the following trends have been related to outbreaks: 1) intermittent use of drinking water and wastewater systems (fairs and gatherings); 2) onsite sewage systems installed in unsuitable soils or vulnerable geologic conditions; and 3) extreme precipitation events such as storms and hurricanes.

Subsurface on-lot treatment systems have shown to be an effective way to remove pathogens when designed appropriately, accounting for soil type and depth to a limiting zone. Unfortunately, there is no one universally accepted study or research that definitively states based on soil types, soil conditions, effluent quality, groundwater aquifer type, and depth to groundwater, that effluent fecal coliform concentrations should meet a certain standard prior to disposal to the absorption area that will ensure protection. Currently DEP does not require the effluent from on-lot systems to meet a fecal coliform standard when disposing the effluent to subsurface soil absorption. To assess the most up-to-date science on the soils' ability to remove pathogens, the Department completed a literature review, and a review of other states with performance standards (Literature review of pathogen removal and inactivation in soils, First Draft October 2017). Based upon this review, the Department determined there is a potential for bacterial and viral contamination of the waters of the Commonwealth, resulting in a potential

negative impact to public health and safety. Here is the verbatim copy of the conclusions drawn in the literature review document:

- The states that have fecal coliform standards, (WA, OH, MN, NC) tended to reserve these standards for soils of 24 inches or less to a limiting zone. The standards range from 200 to 10,000 CFU/100 ml. Of the four states WA appears to have done the most research on the use of performance standards including fecal coliform. WA reserves the highest pretreatment and fecal coliform standard, 200 CFU/100 ml, for highly permeable soils, depth to limiting zone of less than 12 inches, and when violating horizontal isolation distance to a public drinking water well during repairs. MN appears to have used WA's standards and other regulatory language in their regulations.
- There are many factors that determine the ability of a soil to remove pathogens; soil type, organic content of the effluent, pathogen content of the effluent, pathogen type and counts in the effluent, pH of the soil and the effluent, soil moisture, organic matter in the soil, microflora in the soil, and depth of soil to groundwater all play a role in the soils ability to remove pathogens. It is very difficult to analyze soils on a site to account for all the mechanisms of pathogen removal. A risk-based approach to a fecal coliform standard would provide an assurance that systems would be protective of the public health and water quality.
- Higher organic effluent allows for the development of a clogging zone at the infiltrative surface improving pathogen removal.
- Highly pretreated effluent lacks the organic content and bacteria necessary to develop a clogging zone, thereby limiting the ability of the absorption area to remove pathogens.
- Due to size and characteristics of viruses, the soils ability to remove and/or inactivate them without a clogging zone, is limited. Highly permeable soils further inhibit the removal and/or inactivation of viruses.
- A properly operating secondary or advanced pretreatment should result in a minimum of 3-log removal of pathogens as compared to primary treated effluent.
- Increasing infiltration loading rates when using highly pretreated effluent, thereby reducing the size of the absorption area, may result in inadequate pathogen removal especially in soils with high permeability and/or with minimal vertical separation to groundwater.
- Time dosing with even distribution increases the ability of the absorption area to remove pathogens from pretreated effluent.
- Generally, fecal coliforms are significantly removed and/or inactivated when you have mineral soils of 24 inches or more to a limiting zone. The exception are soils with high permeability such as coarse sand, where 36 inches or more of mineral soils may be necessary to remove and/or inactivate pathogens to an acceptable level before entering the groundwater.
- Fecal Coliform reduction is necessary to protect public health and safety in highly permeable soils and when mineral soil depth is less than 20 inches to a limiting zone.

- The level of fecal coliform reduction needed should be determined by soil type, mineral soil depth, and horizontal distance to a public drinking water well.
- There is no simple method for determining when a soil can remove pathogens to a level that will ensure protection of ground water and public health and safety. There are too many factors that influence the process of removal and inactivation of pathogens to develop a one size fits all performance standard for every situation.

Systems sited on soils with shallow limiting zones or highly permeable soils are the highest risk situations. The Department's determination of a fecal coliform standard assumes that the treated effluent should meet the Pennsylvania water quality standard for bacteria at the infiltrative surface (i.e., before effluent meets the soil). Although the existing water quality standard is based on the risk of human contact rather than treatment for prevention of contamination via groundwater discharge, given that in most cases, the effluent will be provided some treatment in areas down gradient prior to reaching surface waters or groundwater, then 200 MPN/100 ml at the infiltrative surface will be sufficiently protective. The Department must reiterate that the soils' ability to remove pathogens from effluent is dependent on several uncontrollable attributes, so the Department must rely on the advance pretreatment system component for most of the fecal coliform removal.

Topic – Alternate Approval

- 148. Comment:** 1. Exception to the certification requirement "Incapable" as inserted below is too vague and opens the door to interpretation. The intent of this word must be defined. Costs related to certification shouldn't be a good enough reason to support such "incapability". All proprietary "pretreatment" systems must be designed to allow sampling/performance verification under controlled conditions (certification program) and uncontrolled conditions (field testing and audit). P.5, Section IV. A. 1 and 2: "... If a technology is incapable of being certified ..." and P.6, Section IV. D (that should be B), Step One, 1.: "Proprietary technologies that are incapable of being certified and non-proprietary technologies will proceed to step two ..." **(3)**

Response: The Department has removed this language.

- 149. Comment:** Page 5. First full paragraph, states that if a system is approved as a non-proprietary and then becomes a proprietary system it must be re-approved. Why? That makes no sense. It only increases costs of the system, wastes the manufacturer's, certification agency's and DEP's time. You can't be serious unless again the purpose of this document is to discourage or eliminate the use of alternate systems. And to repeat myself where is the procedure for a system, to be relisted as conventional it still could be proprietary and be conventional. Oh yes, that 25% of the Act was ignored. **(17)**

Response: The Department has removed this language.

- 150. Comment:** Page 6. Section D. Step 1. There Is no time limit on DEP. DEP has and could sit on an approval for ever with no recourse to the manufacturer. **(17)**

Response: The Department considered time limits for inclusion in the TVP TGD but decided against them. The reasoning was due to the new process and unknown time it will take to review the submittals. When the Department has reviewed the currently approved alternate technologies

and have determined a reasonable time limit based upon those reviews, the Department will establish a time limit and either update the TVP TGD or provide the information in procedures (e.g., forms and other informative documentation) to the manufacturers.

Topic – Sampling

- 151. Comment:** General comment: I hope that during both the Field Testing Verification process as well as during the Annual Performance Audit process that consideration is given to the strength of influent sewage being generated at the sites. Pretreatment technologies are designed for a certain strength of sewage, and certification testing may have requirements for minimum/maximum raw sewage strength. Over the past 20 years we have seen a consistent trend across many jurisdictions of increasing sewage strength at individual houses. This is the result of houses increasingly implementing water conservation measures such as low flow toilets and other fixtures, as well as general increased awareness towards water conservation. With the same number of people at a house but less water usage the raw sewage is more concentrated. Where raw sewage concentration is high, percent removal and mass loading levels of performance can remain high, but effluent concentrations can also be high. This is not a reflection of the technology but the homeowner habits. I would recommend that samples be taken of septic tank/pretreatment tank effluent (and mass balance calculations be done for sites where recirculation is used) to ensure that the sewage strength is within an acceptable range. We do not want to discourage water conservation measures since there are other greater environmental benefits of doing so, however we must acknowledge that such measures have negative impacts on the concentrations of treated effluent, regardless of type of system. **(13)**

Response: The point of field testing, the annual performance audit, and annual performance monitoring is to verify the on-lot technology can meet the required standard under varying conditions such as higher strength domestic sewage due to water conservation devices. If known by a manufacturer that under certain conditions the technology will not perform at the standard required, then this will need to be noted in the approval and communicated to installers, service providers and homeowners.

- 152. Comment:** However the Department has increased the testing requirements for the approval of existing and proposed alternate systems in PA. This includes the use of composite sampling which is not practical for an individual on lot waste water treatment system and an annual audit of all alternate systems. These requirements will discourage the use of innovative and alternate technologies in PA. **(20)**

Response: The Department agrees that the testing requirements for approval will increase since currently there are no testing requirements for alternate approval. The Department does not agree that composite sampling is not practical since on-lot systems in other jurisdiction are currently performing composite sampling. Composite sampling may be more difficult to perform on some types of systems, but the Department is willing to work with all system types to address specific challenges. Composite sampling provides a more representative evaluation of the performance of a system by showing performance over an extended sampling period. The results of composite sampling will provide a more realistic snapshot of system performance. Alternatively, the Department considered a grab sampling requirement from a greater number of systems; however, composite sampling of only a few sites was selected rather than a grab sampling from many sites since the former approach limits the impact on the owners of the systems. The data collected through the audit process also allows the Department to evaluate the

system over the long term, and will allow the Department to determine if an alternate system should be classified as conventional. For those systems not seeking classification as a conventional system, but maintaining alternate classification, sampling will be completed by a service provider on all alternate systems installed and will be grab samples not composite samples.

- 153. Comment:** 47. Incorporate a monitoring and evaluation technique that will take into account the benefits of item 6 above as it relates to those onlot treatment and dispersal systems that are legitimately effective at dispersal.

This document seeks to require all systems, including those that actually are effective at true dispersal of wastewater over the entire absorption area and that exhibit unsaturated flow characteristics (like drip irrigation and Eljen), to collect relatively large sample volumes for effluent quality testing. These technologies have succeeded in reaching a semblance of unsaturated flow over an entire absorption area, thereby enhancing performance and in doing so have severely restricted their ability to collect sample volumes necessary for conventional laboratory evaluation of performance. **(21)**

Response: The Department believes the only way to effectively verify performance is through effluent sampling and testing. Without this data it is impossible to verify performance in the field. The Department is willing to work with manufacturers of absorption bed technologies to determine an effective collection and sampling process for these technologies that verifies performance and allows for an equal evaluation of all the technologies. Eljen has performed sampling and testing as part of the NSF/ANSI 40 testing protocol, which shows that it is possible.

- 154. Comment:** Many rural areas do not have water laboratories available to the public. This results in the need to transport coliform samples long distances. As rural areas are more likely to employ shallow-limiting zone systems, it may be necessary to have two or more technicians present during the testing to ensure the samples are delivered within the proper holding time. (Again, raising the costs to the manufacturer.) **(28)**

Response: National Environmental Laboratory Accreditation Program (NELAP) accredited labs are acceptable labs for sample analysis. Also, many wastewater treatment plants have DEP and/or NELAP accredited labs that would be acceptable locations to have samples analyzed.

- 155. Comment:** The Department should expand the list of approved laboratories to include laboratories NELAC approved. **(12, 17, 28)**

Response: The Department has expanded the list as proposed by your comment to include the National Environmental Laboratory Accreditation Program (NELAP).

Topic – Alternate Technology Certification

- 156. Comment:** Utilizing existing standards, testing and certification, as applied in many other states without the further layers proposed in the draft TVP offers substantial benefits. It reduces the burden of PA DEP staff in technology reviews, reduces the time to achieve treatment system approvals, reduces the cost burden of treatment system manufacturers, enhances the number of alternative onlot technologies available to SEO's, municipalities, and homeowners, while

continuing to provide proper wastewater treatment with demonstrated measures of performance and compliance.

Many of the elements of this well-established model are already included in the proposed TVP. They include the following:

1. Consensus, comprehensive American National Standards for the testing and evaluation of residential wastewater treatment systems and components: (partial list)

- NSF/ANSI 40 Residential wastewater treatment systems
- NSF/ANSI 245 Wastewater treatment systems – nitrogen reduction
- NSF/ANSI 350 Onsite residential and commercial water reuse treatment systems
- NSF/ANSI 360 Water Treatment Systems – Field Performance Verification

Comprehensive test reports are issued by the third-party product certification bodies to the product manufacturer who can then share them with the DEP.

2. Accredited third-party product certification bodies that test and certify treatment systems to the American National Standards, both for initial performance and ongoing field performance, including for example NSF International and Gulf Coast Testing, LLC.

Both these organizations publish comprehensive certification policies which detail the responsibilities and contractual obligations of the product manufacturer. The certification bodies are further audited against these policies, and to international standards by accreditation authorities to ensure they fulfill their obligations as a certifier.

3. Accreditation organizations that evaluate laboratories and third-party product certification bodies to international standards, and to their specific scope of testing and certification services. The most recognized body in the US is the American National Standards Institute (ANSI).

Requiring that alternative onlot treatment systems be certified to the appropriate NSF/ANSI Standard by an ANSI accredited third-party product certification body provides all the following and more:

- Comprehensive and extensive testing and evaluation to demonstrate, under standardized conditions with daily oversight and analysis, the effluent treatment performance of the system when loaded at the maximum daily rated capacity, without allowance for service, maintenance or repairs for a minimum six month period.
- Annual audits of the product manufacturer's production locations, ensuring the system being sold is the same as the system evaluated and certified.
- Ongoing evaluation by the third-party certifier of all product manufacturer requested changes and modifications prior to use in certified systems.
- Requirement of the product manufacturer to maintain and provide a complete list of their authorized representatives responsible for installation, service and maintenance of systems.

- Required visits every six months by the manufacturer or their authorized representative to every installation for the first two years, the cost of which is included in the original purchase price of the system. During each visit the electrical, mechanical, and other applicable components are inspected, adjusted, and serviced, along with an effluent quality inspection for color, turbidity, scum overflow, and odor.
- Requirement that the product manufacturer or their authorized representative make available to the homeowner a long-term service policy that continues the regular site visits to evaluate ongoing performance and provide needed service, maintenance or repairs.
- Required warranty by the manufacturer that all components of the treatment system be free from defects in material and workmanship for a minimum of two years from the date of installation.
- Annual audits of a minimum of four of the manufacturer's authorized representatives, as selected by the certification body, including three installations each to ensure service related obligations are being fulfilled, along with observations of performance and evaluation of system components.
- Investigation of the product manufacturer for any complaints received regarding system performance, service and maintenance.
- Public notices, recalls and other measures of enforcement of the product manufacturer, if warranted.

All the above is available to the DEP for treatment system evaluation and approval, as it is to all states.

In consideration of the extensive requirements already applied to alternative onlot treatment systems when certified to the appropriate NSF/ANSI Standard by an ANSI accredited third-party product certification body, and the acceptance of these requirements by other states, I encourage the Department to reconsider the additional requirements proposed in the TVP, and the alignment with the goals of Act 26. **(6)**

Response: The Department has reviewed the requirements under NSF/ANSI 40/245/350 certification. The additional "requirements" listed in this comment are not included with the certification and would come at an additional cost to the manufacturer. The Department has determined that NSF/ANSI certification without these additional requirements is not sufficient to ensure certified on-lot sewage systems perform adequately in the field over the life of the on-lot sewage system. The Department developed the field testing and performance audit protocols to ensure the certified on-lot treatment technologies are performing at a level that protects public health, safety and the waters of the Commonwealth. The Department investigated the commenter's suggestion and determined no corresponding update to the TVP TGD is necessary.

- 157. Comment:** 1. With regards to section IV. Technology Application Review Process, specifically the Step One requirements regarding certification data review, I suggest inserting the following requirement as item 2. a.

2.a. Certification testing sites must have occurred in the Commonwealth of Pennsylvania or in a climate similar or colder than the Commonwealth of Pennsylvania.

Rationale: In order to evaluate whether certification testing data (NSF or BNQ) will be representative of expected results in the Commonwealth of Pennsylvania, it is necessary that the certification data being evaluated was conducted in a climate similar or colder to that of PA.

This change would require that certification data considered by the PA DEP was performed in a climate similar or colder than that of PA. **(13)**

Response: The Department agrees and has updated the language to address the comment.

- 158. Comment:** 2. With regards to section IV. Technology Application Review Process, specifically Section A.2. requirements regarding exceptions to the certification requirement for currently classified pretreatment alternate systems, I suggest the following changes to Section A.2.:

A.2. An exception to the certification requirement may be granted for currently classified pretreatment alternate systems/components that were on the Alternate Systems Listing prior to September 18, 2017, and for which certification testing has not been performed, to the same performance standard(s) as previously classified. Manufacturers of these alternate systems/components may submit field testing data in lieu of certification data. The field testing data should meet the standards set forth in the field testing verification protocol referenced in this guidance.

Rationale: While consideration should be granted to technologies that have previously been approved by the PA DEP, the proposed changes by the DEP include new performance standards (specifically levels of pretreatment D-1 to D-4 for fecal coliform removal, as well as levels of pretreatment N-1 to N-2 for total nitrogen reduction). Presumably these new performance standards for fecal coliform and total nitrogen would not have been considered when currently classified pretreatment alternate systems were evaluated, and as such previous approval status should have no bearing on the approval status for these new performance standards.

This change would allow previously classified pretreatment technologies to be exempt from the certification requirement for only the same level of pretreatment they had previously been classified for (e.g. advanced treatment). Previously classified technologies would not be exempt from the certification requirements for performance standards they had not been previously approved for such as D-2 fecal coliform removal. **(13)**

Response: Previously approved alternate technologies which have not been certified by an approved certification organization may submit field testing data in lieu of certification data. The field testing data should meet the standards set forth in the Field Testing Verification Protocol before Department approval may proceed. In addition, the Department may require additional documentation for these technologies.

159. Comment: The Department should require NSF 45 standard for colder weather. **(12, 30)**

Response: The Department is not aware of an NSF 45 standard or any NSF standard that was specifically developed for cold weather.

160. Comment: The Department should expand the list of certification organizations to include ANSI certified testing organizations. **(9, 12, 17)**

Response: The final TVP TGD was updated to include ANSI and other appropriate certification organizations.

Topic – Reclassification of Alternates as Conventional

161. Comment: If reclassified as a conventional system, do the audits cease? **(17)**

Response: The process for reclassification of an alternate technology to a conventional technology will need to be included in a regulatory update. It is the Department's intention to update the regulations so that the performance audit can be discontinued once an alternate technology becomes conventional.

162. Comment: General Comment 4. Act 26 states ***“3) If, based on the review specified in paragraph (2), the department determines that there is sufficient scientific, technical and field testing data to reclassify an alternate system as a conventional system, the department shall reclassify the alternate system as a conventional system.*** This document is incomplete as it is completely silent on the reclassification of any alternate system as a conventional system. Again, it appears the Department attempted to discourage the use of current Alternate Systems in that it ignored the provisions in the Act to develop a process by which alternate systems could be reclassified as Conventional Systems. To this point, Drip Dispersal has been approved as an alternate system in Pennsylvania since at least January 4, 2010 and I have documents that indicate the approval for Drip Dispersal goes back to early 2005. One would think that there would be “sufficient scientific, technical and field testing data to reclassify” drip dispersal systems as conventional. Indeed, Micro Mound systems have also been approved since at least January 4, 2010. There are hundreds of Micro Mound systems located in the Southeast Region of DEP. There is no indication that these systems are not operating properly. **(17)**

Response: Section 5(c.2)(3) of the Pennsylvania Sewage Facilities Act, as amended by Act 26 of 2017, states, “[i]f...the department determines that there is sufficient scientific, technical and field testing data to reclassify an alternate system as a conventional system, the department shall reclassify the alternate system as a conventional system.” The TVP TGD provides the foundation for an alternate system to be reclassified as a conventional. The process for reclassification to a conventional system needs to be included in a regulatory update and cannot be defensibly accomplished in a TGD.

163. Comment: 8. Act 26, (c.2)(3) states that, “If, based on the review specified in paragraph (2)[of the Act], the department determines that there is sufficient scientific, technical and field testing data to reclassify an alternate system as a conventional system, the department shall reclassify the alternate system as a conventional system.” This section of the Act clearly supports comment #1 above and indicates that the legislature expects alternate technologies to be able to

perform to the level of conventional systems. Please incorporate the mechanism by which this reclassification will take place. (21)

Response: The TVP TGD provides the foundation for an alternate system to be reclassified as a conventional system. The Department does not agree with the commenter's statement that "the legislature expects alternate technologies to be able to perform to the level of conventional systems." The legislature did not express any such expectation in Act 26 of 2017. The legislature clearly stated in Act 26 that an alternate system could be classified as a conventional system only if there is sufficient scientific, technical and field testing data to reclassify such a system as a conventional system.

164. **Comment:** How will the Department address the requirement in Act 26 to reclassify alternate technologies as conventional when the Department has determined that there is sufficient documentation to do so? (14, 17)

Response: The TVP TGD provides the foundation for an alternate system to be reclassified as a conventional system. The process for reclassification of an alternate technology to a conventional technology will need to be included in a regulatory update.

Topic – Other

165. **Comment:** In December 1998, American Manufacturing (AMC) submitted an application to the Department for formal approval of five alternative and experimental system configurations and design methodologies utilizing drip dispersal. AMC was involved at that time at the DEP "Research and Demonstration Center for On-Lot Systems and Small Flow Technology" with one of the proposed system configurations being evaluated by Delaware Valley College, acting as a third party. In the summer of 1999 an interim letter of Alternative approval was issued by DEP specific to the AMC "PercRite®" Drip Dispersal System utilizing secondary pretreatment. Excepting the 20" total depth requirement and the requirement for secondary pretreatment, the criteria and guidance at that time was minimal. Over the next several months we worked with the Department and "the project" developing specific criteria and guidance. In addition, at the Departments request, we assisted in the development of criteria and guidance for application of the AMC "Perc-Rite®" Micromound as an Experimental System. Both of these systems were contained in the January 2000 Alternative and Experimental Guidance (3620-BK-DEP2171). The field experimental evaluation of the Micromound was conducted by the Department. Issuance of permits was ceased in 2006 and the evaluation continued. In June 2008 application was submitted to the Department for an alternative listing for the "Perc-Rite®" Drip Dispersal System utilizing anaerobic effluent. Application support included performance at the DEP "Research and Demonstration Center for On-Lot Systems and Small Flow Technology" at Delaware Valley College as reported in the second report. Additional information was submitted including university research, government studies, as well as proprietary approvals from three states. In 2010 Alternative Listings the Department issued for "Perc-Rite®" Drip Dispersal System utilizing anaerobic effluent in the traditional in ground application with a 24" total soil depth requirement and as a fluid handling system in the Micromound in "shallow limiting zone" application. In 2012 all three listings; secondary in ground, anaerobic effluent, and the Micromound were issued to another manufacturer without hardware performance verification and field testing in Pennsylvania. Needless to say, at this point AMC is at a loss concerning the ramifications of On-Lot Wastewater Technology Verification Protocol (TVP) / Document No.: 385-2208-003 to our status in Pennsylvania. (1)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 166. Comment:** Many of the reviewer comments correctly identify that the fundamental purpose of the legislative action resulting in Act 26 was to allow the use of approved Alternative systems in new land planning. AMC had no involvement in the legislative action and has never advocated a position in the process of a state or locality in community planning. We have offered advice when asked regarding alternative systems, typically of a technical nature. It is up to the community to determine the character and pattern of future development. The sense I got from the first full SAC meeting last fall addressing Act 26 and the May 6th meeting was the application of approved Alternatives on existing lots of record and repairs would not be affected. AMC certainly hopes so. **(1)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 167. Comment:** The 2002 EPA Design Manual (Chapter 5) outlines boundary design with three hydraulic mass loadings regarding the management of the STU. The hydraulic mass loadings are the infiltrative surface, instantaneous, and contour (Hydraulic Linear). In Pennsylvania, the shallow limiting zone soil evaluation criteria and its application in system design, in particular the “Perc-Rite®” Micromound, address the application of these mass balances as current in place standard of practice. In addition, there is a requirement for a site characterization and morphological soil evaluation by a qualified soil scientist. Pennsylvania shallow limiting zone systems infiltrative surface loading rates mirror the EPA loading rates for septic tank effluent as well as standard in ground trench and mound loading rates. There is additional conservatism as there are no increases in loading rates for pretreatment. Instantaneous loading is how the effluent is applied to the infiltrative surface. Distribution to public domain atgrade designs is provided by conventional Chapter 73 low pressure distribution with standard orifice separation of 6’ and a very high ratio of orifice to square footage. In the case of the Micromound, the instantaneous dosing is provided with drip dispersal at a very high orifice density (one emitter per 1-2 ft²) at a low flow rate / volume. In addition, the Micromound incorporates flow equalization and average flow / peak flow dosing to insure applications are spread throughout the 24-hour day. Contour or Hydraulic Linear Loading is applied to all shallow limited zone system designs with specific criteria. In my experience, few jurisdictions have consistently applied these three mass balances in soil evaluation and design as thoroughly and consistently statewide as in Pennsylvania for such an extended period of time. **(1)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 168. Comment:** Materials were provided by DEP to the Sewage Advisory Committee Act 26 work group prior to the issuance of the above protocol and guidance. Some of the discussion and concern as presented in the literature regarding pretreated effluent lack of biomat formation thus allowing ready flow into the soil column is well stated and summarized. Most importantly, time dosing (flow equalization) and “even” distribution is correctly identified as enhancing the ability of the Soil Treatment Unit (STU) to remove pathogens. **(1)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

169. **Comment:** We appreciate and commend staff regarding the challenges faced in this accelerated time line. (1)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

170. **Comment:** I represent Water Tomorrow Consulting LLC, a firm that assists treatment system manufacturers in meeting various market requirements including government approvals, third-party product testing and certifications. Previously, I was employed by NSF International for 30 years. From 1994 to 2015 I was responsible for managing NSF's wastewater treatment unit testing and certification program, including a lead role in developing NSF/ANSI standards for onsite wastewater treatment systems. I remain today a voting member of the standards setting committee. (6)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

171. **Comment:** Dear Mr. Patel, Clearstream Wastewater Systems, Inc. (Clearstream) has been in the residential wastewater treatment business for 85 years, starting as installers and for the past 30 years manufacturing advanced treatment technologies used nationwide. Since 1985 Clearstream has been undergoing field verification in various locations with repeated demonstration of performance, in addition to having many local installers and maintenance providers. Our systems meet the highest effluent quality of national standards for BOD5, TSS, Total Nitrogen and Fecal Coliform, having been tested and certified to NSF/ANSI Standards 40, 245 and 350 by recognized, third-party accredited national organizations. (8)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

172. **Comment:** Thank you for providing our organization with the opportunity to comment on the draft technical guidance document Onlot Wastewater Technology Verification Protocol (#385-2208-003). The Pennsylvania Association of Sewage Enforcement Officers ("PASEO") is a non-profit, 501(c)(6) professional association representing the needs of certified sewage enforcement officers ("SEOs") across the Commonwealth. Our membership of 400+ individuals consists of SEOs who work in a regulatory capacity for a local agency as well as those in the private sector who consult and design onlot wastewater systems. (12)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

173. **Comment:** PASEO is pleased to see that the Department is developing a testing program to verify that onlot sewage system technologies work effectively. However, we do have questions whether the draft technical guidance document represents the best approach. (12)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

174. **Comment:** Thank you again for the chance to share the perspective of our organization. If PASEO can be of any assistance to the Department in resolving the issues raised in these comments, please contact our offices. (12)

Response: Thank you for your offer; the Department will keep that in mind in the future.

175. **Comment:** To all concerned parties, the below comments are intended to reference Document Number 385-2207-001 and Document Number 385-2208-003. The below comments cover system site requirements and TVP approved component / system implementation. From Document Number: 385-2208-003 Page 3 Pretreatment systems approved via the TVP that meet the required treatment standards may also be systems that will be eligible for coverage under PAG-04 - National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from Small Flow Treatment Facilities (SFTFs). Systems authorized under this permit are typically for residential sewage flows of 2,000 gpd or less. The treatment standard the system must meet to be considered an SFTF under the general permit is advanced treatment and Treatment Level D-3 for Fecal Coliform (See Page 15 Appendix A: Onlot Pretreatment Technology Performance Standards for a list of Performance Standards). Comments: (1) Please consider the use of these approved TVP pretreatment systems to also be used in the design / construction of an IRSIS on soil conditions with a limiting zone of $\geq 10''$. Previously some of the alternate technology listings were being accepted as an alternative to the use of sub surface intermittent sand filters, but as of the summer of 2017 designs containing anything except the sub surface intermittent sand filters were being denied. (2) Current IRSIS effluent discharge standards are defined as follows: "Secondary Treatment" – CBOD 25mg/L (max.), TSS 30mg/L (max.), Fecal Coliform Level D-3 $>20''$ Limiting Zone, $\leq 12\%$ Slope, 3 Bedroom Home, = Minimum 10,000 sqft absorption field. $\geq 10''$ up to $20''$ Limiting Zone, $\leq 12\%$ Slope, 3 Bedroom Home, = Minimum 20,000 sqft absorption field. Annual lab testing is required. (3) The pretreatment systems approved via the TVP that meet the required treatment standards will have proven to have met the "Advanced Treatment" effluent standards of CBOD $<10\text{mg/L}$, TSS $<10\text{mg/L}$, and Fecal Coliform Level D-3. This should eliminate the need for additional IRSIS annual effluent lab testing at the homeowner's expense. (Monthly chlorine samples will still need to be recorded.) (4) Due to the fact that these pretreatment TVP approved systems will require no additional effluent soil remediation, a reduction to the IRSIS absorption field size should be reduced to at least the minimum of 10,000 sqft which is currently being applied to $>20''$ limiting zone soils. This will greatly help in placing an IRSIS absorption field on a limited sized property and continue to allow this proven conventional method of effluent discharge to be a viable option that will be equal to the Alternate Technology absorption areas. (5) SEO's currently have the ability to permit construction of an IRSIS on $\geq 10''$ limiting zone soils, continuing this practice will eliminate the need for additional soil scientist soil evaluations whenever an IRSIS constructed with an approved TVP component is proposed. (6) Residential SFTF's currently have three methods of effluent discharge listed on Component 3S submission forms, (1) Spray Irrigation (2) Dry Channel Discharge (3) Perennial Stream Discharge. This indicates that spray irrigation is already considered a viable option on marginal site / soil conditions when "Advanced Treatment" effluent standards are implemented. Due to this fact allowing the use of TVP approved systems capable of "Advanced Treatment" effluent standards on soils $\geq 10''$ limiting zones would actually represent no change in DEP policy, only clarification. (16)

Response: Although the comment references the TVP TGD, the comments are directed towards the use of individual residential spray irrigation system which were not considered in this guidance document.

176. **Comment:** As for specifics: Page 1. First paragraph states “to revise the sewage planning process....” There is nothing in Act 26 about planning so to borrow a phrase from Mike Lane that is a lie. (17)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

177. **Comment:** If history on how the department, post the elimination of the Bureau of Community Environmental Control, operated, the department will take these comment, post their prefabricated response on how only DEP knows best and will approve these policies. We would then be in a situation where we were better off without Act 26 than with it. This may sound argumentative, dismissive or just plain angry, but I have seen this department operate when CEC existed and after; it was much better before as CEC’s priority was to fix problems not make them. There is uniform distrust of DEP and these two policies clearly demonstrate why. (17)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

178. **Comment:** The new modification contains many unnecessary and confusing alterations. These changes are not needed and have no place in this document. (17)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

179. **Comment:** PSMA would like to assist with the development of a practical operation and maintenance program for existing and new waste water treatment systems in PA. (20)

Response: Thank you for your offer of assistance.

180. **Comment:** Background: An internal June 2005 email between DEP staff members set the stage for restrictions on the usage of alternate onlot sewage systems for new land development planning, a process that had been sporadically allowed prior to that email. Since June 2005 until the passage of Act 26 of 2017, repeated requests were made by individuals and organizations including the PA Sewage Advisory Committee and the Citizens Advisory Council for DEP to develop a mechanism within the existing regulatory structure to allow for the usage of these systems for new land development planning. Although there is significant difference of opinion, the regulated community was told, by DEP, that there was no mechanism within the current regulations or Act 537, the PA Sewage Facilities Act, to allow for the use of alternate onlot systems for new land development planning. In an effort to clarify the legislature’s desires on this matter, Act 26 of 2017 was passed clearly directing DEP to allow alternate onlot systems for new land development planning. The Senate bill that became Act 26 had died in the previous legislative session but was re-introduced in the session in which it was passed. It is of significant note that the original Senate bill contained no language for performance standard development. The performance standard language was a late amendment to the bill in the House version and added complexity and the opportunity for additional regulatory interpretation. (21)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 181. Comment:** The comments contained in this document are my own. The two documents are very flawed and it would be very sad to see these imposed in Pennsylvania. In addition, the flaws in the document will make the local agency, developers, and PADEP vulnerable to litigation. We need to implement on-site wastewater management in Pennsylvania, based on sound science and law, not failed court actions or out of court settlements. If you have any questions, please contact me at (570) 335-1947 or bfenviro@ptd.net. (22)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 182. Comment:** Dear Mr. Schlauderaff, We prepared these comments as it relates to the Proposed PADEP Documents Numbered 385-2207 -001 and 385-2207-003. Based on our review of the documents, we disagree with the scope, conclusions, and the approach as outlined by these documents. After reading these documents, we found it necessary to return to the trigger that started this process. This trigger was the passage of Act 26 by the PA Assembly in 2017, which was a very basic 2 page document. The document stated “for the purpose of submitting a plan supplement or plan revision for a new land development, the applicant may submit and the department shall accept, for the purpose of satisfying general site suitability requirements, any conventional or alternative on-lot system permissible by a sewage enforcement officer”. The document did highlight the need to develop and review existing procedures and did give the department the ability to review existing alternative systems and potentially add or remove some from the list. We also reviewed Docket No. 82-238-M that relates to the Sussex, Incorporated case that was cited in the document. When we reviewed the PADEP’s website, we found the following statement regarding Act 26. “On July 20, 2017, Act 26 was signed into law as an amendment to the Pennsylvania Sewage Facilities Act (35 P.S. § 750) (Act 537). Act 26 amends Act 537 to allow alternate on-lot sewage disposal systems to be proposed during the sewage facilities planning process for new land development. Act 26 also requires the Department to develop a review methodology for alternate systems and to apply that methodology to all the existing alternate systems on the web listing in consultation with the Sewage Advisory Committee. Act 26 takes effect on September 18, 2017. The Department must have the review methodology in place within 180 days from the effective date, or by March 16, 2018.” (22)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 183. Comment:** Thank you for the opportunity to comment. The Region 2 PASEOs are eager to provide assistance to ensure the long-term reliability for onlot wastewater management in Pennsylvania. We all live downstream! (22)

Response: Thank you for your comment and your willingness to assist.

- 184. Comment:** The Northeast Region, or Region 2, is comprised of PASEOs that provide direct or indirect technical services to the municipalities and the public in Carbon, Lackawanna, Luzerne, Monroe, Pike, Schuylkill, Susquehanna, Wayne, & Wyoming Counties. At our regional meeting on May 3, 2018, we discussed these guidance documents, reviewed the comments from

Mr. David Horvat, i.e., current President of the Pennsylvania Association of Sewage Enforcement Officers, and reviewed the comments of the PA Association of Professional Soil Scientists, PSATS, Sewage Advisory Committee, Dingman Township Board of Supervisors, and the North Central Sewage Agency. After reviewing these comments, we determined that these comments are consistent with the errors and problems that we identified in the approach, technical information, and statements in the draft documents. (22)

Response: The commenter provided a statement rather than a comment or question on the guidance document, so no response is necessary.

185. **Comment:** I want to thank you for the opportunity to be a part of the May 3, 2018 Sewage Advisory Committee meeting to discuss further the two documents that have been prepared to answer what DEP sees as its response to ACT 26. I was in a similar situation over ten years ago, but in that case, I was the one co-authoring and putting forth a bill in the state of Texas. To my surprise the bill passed and resulted in a new rule, TAC 30, Chapter 222. The intent of my bill was to preserve subsurface drip distribution on larger, commercial projects in the State of Texas. The folks at Texas Commission on Environmental Quality now had to do something they did not want to do; write Chapter 222. Unfortunately, the two bill authors and the state representative who put forth the bill were not invited to the chapter or rule writing party. I've often wondered why this was the case. Unfortunately, TCEQ's interpretation of the bill or ACT in PA's case, was not the same as that intended by the authors and bills sponsor. So, in the end the state ended up with a new set of rules that missed the mark, and this was unfortunate.

I offer this personal bit of my experience because I see similar circumstances surrounding the rules that have not spawned from the passing of ACT 26. I'm hoping that it is early enough in the rule making process to turn things around and use good common sense and the years of experience that exist in the state of Pennsylvania and the union. Reinventing the wheel is not the best use of DEP's time. Much of what I have learned in my years of working to be a part of the onsite community in Pennsylvania is that too many, good and solid technologies that are considered today conventional in other states are held at bay under the heading of alternate onlot sewage disposal technologies or facilities. The vetting of these technologies should have come to an end years ago with those who have proven themselves year in and year out as successful. In my simple understanding of the original intent of ACT 26, it appeared to me that the intent was to move the accepted alternate technologies forward. Last minute political manipulation turned this instead into a trial in which the "alternate" technologies are to be judged and potentially condemned using what appear to be techniques requiring the use of laboratory or controlled study. Unfortunately, the laboratory settings are the home site of many Pennsylvania citizens.

I will not pretend to be an expert, but I have been in this industry since the 1980's and have seen great strides. One such stride has been the adoption of an agricultural practice used in large scale projects for reuse and management of animal wastes. This technology was drip dispersal. It is not a product of the onsite industry, we have simply borrowed it. Drip irrigation is by far the most effective means of placing water into the portion of the soils most biologically active. Wastes have been shown to be easily remediated by the microbial activities in this aerobic portion of the soil and nutrients have been taken up by the plants and microbial populations. There is no magic and there is no trick. All good science and experience. (23)

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 186. Comment:** I ask that you consider my comments along with the many others that have been sent to you. I do plan to provide you with other technology references with regards to drip dispersal as you requested. **(23)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 187. Comment:** It may take several years to get over 10 sites constructed resulting in the same properties being selected each year. (Further annoying the property owner.) **(28)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 188. Comment:** In closing we will try and communicate with the Department with other comments or thoughts in the future but wanted to get these points out prior to the ending of the “Public Comment” period at midnight on Tuesday, May 8, 2018. Thanks in advance for this opportunity to comment. **(29)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

- 189. Comment:** When it comes to site testing or field testing DEP claims it does not have the funds or the personnel to complete the work they have on hand. **(30)**

Response: Commenter provided a statement rather than a comment or question on the guidance document, so no response necessary.

Topic – Comments not related to TVP TGD

- 190. Comment:** AMC has been involved in Pennsylvania since the mid 1990’s. We have attended SAC meetings for nearly 20 years. Since the first time studying Chapters 71, 72, and 73 I have been impressed by how broad and comprehensive they were, addressing planning, administration, and technical issues. Albeit somewhat confusing, the intent is clear. However, as always, much is subject to interpretation. Regarding Sewage Management, the focus is from a time when the government was intended to be all encompassing. In addition, it did not foresee extensive application, acceptance of alternative systems, and the concept if guidance (listing). The reviewers to date, and discussion at the May 3rd SAC meeting point out that trying to identify a mechanism for Sewage Management under the current regulatory structure has historically been evasive. The general opinion is that ACT 537 needs to be rewritten to address the current needs, and resources available. This has been our impression in attendance to many SAC meetings. **(1)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 191. Comment:** Further on page 3 of -001 under “E.”, the document states that IRSIS systems do not rely on soil-based treatment for the renovation of effluent. The same characterization is attached to shallow limiting zone absorption areas at the bottom of the page. As many other reviewers have pointed out, this is an incorrect statement. The Department of Environmental Protection (the Department) “Research and Demonstration Center for On-Lot Systems and Small Flow Technology” at Delaware Valley College (the project) first report was entitled Working with Nature. In the planning stages there was a comprehensive review conducted of on-lot technology components in use or under evaluation. Three nationwide trends were identified and continue to remain pertinent today. First, place the soil absorption component in the shallow Bio-Active zone i.e. the surface horizons. Most renovation occurs in these bioactive zones. Typically, there is ready infiltration. Some 98%+ of the soil biota is present at a depth of less than 16” below the ground surface. Second, solids and BOD removal is needed to increase effluent infiltration rates in the soil, especially in slowly permeable soils. Third, there is a need to determine the thickness of the soil required to renovate effluent. The first report, coupled with the second report Soil-Based Treatment Systems, evaluated these factors through extensive comparative study of several treatment and soil dispersal technologies and methodologies, including a conventional anaerobic effluent at-grade system as a control. **(1)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 192. Comment:** Why do poorer soils found elsewhere on a lot (particularly a larger lot) impact the functionality of an onlot system when the soil / site conditions of an approved area that otherwise meets all of the permitting criteria? The proposal implies that a lot line (separating a marginal areas from permittable areas could somehow influence the operational status of an onlot system. Additionally, how or why would excessive slopes on a larger lot, nowhere near the tested area(s), reflect on the soil / site conditions in an area that otherwise meets all of the permitting criteria? I would suggest these soil & slope limits be eliminated from the marginal condition criteria. I question the reasoning that a site utilizing alternate technologies for wastewater disposal is required a document a replacement site. Replacement sites are not required for IRSIS systems. Shouldn’t the required maintenance contracts or an existing municipal management program be sufficient to insure long term use? When an alternate system is proposed, a maintenance contract or other sewage management provisions is understandable. However, this policy document should be not the mechanism to require or force municipalities to adopt municipal sewage management ordinances in order to allow new land development when marginal conditions are present or when alternate systems are to be utilized. An acceptable site specific maintenance contract should be adequate to provide for long term maintenance of the system, even if that contract is with the municipality. “Soil morphological evaluations for each lot must be conducted by a qualified soil scientist” Has DEP ever considered allowing specially trained / authorized SEO’s to perform the necessary soil morphological evaluations necessary for these alternate systems? In several areas of the Commonwealth the availability of qualified soil scientists is limited, at best. Once the use of alternate systems become commonplace, will there be enough qualified soil scientists available, and at what cost? In reviewing the current PAPSS Registry, there are only three (3) qualified soil scientists located within the entire 814 area code. **(4)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 193. Comment:** 1. The intent of Act 26 was to provide for the use of alternate systems to create new lots of record. PAR encourages the Department to maintain that charge when moving forward with implementation. **(10)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 194. Comment:** 3. PAR recommends that sewage management programs only be required for permittable systems that already require an annual inspection or maintenance review. This should also include the installation of new alternate systems as they are permitted and installed. **(10)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 195. Comment:** A similar comment applies to the cost of the municipal wide O&M programs. The costs of those programs are never discussed. It is a real factor and those costs can easily equal or exceed the cost of annual car registration and inspection combined. Another unfunded mandate. **(17)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 196. Comment:** 4. We agree that proper maintenance is important, but a municipal based sewage management program (SMP) may not be the best solution for all communities or users within the community and is not required by current law. **(22)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 197. Comment:** 5. Since a mandatory SMP is a significant change in wastewater management in Pennsylvania and it appears the PADEP is using guidance to amend the law, it would be wise to complete an analysis of the financial impacts of this imposed mandate. What is the anticipated cost burden of this additional management and has the PADEP completed a financial impact analysis? Should not these policies be reviewed by the “Independent Regulatory Review Commission”? **(22)**

Response: This comment either cites a section in the Department’s *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 198. Comment:** 9. Since the *Sussex, Inc v. DEP* (1984, EHB 355), there has been a significant change in how site characterization is conducted and there is no definition of marginal conditions in law, the use of this terminology and related review procedures should be removed or defined in law. This terminology is very subjective and we believe that current best practices makes this analysis unnecessary. **(22)**

Response: This comment either cites a section in the Department's *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 199. Comment:** 9) So as these two documents are proposed there is the possibility that a subdivision or land development project could go through and complete the planning process with a specific alternate technology proposed in creating the lots. Then after planning approval has been obtained the specific alternate technology could be removed from the Commonwealth's On-lot Approval list thus making these lots unbuildable. If this occurs will DEP require additional planning to occur? Pick a substitute technology to replace the removed technology? Has the Department thought about this occurring and what action they will need to take? **(24)**

Response: This comment either cites a section in the Department's *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 200. Comment:** I feel with Alternate systems you are already dealing with marginal conditions with respect to shallow soils in most cases. Primary and replacement site testing should not be required for new land development as is the case currently when siting IRSIS for new land development. **(26)**

Response: This comment either cites a section in the Department's *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 201. Comment:** Also released within the last few days was the Sewage Facilities Act Program Guidance Document which is intended to help those of us out in the real world daily deal with this huge issue that has been made out of Act 26 by the Department. The Pennsylvania Association of Realtors is going to have a hard time getting across to our 33,000+ Members what has been requested by the Department and how to eventually implement it. Those of us in the Rural Parts of the State who deal primarily with onsite Sewage rather than Public Systems will be in a tough spot. **(29)**

Response: This comment either cites a section in the Department's *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.

- 202. Comment:** With that said another item of main concern is a backdoor effort to once again "Require" Mandated Township wide Sewage Management Programs. These smaller Rural Townships are going to turn against the use of "Alternate Systems" for planning purposes in order to not be required to pass Township wide Sewage Management Programs for all Systems. The common sense approach would be from a date certain to mandate Management Programs for Alternate Systems as they are put in from that date forward. Most Rural Townships that had

small problem areas along a road or within a certain Subdivision have already determined what needs Sewage Management Programs already other than the new Alternate Systems to be put in sometime in the future. We highly recommend that Sewage Management Programs only be required for permittable systems that already require some kind of annual Inspection or maintenance review and also to include the installation of new Alternate Systems as they are permitted and installed. In the past we have talked about including a Deeded Covenant and/or Oversight Restriction into the Deed of Record for Lots with these types of Systems which makes it searchable and so that it won't be missed during the transfer of these properties from one owner to the next. This should be fairly easy to implement. **(29)**

Response: This comment either cites a section in the Department's *Pennsylvania Sewage Facilities Act Program Guidance; Site Suitability and Alternatives Analysis Guidelines for New Land Development Proposing On-Lot Sewage Disposal* TGD or is not related to the TVP TGD.