

**AMERICAN  
DECENTRALIZED  
WASTEWATER  
ASSOCIATION**

**MODEL PERFORMANCE CODE  
GUIDANCE DOCUMENT**

**FOR  
ADVANCED  
WASTEWATER  
TREATMENT  
SYSTEMS**

## Preface

**The intent of the American Decentralized Wastewater Association (ADWA) Model Performance Code is to provide state and local regulatory agencies with the ADWA preferred quality assurance (QA) and quality control (QC) policy choice options. ADWA represents manufacturers of advanced wastewater treatment components that are listed by American National Standards Institute (ANSI) accredited third party certifiers as complying with NSF/ANSI Standard 40.**

**ADWA promotes a strong regulatory program in the areas of performance certification for people and treatment components as well as enforced operational maintenance requirements for all onsite wastewater treatment systems. Both program areas are important for the protection of the human and natural environments and the reputation of the decentralized onsite wastewater treatment industry.**

**ADWA takes the position that engineered treatment components are preferable to site-constructed treatment components. In this vein, engineered treatment components that are certified by a third-party, ANSI-accredited testing agencies are preferable to non-certified products. Accordingly, this model code emphasizes the use of certified, engineered treatment components that are included in ADWA's list of approved products.**

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**ADWA MODEL PERFORMANCE CODE FOR  
THE UTILIZATION OF ADVANCED WASTEWATER TREATMENT SYSTEMS  
CODE DOCUMENT WITH APPENDICES**

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# CHAPTER 1

## 1. GENERAL PROVISIONS, PURPOSE, SCOPE AND AUTHORITY

### 1.1. GENERAL

1.1.1. TITLE – These regulations shall be known as the Advanced Wastewater Treatment System Code, hereinafter known as “this code” or “the code”, of the state of [NAME OF STATE], hereinafter known as “this State or “the State.”

### 1.1.2. PURPOSE AND INTENT

1.1.2.1.PURPOSE: The purpose of the code is to regulate the treatment, dispersal and reuse of wastewater from structures served by decentralized wastewater treatment systems.

1.1.2.2.INTENT – RISK MANAGEMENT: This regulation is intended to manage risk to public health, safety, the natural environment and to promote public welfare in a manner acceptable to the public. The burden of documenting the risk and the effectiveness of the risk reduction measures lies with the regulatory agency.

➤ *Intent - Purpose: The term “manage risk” is used instead of “eliminate or minimize pollution risk” because complete risk elimination is not practicable and cost considerations limit the deployment of risk reduction strategies. “In a manner acceptable to the public” because the degree of risk reduction provided is a function of the public’s perception of the cost and benefit of the regulation. Decentralized system regulation is intended to serve the interests of the citizen.*

1.1.2.2.1. STATE AND LOCAL RESPONSIBILITY AND AUTHORITY - The state code is intended to be a uniform state code in all subject matters regulated by the code. [STATE LOCAL GOVERNMENT AUTHORITY TO ADOPT STATE CODE AND ENFORCE THE CODE]

1.1.2.2.2. FOCUS ON LOCALIZED EFFLUENT QUALITY REQUIREMENTS - The code recommends focused application of output performance standards linked to localized risk conditions.

➤ *Focus on regional performance standards – Purpose: Performance codes should focus on the link between area or regional risk management needs and adopted performance standards. Since the sources of pollution of water are many, these local and state government entities must collaborate to set standards, possibly through the TMDL allocation program. Decentralized systems may be a minor or the major contributor of a specific pollutant in different areas. Because the situation varies from location to location, the level of government that has the responsibility to determine the local strategy for meeting goals should control the adoption of decentralized wastewater treatment quality standards.*

1.1.2.2.3. COSTS CONSIDERED - Code requirements will be the minimum necessary to achieve the health and safety risk reduction needs of the human and natural environments for any given area.

- 1.1.2.2.4. REASONABLE REGULATION - The provisions and enforcement of the code are intended to be reasonable. To promote reasonable practice the following standards are set for the code provisions:
- 1.1.2.2.4.1. The restrictions imposed will be those minimally necessary to manage the known or reasonably anticipated risks to the human and natural environments.
- 1.1.2.2.4.2. Each code provision will be drafted in a manner so that the obligation imposed is clear to the regulated persons.
- 1.1.2.2.4.3. Regulations will be accompanied by specific notes stating the purpose of the provision in order to facilitate communication as well as the development of alternate methods of compliance.
- 1.1.2.2.4.4. Code requirements will be based first on accepted management, science and engineering principals. In matters of science and engineering, where the subject matter is not settled, it will be based on the best judgment of committees of experienced and expert persons in each area of practice.

- *Reasonable regulation - Purpose: Administrative codes have the full force and effect of law. The issue of the reasonableness of rules is a serious consideration for a number of reasons:*
- *Constitutional requirements that laws be clear and enforced without discrimination under equal protection standards.*
  - *Political requirements - In a democracy, the reasonableness of laws is also subject to review through the political process. Reasonable rules are accepted politically. Unreasonable rules, if enforced, are modified as a result of political feedback. Unreasonable rules can stay unchallenged if not enforced or if under-enforced in a manner that does not create a political backlash. This under-enforcement usually takes the form of selective enforcement or setting an unofficial enforcement level below that required by rule.*

- 1.1.2.2.5. ACCESS TO ADVANCED TREATMENT SYSTEMS FOR EVERY LOT - The code is intended to facilitate the provision of a treatment or wastewater management option for all building sites not served by other wastewater conveyance and treatment systems.

- *Advanced treatment for every lot – Purpose: The objective of the decentralized regulatory and provider industry is to provide an effective and efficient method of wastewater management at every site where construction of a building is allowed under law*

- 1.1.2.2.6. NATIONAL EVALUATION AND LISTING - The code recognizes that standard designs and manufactured components are deployed in regional and national markets. Compliance with NSF/ANSI Standard 40 and product listing by an ANSI accredited third party certifier are required. The objective is to avoid duplicative state and county product evaluation and approval programs.

- *National evaluation and listing – Purpose: Improve the effectiveness and efficiency of product approval. Currently, many states operate product and design approval evaluations that are unique to the state. They often require evaluation programs conducted on systems installed within the state, ignoring both the product and use approvals granted in other states and the data collected to support those approvals. Some states may require a five year evaluation program for systems already in long term use in other states. Further they often do not accept evaluation information from other states as a substitute to instate testing. This process increases the barriers to deployment of improved methods and treatment equipment. Because this barrier increases costs of deployment and reduces the number of equipment options available in states, the reduced competition and duplicate product approval costs reduce the overall affordability of a treatment system. These increased costs burden the citizens and increase political resistance to regulation.*

1.1.2.2.7. MAINTENANCE ESSENTIAL - The code recognizes all decentralized wastewater treatment units need to be maintained to provide effective treatment and to extend the life of the system.

- *Maintenance essential - The maintenance of a system is critical to its performance. Failure to maintain negates the intent of the code that specified the system design, largely canceling the benefit of the effort.*

1.1.2.2.8. SUSTAINABLE SOLUTION - The code recognizes that decentralized systems are part of the continuum of water provision, conditioning, conveyance and waste treatment systems serving the community. They are the permanent infrastructure for wastewater treatment for about a quarter of the population and nearly a third of new construction. Therefore, decentralized treatment needs to be sustainable on the site over the expected period of occupancy of the site.

- *Sustainable solution – decentralized systems support buildings that have an expected life of a century or more. Therefore, a treatment method must be available for the structure for the life of the structure. The method could involve designs that are able to be repaired, rejuvenated or replaced as the situation dictates. For most designs, the dispersal area is the sustainability limiting component because it is currently more difficult to repair than other components. Renovation of failing conventional systems is feasible if a pretreatment device is placed in the treatment train in front of the soil dispersal/treatment area.*

1.1.2.2.9. LOCATION OF COMPONENTS - The code recognizes that wastewater treatment and transfer components can be located inside or outside the structure served.

- *Location of components – Purpose: To allow the flexibility of design. There are advantages and disadvantages for locating components in either location. The advantages of interior location are*

- *Components are not subject to the external pressures of buried structures*
- *Material degradation caused by chemical and electrical reactions with the soil environment is reduced or eliminated*
- *Components are not subject to ground and storm water infiltration.*
- *Components in tempered spaces are not exposed to the cooling effect of contact with cold or freezing soil. Higher wastewater temperatures promote some types of treatment and reduce the potential of freezing of external components.*

*Internal components need to meet the requirements for materials and venting of a plumbing code.*

1.1.3. AUTHORITY – This chapter is authorized under the provisions of [CITE ENABLING LEGISLATION]

1.1.4. DELEGATION OF AUTHORITY – The following organizations or persons are authorized as agents of the Department to administer and enforce this code:

- *Delegation of authority – Purpose: Many state codes are enforced by county or private sector staff. Delegation needs to be explicit.*

1.1.4.1. GOVERNMENT UNIT - [NAME GOVERNMENTAL UNIT (COUNTY, OTHERS)] in the following specified areas:

1.1.4.1.1. ADOPT CODE AND EMPLOY QUALIFIED STAFF - Adopt and enforce the code under a local ordinance with employees or agents who possess the qualifications required by the code.

1.1.4.1.2. FEES – [ADOPT FEE SCHEDULE FOR PERMITS, REVIEW AND INSPECTIONS OR OTHER RELATED ADMINISTRATIVE FUNCTIONS]

1.1.4.1.3. APPLICATION PROCEDURES - [DETAIL LOCAL APPLICATION AND OTHER ADMINISTRATIVE REQUIREMENTS OF APPLICANTS]

1.1.4.2. STATE AGENTS

1.1.4.2.1. AGENTS - The Department may appoint qualified agents to perform regulatory duties required by this code. Agents are subject to the direct supervision of the Department.

- *State Agents – Purpose: To establish the authority to appoint and manage deputies. Many state codes are enforced by non state agency employees, usually local government employees but also by authorized private code enforcement inspection agencies.*

1.1.4.3. WITHDRAWAL OF DELEGATED AUTHORITY TO LOCAL GOVERNMENT AND AGENTS - The Department may revoke or limit the authority of an agent or deputy to administer or enforce the code for good cause.

1.1.4.3.1. Good cause reasons for revoking governmental unit’s authority is defined as failure to enforce the provisions of the code as required by the Department, failure to provide timely service to citizens, failure to adequately supervise the performance and qualifications of employees and agents, and for malfeasance or conflict of interest.

1.1.4.3.2. Good cause reasons for the discipline or revocation of authority for agents includes their failure to maintain required credentials,

failure to conduct required inspections or maintain accurate records of inspections, conflict of interest, or malfeasance.

- *Withdrawal of authority – delegation of authority needs to be accompanied by an audit function. Otherwise the state abdicates its authority and responsibility to administer its rules and state laws.*

1.1.4.4.CONFLICT OF INTEREST - Employees and agents of the state and employees and agents of local governments enforcing the code are prohibited from engaging in activities that create a conflict of interest between their regulatory responsibilities and private interests, professional responsibilities, or competing duties. With respect to employment, it is considered a conflict of interest for regulatory personal and organizations to engage in the provision of non-regulatory services for private citizens and organizations such as, but not limited to, soil and site evaluation, design, construction, installation, operation and maintenance.

- *Conflict of interest - Purpose: Regulatory officials with a conflict of interest between separate duties harms the respect of the public toward the agency and the individual and can violate various laws covering the topic.*

1.1.5. SCOPE - These regulations shall apply to the following:

- 1.1.5.1.Objects defined as decentralized systems, including components, and their location, design, operation and the level of constituents in the final effluent.
- 1.1.5.2.Activities involving the evaluation of the soil and site, the installation, design, manufacture, construction, repair, modification, maintenance, monitoring, inspection and regulatory services provided relative to decentralized systems.
- 1.1.5.3.Persons performing the activities enumerated in paragraph 1.1.5.2, including their qualifications and training.

- *Scope - Purpose: Define the subject matter of the regulated activity. The code may regulate objects, activities and individuals, provided the authority is granted to the Department under applicable laws. At a minimum, the code should regulate the object of interest - the decentralized system.*

1.1.6. APPLICABILITY

1.1.6.1.EFFECTIVE DATE OF CODE - The code applies to decentralized wastewater treatment units installed or modified subsequent to the effective date of the code.

1.1.6.2.UNIFORM CODE – The code is a uniform code.

1.1.6.3.APPLICATION OF CODE PROVISIONS TO EXISTING FACILITIES

- *Retroactive provisions that cause the modification of installed systems have a major effect on owners and should be applied only when existing systems present a significant and immediate threat to the human and natural environments.*

*The following retroactive provisions may be deemed reasonable for existing systems:*

- *Requirements for operational maintenance and inspection*
- *Elimination of direct discharge of untreated sewage to the land, groundwater or surface water*
- *Unsafe conditions such as collapsed or failing structures, unguarded access*
- *Minimal requirements to allow service access such as extension of risers to or near the surface*
- *Requirements for inspection at the time of system ownership changes*

*The following code changes are considered less reasonable for retroactive application of provisions and would likely raise significant opposition if not focused on publicly perceived problem areas:*

- *Increased vertical and horizontal separations except in circumstances covered above*
- *Increased size of components*
- *Other changes to design requirements*
- *Increased or new effluent performance standards*

*Recommendations:*

- *Establish language defining that the code in effect at the time of system installation governs the system.*
- *Limit retroactive provisions to the circumstances deemed above to be “reasonable. Consider focusing the application to areas of perceived major problems.*
- *Avoid provisions deemed “less reasonable” unless a critical health or environmental issue is involved, and then focus the application on areas of the greatest problems. The burden of proof of criticality is on the regulatory agency and creates a need to convince the public.*
- *Base decision should be based on research findings, not some arbitrary number. Similarly, the new code provisions that require a decision of retroactivity should be determined by research and applied in a manner that matches site risk and the applied standard.*

*This topic is politically sensitive and regulators need to ensure that the body politic supports the requirement if it is to be adopted and enforced.*

1.1.6.3.1. Decentralized systems existing on the effective date of the code are subject to the code in existence at the time the permit was first issued or, if no permit was issued, at the time of first system use, subject to the following exceptions.

1.1.6.3.1.1. Operation of any decentralized system that causes the discharge of wastewater that exceeds the fecal coliform standard listed in Chapter 5, Section 5.2, to the land surface in a manner that permits direct human contact or discharge to surface waters.

1.1.6.3.1.2. Change of the principal use of a structure that causes the effluent loads and flows to exceed the limits of the design

parameters of the system components. Changes to the loads and flows of cluster systems that exceed the design capacity

1.1.6.3.1.3. Changes to a structure that causes the effluent loads and flows to exceed the limits of the design parameters of the system

1.1.6.4.EXCEPTIONS – [LIST CIRCUMSTANCES COVERED BY SECTION 1.1.5 THAT ARE EXCLUDED FROM THE SCOPE OF THE CODE.]

- *Exceptions to Scope – the state statute or federal statute may limit the scope of the regulation. The state may choose to further limit the scope of authority of county enforcing agencies. These need to be explicitly stated in this section.*

1.2. SEVERABILITY - Should any provision of this code be held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall remain in full force and effect.

1.3. LIABILITY LIMITATION - Liability of the state and its employees, deputies and agents when acting within the scope of their authority is limited by the provisions of [NAME STATUTE SECTION ON LIMITATION OF LIABILITY]

1.3.1. EXCEPTION TO LIMITATION OF LIABILITY - State agencies, local governments and individual agents providing services deemed to be a conflict of interest in paragraph 1.1.4.4 are subject to tort claims in the same manner as private persons and organizations offering the same services.

1.3.2. Except as provided by part 1.3.1, regulatory approval of any authorized activity of this chapter may not be construed as an assumption of responsibility by the agency or its agents for any decisions, errors and omissions in the execution of its duties. The responsibility for the design, construction, repair and operation of any decentralized system is ultimately the responsibility of the owner. The performance of duties by any other person is the responsibility of that person.

- *1.3 Liability Limitation – Purpose: Reduce agency and staff liability for errors and omissions and other sources of liability.*

*The authority to limit liability by code is problematic absent specific authority to do so in the law. Most states have statutes that cover this issue.*

*Liability is a component of responsibility. A goal of a performance code is to assign responsibility for the quality of discrete portions of the work to individuals and organizations. The question here is the responsibility of government for the quality of the work performed. A reasonable position is that a government agency should not take on a task unless they intend to perform it adequately. If the work is important, it should be done well. If it is not important, the requirement should not be enacted. If the work is important, but internal budget and political restraints prevent adequate staffing, the option to shift the work function to third parties needs to be explored. The state agency staff can then concentrate on consultation and audits of third party service providers.*

#### 1.4. CODE AND POLICY ADVISORY COUNCIL

- 1.4.1. The Department shall appoint a Decentralized System Policy Advisory Council and may create technical subcommittees as appropriate. No member of the Department may be a voting member or officer of the Council.
- 1.4.2. The council shall have [SET SIZE] members.
- 1.4.3. Council membership shall be balanced with proportional representation between local government regulators, decentralized equipment manufacturers, decentralized industry service providers, users of the decentralized systems and citizen interest groups. [NAME REPRESENTATION CATAGORIES AND NUMBERS]
- 1.4.4. The council, upon request of citizens affected by a Department decision or a dispute over application of the code at the local or state level governmental, may conduct a hearing and provide an advisory opinion [OR FINAL DECISION] on the matter.

- *Advisory Council - Purpose: First to provide advice and technical expertise to the department, and second to provide communication channels between decentralized industry providers/interest groups and the Department.*

*A major role of advisory councils is to approximate the interests of the citizens in deciding the balance between the cost and benefit of the regulation. To do so, the committee membership should be balanced and represent a broad range of interest groups, essentially the same groups that would attempt to influence the legislature.*

*Interests groups by their nature represent the private interests of the group, often to the detriment of citizens. Regulatory agencies are also interest groups and if allowed to unilaterally write rules would tend to serve their interest, just as would interest groups of installers, designers or pumpers. The broad based council creates a structure where conflicting special interests can approximate the interests of citizens.*

*There are two forms of councils. In some states the councils decide department policy. In most states the councils advise the Department. This subject matter is largely determined by the state statute.*

*A key feature of the deployment of advisory councils is that the Department should follow the advice of the council most of the time and where it does not, explain the reasons to the council before announcing the decision publicly. Failure to do so can convert the council from an ally of the department to a powerful political opponent.*

## Chapter 2

### 2. DEFINITIONS

- 2.1. GENERAL – The dictionary definitions contained in [NAME DICTIONARY] apply unless altered below.

- *Definitions – Purpose: Define words and terms unique to the code or where a modification to standard dictionary definitions is appropriate.*
  - *Definitions should be precise, not vague.*
  - *Definitions should not contain substantive issues such as requirements. These issues should be handled directly by code provisions*
  - *Definitions should only appear if the term is used in the code or incorporated documents.*
  - *The definition section is not a glossary.*

## 2.2. DEFINITIONS

- 2.2.1. “Accepted engineering practice” means that components and treatment trains are designed taking into account all relevant factors influencing safety and performance and that such equipment and design is manufactured, installed, built, and verified to ensure its operational safety and performance during its intended life, when used in foreseeable or reasonably foreseeable conditions.
- 2.2.2. “Advanced Wastewater Treatment Unit” or System means a manufactured device that has been engineered in accordance with generally accepted engineering principles, is intended to remove organic material and suspended solids in conformance with NSF/ANSI Standard 40 and is included in ADWA’s list of approved products.
- 2.2.3. “ATU” means Advanced Wastewater Treatment Unit.
- 2.2.4. “ADWA” means the American Decentralized Wastewater Association.
- 2.2.5. “Acceptance rate” for a system is the maximum flow and load rate acceptable for treatment or conveyance by any component of the system, as determined in Appendix A Soil Loading rates loading measured in {STATE UNIT/TIME}.
- 2.2.6. “CBOD<sub>5</sub>” or “Carbonaceous Five Day Biochemical Oxygen Demand” has the meaning provided in Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> Edition.
- 2.2.7. “Black water” means wastewater contaminated by human body waste, toilet paper and any other material intended to be deposited in a receptor designed to receive urine or feces.
- 2.2.8. “Cluster system” means a wastewater collection and treatment system that is under some form of common ownership and management that provides treatment and dispersal/discharge or reuse of wastewater from two or more homes or buildings but less than an entire city or metropolitan area.
  - *Cluster – There is significant overlap between decentralized cluster and centralized systems. The divide between the two is often a function of design and engineering style and the state law that assigns the respective regulatory functions to different agencies.*
- 2.2.9. “Decentralized” means a generalized class of wastewater treatment applications that includes onsite and cluster systems that discharge the treated wastewater near the point of origin. The contrasting term “centralized” refers to the extensive collection and large treatment works serving large geographic areas such as a city or metropolitan area.

- *Decentralized* – The long term concept of the term is that cluster and onsite systems should be under active management. The current use of the term includes both managed and unmanaged systems. EPA has various definitions of the term, some with and some without the management inclusion.

- 2.2.10. “Deemed to comply” means that a system is assumed to comply with adopted effluent performance standards during operation without effluent sample monitoring, provided the system is operated and maintained in a manner specified in the approval document.
- 2.2.11. “Department” means [NAME THE STATE DEPARTMENT WITH AUTHORITY TO REGULATE DECENTRALIZED SYSTEMS]
- 2.2.12. “Engineered design” means an onsite or cluster system that is designed to meet specific performance requirements for a particular site as certified by a licensed professional engineer or other qualified and licensed or certified person.
- 2.2.13. “Experimental system” means a type of system component or treatment train design that does not conform to an evaluated design and whose processes are not based on confirmed science or engineering practices. These are systems for which valid and reliable data are being sought to demonstrate compliance with the intent of the code.
- 2.2.14. “Final effluent” means the wastewater at the point it leaves the treatment train.
- 2.2.15. “Grey water” means any putrescible wastewater discharged from domestic activities including, but not limited to, washing machines, sinks, showers, bath tubs, dishwashers, or other sources except toilets, and urinals.
- 2.2.16. “Habitable structure” means a permanent or semi-permanent structure intended for human habitation.
- 2.2.17. “Holding component” means a vessel designed to prevent the discharge of sewage or wastewater to the immediate environment of the vessel, the contents held until transported to a treatment and dispersal facility or location.
- 2.2.18. “Imminent threat to human health and safety” means a substance, activity or condition that is known to pose an unacceptable risk to public health and safety that requires immediate abatement.
- 2.2.19. “Loads and flows” means:
- “Loads” means the total influent weight of individual wastewater constituents of interest entering a pretreatment treatment component or applied to a given area of soil in a given period of time.
  - “Flows” means the volume of water entering a pretreatment component or applied to a given area of soil in a given period of time.
- 2.2.20. “Long term acceptance rate” means the acceptance rate of a component after the break-in period is complete. The break-in period may include the development of a suitable level of biological activity. The break-in period for a soil dispersal component may also include the development of a hydraulically restricting biomat until the point of equilibrium is reached.
- 2.2.21. “Modification of a system” means to substantially alter the design of an existing component or system.
- 2.2.22. “New construction” means the installation of a system on a parcel that did not have a system previously installed.
- 2.2.23. “Non treatment component” means a wastewater confinement, holding or transfer device that is not intended to provide wastewater treatment.

- 2.2.24. “Onsite wastewater treatment system” means a wastewater treatment system that collects wastewater from single structure, dispersing it to the surface or subsurface environment on one or more legal parcels near the source of the wastewater generation or holding the wastewater in a holding component until transported to another location for treatment or dispersal.
- 2.2.25. “Onsite” means an “onsite wastewater treatment system.”
- 2.2.26. “Operating permit” means a document or certificate issued by a government agency with authority to issue the permit, giving permission to operate a decentralized wastewater treatment system.
- 2.2.27. “OWTS” means an onsite wastewater treatment system.
- 2.2.28. “Performance code” means administrative regulation that specifies the ends or results of a process or activity and allows the general use of solutions that demonstrate achievement of the objective requirement or standard. Performance codes are contrasted with prescriptive codes.
- *Performance code – A performance code is differentiated from a prescriptive code by:*
1. *Measurable performance requirements are adopted and are applied to all designs and methods*
  2. *The ability to approve new equipment, designs and methods for general use without a code change.*
- 2.2.29. “Performance standard” means a clear statement, either numeric or narrative, of a measurable, achievable condition or output of a process that is applied at a specific point or place and that permits a clear pass/fail determination and allows multiple solutions.
- 2.2.30. “Point of standards application” means the specific location, depth or distance from a regulated facility, activity or practice at which the concentration of a substance in the system effluent plume must comply with the specified performance standard. For this code, the point of standards is the effluent of the last advanced treatment unit in the treatment train, excluding any treatment that may occur in the unconfined soils, surface or subsurface, or surface waters.
- 2.2.31. “Prescriptive code” means an administrative regulation that specifies the means of achieving an objective and excludes other means of achieving the same objective. Prescriptive codes are an alternate regulatory approach to performance codes.
- 2.2.32. “Quality assurance (QA)” means an integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence.
- 2.2.33. “Repair” means to restore a system to a functional condition without substantial modification.
- 2.2.33.1. “Major repair” means the replacement of a component such as the septic tank and other treatment components including the dispersal system.
  - 2.2.33.2. “Minor repair” means the replacement of sub-components such as switches, pipes, pumps and valves. Servicing of the system by cleaning, pumping tanks, filter replacements and adjustments is not considered a repair.

2.2.34. “Responsible management entity” (RME) means a legal entity responsible for providing various management services with the requisite managerial, financial, and technical capacity to ensure the long-term, cost-effective management of onsite or clustered wastewater treatment facilities in accordance with applicable regulations and performance criteria.

2.2.35. “Sewage” means wastewater containing fecal matter that exceeds the adopted performance standards for bacteria in the final effluent.

- *Sewage – Currently many states regulate and define sewage in ways not appropriate to a performance code. The terms like “water carried wastes” or “untreated wastes” do not describe a measurable boundary between the state of the water being sewage and not sewage. This code focuses on fecal coliform bacteria counts for the definition of sewage. Fecal coliform is an indicator of treatment quality. Other indicators or direct measures could have been used, but the committee decided to use fecal coliform to utilize the historic body of information that currently exists. Other indicators and direct measures may be added in later editions of the model code.*

*Wastewater containing nutrients is either a valuable resource or a source of health and environmental risk depending on the site conditions and use. Therefore, the presence of nutrients alone is not a basis to classify the wastewater as sewage.*

2.2.36. “Standard methods” means, for the purpose of collecting and analyzing wastewater samples, the Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> Edition, a joint publication of the American Public Health Association (APHA) the American Water Works Association (AWWA), and the Water Environment Federation (WEF).

2.2.37. “System” means a “treatment train.”

2.2.38. “System construction inspector” means a person who observes the progress of construction for compliance with the code specifications and the approved plan design.

2.2.39. “System designer” means a person who matches site and soil characteristics with appropriate wastewater treatment technology and prepares system designs and installation plans for the site.

2.2.40. “System installer” means a person who constructs and assembles the components of the treatment train to the designer’s specifications and repairs the system.

2.2.41. “System maintainer/operator” means a person who provides operation, maintenance and service activities to assure the effective and continuous operation and performance of a system.

2.2.42. “System operation inspector” means a person who inspects the system for compliance with the code and permit specifications.

2.2.43. “Total Suspended Solids” or “TSS” has the meaning provided in Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> Edition.

2.2.44. “System plan reviewer” means a person who reviews required documents for compliance with the code prior to issuance of a construction permit. The documents may include but are not limited to the permit application form, site and soil evaluation report, management plan and system construction plans.

2.2.45. “System soil evaluator” means a person who makes the determination of soil morphology by defining the physical constitution, particularly the structural

properties, of a soil profile as exhibited by the kinds, thickness, and arrangement of the horizons in the profile and by the texture, structure, consistence, and porosity of each horizon. (Modified EPA)

- 2.2.46. "Treatment" means the intended transformation of specific properties of wastewater from one state or condition to another by reduction of the mass of the pollutant or by dilution.
- 2.2.47. "Treatment component" means a discrete portion of the wastewater treatment train defined by specifically identified points of influent and effluent between which wastewater treatment is intended to occur, located within or outside the structure.
- 2.2.48. "Treatment train" means the total assemblage of wastewater treatment, transfer and holding components beginning with the first wastewater treatment component within or outside the structure and ending at the point where the effluent is dispersed from the last treatment or conveyance component. The term "system" is often utilized in lieu of "treatment train."
- 2.2.49. "Type I compliance violation" means discharge of sewage to the ground surface, surface water or within a structure where such discharge is not otherwise intended or permitted.
- 2.2.50. "Type II compliance violation" means the dispersal of sewage to the groundwater measured at a point of standards application for the regulated constituent where such discharge is not otherwise intended or permitted.
- 2.2.51. "Type III compliance condition" means the performance and operation of a treatment or conveyance component is not compliant with an applicable standard or specification and is not a Type I or II compliance violation. The expected response to a Type III condition is the appropriate maintenance of the component by an authorized person.
- 2.2.49, 50 and 51 - *Conditions of system malfunction - Purpose: To disaggregate the types of system malfunction by type of risk and to apply different regulatory requirements to each. Further, it is intended to shift the terminology away from the term "failure." The "Type III compliance condition" is differentiated from the Types I and II violations because Type III conditions are internal system operations issues that do not immediately cause a violation. For example, a blower on a pretreatment device may have failed but the downstream components are capable of treating the wastewater for a period of time without creating a Type I or Type II violation.*
- 2.2.52. "Unconfined treatment component" means the volumetric area of land and water, not within a confining structure that creates discrete points of effluent discharge, which has been evaluated for treatment capacity by a person or organization authorized to do so by the code.
- *Unconfined treatment component - This is the soil treatment area and can include in situ and engineered soils, and surface and groundwater where permitted by rule. The definition includes saturated soils and surface water as potential treatment areas because nitrate reduction in soil requires anoxic conditions provided by saturated soils (groundwater by most definitions.) Further, ground and surface water provides dilution as treatment mechanism.*

2.2.53. “Uniform code” means that the state statutes prohibit subordinate levels of governments from adopting ordinances that modify the regulation of decentralized wastewater treatment systems.

*Uniform Code – Purpose: Some provisions are appropriately standardized across political jurisdictions. Rather than allowing local governments to modify any and all provisions of the state code, a uniform code limits that flexibility to areas specifically designated in the code. A design or product approved at the state level should be available statewide if it meets effluent performance requirements. An installer certified to install conventional systems by the state should not be subjected to a separate certification evaluation in each local jurisdiction.*

2.2.54. “Wastewater” means:

- Domestic wastewater normally discharged from or similar to that discharged from plumbing fixtures, appliances and devices including, but not limited to sanitary, bath, laundry, dishwashing, garbage disposal, water conditioning and cleaning wastewaters associated with dwellings, business establishments, institutions and other structures or places used for human habitation, employment or congregation exclusive of those wastes derived from industrial processes.
- Storm water and clear water wastes generated in or near buildings and as a result of other site improvements when commingled with domestic wastewater.

2.2.55. “Water reuse” means any beneficial use of the treated wastewater directed to a specific purpose other than the release to the surface or subsurface environments.

## Chapter 3

### 3. REQUIREMENTS, PROHIBITIONS, ENFORCEMENT

3.1. ADVANCED WASTEWATER TREATMENT SYSTEMS REQUIRED – An advanced wastewater treatment system is required for new construction or replacement systems, either onsite or cluster, where a permanent or semi-permanent structure discharges wastewater through a plumbing system that is not conveyed by sewers to a centralized municipal treatment facility.

- *Advanced Wastewater Treatment System required – Purpose: To ensure that an approved method exists to safely remove, treat and recycle sanitary waste from structures where such removal is not provided by other methods such as municipal collection and treatment systems.*

### 3.2. ABANDONMENT REQUIREMENTS –

3.2.1. The system shall be properly abandoned in the following circumstances:

3.2.1.1 When the system is permanently disconnected from the structure served and has not been approved for subsequent use by another structure.

3.2.1.2 When the building sewer has been connected to a sanitary sewer that is part of a municipal treatment works.

3.2.1.3 When the system has been condemned by the regulating authority

3.2.2. Procedures for abandonment of external vaults and tanks:

3.2.2.1 The property owner or agent shall apply for a permit to abandon the system if the system contains a tank or vault components.

3.2.2.2 The tank or vault contents shall be pumped and equipment removed.

3.2.2.3 The pipes or plumbing attached to the tanks or vaults shall be disconnected or sealed.

3.2.2.4 Electrical connections shall be properly disconnected.

3.2.2.5 The tanks or vaults shall be either:

3.2.2.5.1. Removed and the void leveled to the surrounding grade with sand or other suitable inert material and completely covered with soil or material similar to that at the surface in the immediate area.

3.2.2.5.2. The tank or vault covers shall be removed, the bottom ruptured and the void leveled to the surrounding grade with sand or other suitable inert material and completely covered with soil or material similar to that at the surface in the immediate area.

3.2.2.5.2.1. In lieu of removing the cover, the tank may be completely filled with material such as concrete, sand or pea gravel smaller than #1 stone.

- *Abandonment – Purpose: To protect the population from:*

- *Injury associated with collapsed tanks, child access or unintended entry*
- *Sources of residual pollution.*

### 3.3. EMERGENCY REPAIR –

3.3.1. Notwithstanding any provision requiring a permit to commence repair to a system with a Type I or II compliance violation, if such violation poses an imminent threat to public health or safety, the owner or agent may commence corrective action immediately without securing such permit. The owner or agent must then notify the regulatory authority within 2 workdays of commencement of the action and apply for any required permit.

3.3.2. Where an imminent threat to human health and safety exists, the regulatory agency may cause the abatement of the threat by:

3.3.2 Issuing a directive to the owner to abate the threat

3.3.2 If the owner does not abate the threat in the time specified in the directive, the agency may abate the threat and bill the owner for the cost.

➤ *Government-performed hazard abatement – Purpose: To abate an imminent threat where the owner will not. This authority is important for application in rare cases. It is also important that this authority not be abused and should be reserved for situations where a major problem exists. If like conditions exist elsewhere, similar action should be taken to avoid an accusation of unequal treatment.*

### 3.4. AGENCY RIGHT TO INSPECT

3.4.1. Staff and agents of the regulatory authority may enter the property of a permittee to inspect the system during reasonable hours and with appropriate notice to the owner or occupants. The right to enter does not include the right to enter an occupied private residence or associated structure absent an inspection warrant.

3.4.2. The owner or agents shall produce permit documents and required records at the request of the regulatory agent inspecting the system.

➤ *Right to inspect – Purpose: To establish the authority of the regulatory agency to inspect the treatment system for compliance with the rules. The purpose of the inspection is to reduce the risk that a code violation will pose a threat to the human or natural environments.*

*This issue is difficult because the government’s right to enter private property is restrained by state and Federal Constitution. Further, the authority, if constitutionally permitted can be restrained politically if perceived to be abusive in its application. Care must be taken to avoid giving individual regulators the impression that they have rights in areas that are limited by law and custom. Likewise, care should be taken not to misinform the public regarding its rights to bar government entry.*

*A different conceptual approach may be useful here. While the citizen’s ability to limit government entry to private property is protected by the Constitution, no such protection is afforded to the right to operate a wastewater treatment system. If the issuance of a permit is conditioned on the right to inspect the facility, then failure of the owner to allow such inspection may be a sufficient basis to suspend the permit. In other words the individual has the right to bar entry absent a warrant of the court, but not the right to operate a treatment system.*

*To protect the regulatory agency and the regulator personally, the best practice is to announce the visit to the occupants, request permission to conduct the inspection, and if refused, leave the site and secure an inspection warrant from the appropriate authority, or proceed to revoke the permit.*

3.5. FINAL EFFLUENT TO MEET ADOPTED REQUIREMENTS – A system design selected for a site is required to comply with the final effluent requirements adopted in Chapter 5 at the effluent port of the last advanced treatment component in the treatment train prior to dispersal under or on the land surface or in surface waters.

### 3.6. ESTIMATING DOMESTIC WASTEWATER FLOW

3.6.1. RESIDENTIAL ONE TO EIGHT HOUSEHOLD SYSTEMS – The owner or owner’s agent of the system may select one of the following methods to determine the capacity of the system or the estimated wastewater loads and flow from the structure

3.6.1.1 PRESCRIPTIVE DETERMINATION - Minimum design flow for calculation of domestic wastewater containing “black water” requiring treatment or containment shall be based on {INSERT GPD/LITER/DAY VALUE} per defined two person bedroom and half that amount for a defined one person bedroom. (State options: High levels of risk avoidance – 150 gpd/2 person bedroom (568 L), moderate – 100 gpd/2 person bedroom (379L), low risk avoidance – 75 gpd/2 person bedroom (284L). For plumbing systems that separate grey and black water, the estimated flow for “grey water” is 60% of the unsegregated flow and remaining 40% is considered “black water.”

3.6.1.2 ADJUSTED BASE FLOW DETERMINATION – The designer of the treatment system may adjust the design flow specified in paragraph 3.6.1.1 based on, but not limited to, the following

3.6.1.2.1. Incorporation of water conserving features within the structure

3.6.1.2.2. Utilization of flow management techniques

3.6.1.2.3. In order to manage minimum flow requirements of components based on actual occupancy or flows.

3.6.1.2.4. The adjusted design flow in [STATE UNITS/TIME] and prescriptive calculation for design flow for the structure must be recorded as provided in paragraph 3.6.1.4.

*Note: Reduced flows achieved by water conservation increase the strength of the constituents in the wastewater. The designer of the system needs to consider this factor.*

3.6.1.3 DETERMINATION WAIVER – The designer may specify a treatment design of a given capacity in gallons per day without regard to the design features of the structure, provided the actual use is equal to or less than the design flow and notice is provided as required in paragraph 3.6.1.4.

3.6.1.4 For system designs under paragraph 3.6.1.2 and 3.6.1.3, the design capacity in gallons per day maximum flow shall be declared, along with the design flow specified in paragraph 3.6.1.1, and filed with the

regulatory agency, registered with the deed and displayed on a permanent placard mounted in clear view near the primary electrical distribution box of the structure. The notice shall also contain the estimated number of occupants the system will support based on an average daily use of 60 gpd/person (227L)

3.6.2. Design flows and loads from multifamily structures and cluster systems designed to serve more than 8 units or 20 people shall be determined by this paragraph. The design flow shall be determined by the licensed engineer or certified designer who shall be responsible for the design. The design flow shall be filed with the regulating agencies and with property deed and shall be noticed to the owners of the structures served. Said notice shall inform the owners of the capacity of the treatment systems and that either the capacity of the system would need to be increased or the total flow limited if the design capacity were exceeded.

3.6.3. Design flow and loads from commercial structures shall be determined by a professional engineer or other qualified designer who shall be responsible for the design. Such determination shall be recorded with the deed to the property.

➤ *Residential flow estimation – Purpose: To determine the required capacity of the system components. Estimation of flows from a single structure is very difficult because identical homes can have highly variable flows and loads because of different occupancy levels, individual water-use habits, hours of occupancy, the use of water conservation devices and practices, the amount and type of cooking and other activities. Hourly, daily and seasonal flows vary widely. Identical 3 bedroom houses could be occupied by a single retiree who spends the winters in Arizona or a full time family of 8.*

*As the number of households and individuals utilizing a single treatment system increases, the variation decreases. As the population served approaches 20 persons, the amount of daily flow variation drops significantly. Based on the 2000 Census value of an average of 2.59 persons per household, 20 persons translates roughly to eight households.*

*Over estimating flows and loads presents the following characteristics:*

- *Greater costs for owner.*
- *The soil component may not fit in the space available or may restrict the use of significant areas of land.*
- *Longevity of some components may be increased before servicing, repair and replacement is needed.*
- *Larger components may provide better treatment.*
- *Some components require minimum levels of influent to maintain the bacterial colonies that provide treatment; therefore performance is harmed with inadequate flows.*

*Underestimating loads and flows presents the following characteristics:*

- *Treatment components might not provide the expected treatment levels.*
- *System longevity may be decreased leading to earlier repair and replacement.*

*Most prescriptive codes estimate flow based on one or more features of the structure. The concept assumes that larger structures mean more people and*

*higher flows. This may or not be accurate. Housing size and occupancy statistics are heading in the other direction. Between 1970 and 2000 the average household size decreased 16% from 3.1 to 2.6 persons while the average home increased 46% from 1500 (139.35 sq meters) to 2,200 sq feet (204.4 sq. meters by 2002, according to census data.*

*Most prescriptive codes estimate flows based on the number of bedrooms, an assumed occupation per bedroom and an assumed per capita water use. Typical estimation numbers are:*

- *2 people per bedroom – therefore a three bedroom home needs to be sized for 6 people (The 2001 census reports that only 3% of all households have 6 or more members. The actual average occupancy is about 9/10<sup>ths</sup> persons per bedroom.)*
- *75 gallons per day (gpd) per person, or 150 per bedroom. Other states may estimate 100 gpd/bedroom.*

*The 75 gpd/person use estimation is at about the 70<sup>th</sup> percentile of actual use (See Table 3-4 EPA Onsite Wastewater Treatment Systems Manual.) The 75 gpd used to estimate flow is based on an average 50 gpd/person estimation increased by a 50% safety factor. Table 3-4 indicates that the 75 gpd estimate is low for about 30% of the population. The average per capita use indicated by the graph is about 60 gpd. Note: 60, 75, 100 and 150 gallons are 227, 284, 379 and 568 liters respectively*

*The common code design practice tends to over-estimate household occupancy by a factor of 2 but undersize the drainfield for those estimated loads and flows for a sustainable design. The result is frequent early failure for 3-bedroom homes occupied by 6 persons.*

*These factors, combined with the constraints of cost and land availability, especially in replacement systems, should allow more flexibility in sizing systems than exists under traditional prescriptive codes*

*Recommendation: Allow multiple methods to determine estimated flows:*

- *If prescriptive sizing is utilized, inform the owner the actual gpd the system can handle, and the range of likely per capita use and the option to utilize alternate flow estimation processes.*
- *For designer-determined loads and flows record the information as required in 3.6.1.4.*
- *Consult the soil loading rate tables contained in Appendix A.*

- 3.7. COMPLIANCE WITH OPERATION REQUIREMENTS - The system owner and operator shall comply at a minimum with the operation and maintenance requirements for systems contained in the applicable component manual and this code.
- 3.8. OWNER RESPONSIBLE -The owner of the system is ultimately responsible for the proper installation and operation of the treatment system, unless otherwise provided in this regulation.
  - *Owner responsible - Purpose: To clearly identify the person responsible for the system and to provide for alternate methods of providing management. The concept of a responsible management entity (RME) provides third party management of systems.*

3.9. LICENSED AND CERTIFIED PERSON RESPONSIBILITY - Licensed or certified personnel involved in the regulation, design, installation and monitoring of advanced systems shall perform their functions in conformance with the code and the standards of practice of their occupation.

- *Licensed and certified person responsibility - Purpose: To link the certified person's behavior to the continuation of the license or certification.*  
*Note: Professionals can be held liable in a tort action for design errors even if the design is code compliant because the professional designer may be responsible for safety requirements incorporated in published standards even if the code has not adopted the standards. Further, the professional needs to design a system that is fit-for-use under the owner's pattern of water use. As far as the owner and designer are concerned, the code is a minimum specification and the parties should exceed the code requirements to meet individual needs.*

*Discipline for violations of the code and standards of practice against the licensed or certified person should be the responsibility of the certifying or licensing organization in addition to the regulatory agency.*

3.10. TIME LIMITS FOR REPAIR OF MALFUNCTIONING SYSTEM - Systems deemed to have Type I or II compliance violation, if not deemed as an imminent threat to health and safety, shall be repaired or replaced within the following time limits:

3.10.1 Type I Compliance Violation, Plan of action – 30 days, Remedial work completed – 90 days

3.10.2 Type II Compliance Violation, Plan of action – 30 days, Remedial work completed – 120 days

3.10.3 If weather conditions prevent timely repair, the time periods for correction of Type I and II violations may be extended by the agency.

- *Timeline for repair – Purpose: protect the human and natural environments from the effects of malfunctioning systems. If it is an imminent threat then it needs immediate attention such as pumping until repairs can be made.*

3.11 DESIGN POINT OF STANDARDS APPLICATION - The performance standards applicable to the system final effluent quality must be equaled or exceeded as the wastewater exits the last advanced treatment component in the treatment train.

- *Point of standards application – Purpose: To establish a standards application point relative to the design zone.*
- *Some states have adopted specific locations where adopted performance standards must be achieved, such as a drinking water well or property line. This code applies the performance standard at the effluent port of the last advanced treatment unit prior to discharge to the soil or surface waters.*

3.12 DEEMED TO COMPLY DESIGN – Advanced treatment systems that are listed by an ANSI accredited third party certifying agency as complying with NSF/ANSI Standard 40 and are included in ADWA's list of approved products, are deemed to comply with their certified performance requirements without sample monitoring of the effluent provided:

- The influent characteristics comply with those listed in the component specification manual
  - There is no Type I, or II compliance violation
  - The system is in compliance with the adopted operation and maintenance requirements.
- *Deemed to comply – Purpose: Allows the utilization of treatment systems without the need for effluent sample monitoring for the vast majority of installations installed in low risk environments.*

*Effluent monitoring- Effluent monitoring is the alternative regulatory approach to “deemed to comply.” Ideally, effluent monitoring is the most appropriate and direct measure of performance standard compliance. If employed, many of the common, costly prescriptive and QA/QC requirements can be eliminated. The problem with effluent monitoring is that it is technically difficult for the soil component and very expensive for all treatment components if conducted in a manner that follows the Standard Methods manual and develops levels of statistical confidence that can support an enforcement action needed to prove that the sampling methods accurately estimate the mean and other central tendency based standards, and are performed by trained persons and by organizations without a conflict of interest.. For the most part, those sample monitoring costs are not justified for the risk posed by small individual onsite treatment systems.*

*This model code recommends the discontinuance of most sample monitoring enforcement programs for individual home systems and for other small systems where compliance with standards is determined based on central statistical measures such as mean, geometric mean, most probable number, median and other central tendency statistics except when the risk resulting from non standard performance is very high and then only if statistically significant results are provided over a short period of time. This frequently requires more than 100 samples collected over a short period of time to be effective in protecting the human or natural environments. If the regulatory agency allows the collection of samples over an extended period of time to determine compliance, this indicates that the regulatory agency believes the risk is actually quite low.*

*The use of enforcement sampling results should not be combined with a field evaluation programs of component performance because the enforcement evaluation program for a single system is interested only in the output of the system where the evaluation of a treatment component is interested in both the influent and effluent values. For example, a system designed for 600 gpd that is receiving 1,500 gpd is of enforcement interest but should not be used to evaluate the performance of component.*

### 3.13 CODE VIOLATIONS

3.13.2 It is unlawful to install or operate a system in violation of the code.

3.13.3 Notice of violation by the regulating authority to the responsible party shall be in writing indicating the nature of the violation, the code provision violated, amount of time permitted for correction and potential penalty if not corrected.

3.13.4 Prosecution of unsatisfied corrective orders is provided by [INSERT NAME OF GOVERNMENT UNIT]

3.13.5 Penalties provided

3.13.5.1 Schedule of penalties for violations are in [reference or insert penalty schedule]

3.13.6 ENFORCEMENT ACTION FOR IMMINENT THREAT - Enforcement actions to abate imminent threat to human health and safety or to the natural environment from Type I and II compliance violations consist of one or both of the following.

3.13.6.1 Issuance of a compliance order to repair the system in a specific period of time or to discontinue use of the system until repaired

3.13.6.2 Issuance of citation as provided in [REFERENCE AUTHORITY]

- *Citation authority – Purpose: Provides an enforcement tool that is less difficult to deploy administratively than other enforcement techniques. The provision usually requires specific authority of an ordinance or statute in most states.*

*Citation authority increases citizen attention to the law and eases the administrative burden associated with prosecution because most people comply with the requirements and pay the fines without going to court. However, it does not force the owner to repair the system, only to pay the fine and be subject to further citations. Depending on the size of the fine, the persistence of the regulator and the cost of the repair, the owner may choose to ignore the fine and/or not repair the system, forcing the matter into court. Once in court, the burden of proof still rests with the regulatory agency to defend the code provision, the agency's administrative practices and to prove the violation.*

3.14 APPEALS TO REGULATORY DECISIONS AND ORDERS; Any person affected by a decision or order of the regulating authority may file an appeal of a decision by filing a Level I or Level II appeal. The request shall be sent to [NAME AND ADDRESS]

3.14.2 Level I Appeal - A person receiving an order or decision of the department may appeal the order or decision by filing a written appeal within 30 calendar days of receipt of the order or decision. The appeal shall contain a clear statement of the issue(s), reasons for the appeal, a proposed alternate decision, rationale for the proposed decision, the applicable fee [STATE FEE OR REFERENCE TO FEE SCHEDULE] and be signed by the appellant. The department shall consider the appeal and issue a determination within 15 working days of receipt of the appeal. At the request of the appellant, the department may conduct a meeting with the appellant and representative(s). The 15 day period may be extended by mutual consent. If the agency does not answer in writing within the 15 day period or any extension, the fee shall be returned to the appellant and the complaint deemed to be denied. The appellant, after denial or receipt of the answer to the appeal, if still unsatisfied with the decision, may, within 30 days, file a Level II appeal. In the event the appellant desires to skip a Level I appeal stage, the appellant may file a Level II appeal in lieu of a Level I appeal.

3.14.3 Level II Appeal - A person receiving an order or decision of the department may appeal the order or decision by filing an appeal within 30 days of the order or decision. The appeal shall contain a clear

statement of the issue(s), reasons for the appeal, a proposed alternate decision, rationale for the proposed decision, required fee [STATE FEE OR REFERENCE TO FEE SCHEDULE] and be signed by the appellant. The department shall schedule a contested case hearing within 30 calendar days and issue a determination within 30 working days of the hearing. Failure of the department to respond to the appellant within 15 calendar days to schedule a hearing or to answer the complaint with a decision within the 30 days shall be deemed a denial of the appeal and the appellant may appeal the decision to court. Failure to schedule a hearing or to render a decision within the time limits shall cause a return of the fee to the appellant.

- *Appeals – Purpose: Allow an individual a mechanism to correct errors in regulatory decisions.*

*State laws and local ordinances normally contain provisions for appeals to agency decisions. The code provisions are provided for circumstances where the regulating agency has some discretion to determine an administrative appeal process.*

*The purpose of the more informal Level I appeal is to provide the regulatory authority the opportunity to re-examine the issue and allow the appellant a chance to express his/her views in an informal, less expensive process. It also serves as an audit of the quality of the code language and the staff interpretation of the code language for the agency's top management.*

*The more formal Level II appeal requires a formal hearing before an independent hearing officer with sworn testimony, formal exhibits and precedent setting decisions, or if not precedent setting, a decision that could sway the case before a circuit judge.*

*The process should have short timelines because of the continuing injury to the appellant if his/her case has merit. Return of the fee for tardy work is an incentive for efficient delivery of services.*

3.15 VARIANCE – Any person affected by the regulation may apply for a variance to a code provision for a specific application of the code. The regulatory agency that adopted the provision shall consider the variance request. If both the local and state agency adopted the provision, the state has primary jurisdiction and shall consider the position of the local government in the determination.

3.15.2 The variance request shall be in writing stating the provision(s) for which the variance is requested, the proposed alternate application, and the rationale for the proposal. The variance request shall be sent to [NAME AND ADDRESS] with the required fee [LIST FEES OR PROVIDE REFERENCES TO SCHEDULE].

3.15.2.1 The standard for variance approval is that the variance substantially achieves the purpose of the provision(s) and provides an equal or greater degree of protection afforded by the provision(s).

3.15.2.2 The regulatory authority shall render a decision on the variance request within 30 working days of receipt of the complete

application, unless the applicant agrees to an extension. Failure to answer the variance request within the 30 working day period or the period of the extension shall be considered a decision to grant the request.

3.15.3 The agency granting all or part of the variance request shall indicate that the decision is non-precedent setting or precedent setting. Precedent setting variances shall be published [ADD FREQUENCY – EX: QUARTERLY].

- *Variance – Purpose: Provide the ability to approve alternate requirements of equal or better safety. Variances are modifications to a code applied to a single circumstance.*

3.16 WRITTEN RECORDS - Administrative codes, policy statements, code interpretations, compliance directives and agency determinations shall be in written form or, if maintained in electronic form, be capable of being converted to written form upon request.

- *Written records – Purpose: Creation of durable public records accessible by the public*

## Chapter 4

4. STANDARDS, PROTOCOLS AND LISTS RECOGNIZED - The following protocols, standards and lists are recognized as appropriate sources to support a claim of compliance with performance standards or requirements for all Advanced Treatment Units.
    - 4.1. ANSI/NSF Standard 40
    - 4.2. List of ANSI Accredited Third Party Certifiers
    - 4.3. ADWA Soil Loading Table (Appendix A)
    - 4.4. ADWA List of Approved Products
    - 4.5. Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> Edition, a joint publication of the American Public Health Association (APHA) the American Water Works Association (AWWA), and the Water Environment Federation (WEF).
- *Adoption of standards, protocols and lists - Purpose: Incorporation by reference of existing third party documents or protocols because it is efficient and the standards are often under proprietary copyright or trademark.*

## Chapter 5

### 5. EFFLUENT PERFORMANCE REQUIREMENTS ADOPTED

5.1. CHARACTERISTICS OF FINAL SYSTEM EFFLUENT - The effluent of the last advanced treatment component in the treatment train shall achieve the treatment levels for the constituents indicated in paragraph 5.2. The following methods may be used to assert compliance with the adopted requirement:

5.1.1. DEEMED TO COMPLY - The system is deemed to comply with the final effluent standards provided the system is operated and maintained in accordance with the permit approval documents. The system shall include one or more advanced treatment components for the removal of CBOD<sub>5</sub> and TSS before the wastewater is discharged to the unconfined subsurface or surface dispersal component. Such advanced treatment components shall be evaluated under paragraphs 4.1 through 4.5. A treatment component classified as “deemed to comply” is assumed to comply with the adopted standard without requiring effluent sampling during system operation.

5.1.2. CHARACTERISTICS OF ATU –The effluent from an ATU shall have a CBOD<sub>5</sub> equal to or less than 25 mg/L and TSS equal to or less than 30 mg/L.

5.1.3. ATU CERTIFICATION –No ATU may be used unless it has been listed by an ANSI accredited third party certifier as complying with NSF/ANSI Standard 40 and is included in ADWA’s list of approved components.

5.2. STATE CODE FINAL EFFLUENT MINIMUM REQUIREMENTS - The system effluent shall meet the following requirements as it leaves the final ATU treatment component.

5.2.1 Land subsurface discharge

5.2.1.1. CBOD<sub>5</sub>-25 mg/L (30 day average)

5.2.1.2. TSS-30 mg/L (30 day average)

5.2.2 Land surface discharge

5.2.2.1 Fecal Coliform-reduction by approved disinfection device

5.2.2.2 CBOD<sub>5</sub>-15 mg/L (30 day average)

5.2.2.3 TSS-20 mg/L (30 day average)

5.2.3 Surface water discharge

5.2.3.1 Fecal coliform-200 colony forming units per 100ml, 95% of the time

5.2.3.2 CBOD<sub>5</sub>-10 mg/L (30 day average)

5.2.3.3 TSS-10 mg/L (30 day average)

➤ *Performance standards adopted - Purpose: To adopt in code the system final effluent performance standards. In 5.1, the term “Minimum Requirements” defines the minimum level of effluent quality permitted by a system, not a minimum code that can be amended by subordinate levels of government.*

## Chapter 6

### 6 QUALITY ASSURANCE AND QUALITY CONTROL SYSTEMS ADOPTED

- *Quality Assurance - The purpose is to reduce the risk that the adopted effluent performance standards will be exceeded and to reduce the risk that the OWTS physical plant will cause harm or injury.*

#### 6.1 PERMITS

- *Permit -Purpose: A permit is a document or certificate giving permission to do something. In decentralized regulation it usually involves the construction of the treatment system, the operation of the system or the practice of a profession.*

##### 6.1.1 PERMIT REQUIRED -No OWTS may be installed, constructed, modified or added to without first obtaining a permit from [NAME AGENCY]

- *Purpose: A construction permit gives the agency notice that a regulated activity is about to commence. Notice allows the agency to ensure that related regulations are met. It also provides an easy vehicle to collect fees to support the regulatory agency.*

##### 6.1.1.1 REPAIR PERMIT. No person may make a major repair of a system without first obtaining a permit from [NAME AGENCY]. Minor repair and normal servicing does not require a permit.

- *Repair permit - Purpose: To notify the agency of that a repair will occur so that inspection can occur. The requirement to secure a permit is costly to the owner and is often ignored, especially for minor repairs where the cost of the permit equals or exceeds the cost of the repair.*

*The need for repair permits is a function of the quality of the personnel performing the work. In other words, inspection requirements can be reduced where certified personnel are doing the work, assuming that some level of audit of the person's performance is conducted.*

##### *Recommendation –*

- *Minor repair: Only require repair permits where service personnel are not certified or licensed.*
- *Major repair: Require the repair permit.*

##### 6.1.1.2 PERMIT POSTING. A permit shall be posted on the building or in a conspicuous location when viewed from the street. The permit shall remain posted during the major repair or construction activity.

- *Posting – Purpose: Assures public that the activity is under regulatory supervision.*

##### 6.1.1.3 PERMIT EXPIRATION – The construction permit shall expire [ADD DURATION] years from the date of issuance if construction is not commenced. If construction is commenced within the period, the permit may be extended for an additional [ADD DURATION]. The code in effect at

the time the permit is issued is applicable during the pendency of the permit. The permit may be renewed at the discretion of the permitting authority at any time.

- *Duration - Purpose: Expiration dates allow the agency to update the status of the project, especially if the code is changed during the period of the permit. Suggest that a lower fee be assessed for renewals because the work involved is less.*

6.1.1.4 TRANSFER OF PERMIT TO NEW OWNER - Upon application by a new owner, the permit issued to the preceding owner will be transferred to the new owner.

- *Permit transfer – Purpose: To maintain the permit with a new owner. Recommendation: Allow transfer.*

6.1.1.5 PERMIT REVOCATION – The permit may be revoked for the following reasons:

- 6.1.1.5.1 If an imminent threat to human health and safety or the environment would occur if the construction subject to the permit continues.
- 6.1.1.5.2 If the application for the permit contains false information that is material to the decision to grant the permit

6.2 OPERATING PERMIT – No person may operate a system without an operating permit. Where the operator is not the owner and is a certified RME, the permit shall be issued jointly to the owner and operator.

6.2.1 PERMIT DURATION - The operating permit continues in effect until the expiration date or it is revoked for cause. The permit expires [ENTER NUMBER] years after issuance or upon property transfer, which ever event occurs first.

- *Operating permit - Purpose: The operating permit is a legal instrument that makes it easier for the regulatory agency to enforce the maintenance requirements of the code. The primary effect is to put owners on notice that the government is interested in the operation of the system. The secondary effect is to increase the chance of a successful court action because the charge of “operating without a permit” can be added to the “failure to maintain” charge.*

*The implied threat of the provision is that a system without an operating permit cannot be operated and therefore the home must be abandoned – a politically unrealistic action in most cases.*

*The operating permit creates obligations on the part of the regulatory agency as well as the homeowner. The regulatory agency needs the skills, personnel, support systems and the political will to enforce the requirement.*

*Implementation of statewide operating permit programs is more difficult to adopt and enforce than local requirements focused on areas of perceived high risk. A major problem with statewide application of these provisions is the failure to enforce the provision by local governments where the risk of health and environmental effects is perceived to be minimal.*

*Recommendations:*

- *Do not establish statewide operating permits initially unless the state is assured that the enforcing agencies are able and willing to enforce the provision. Instead, first establish a focused operating permit program in areas of perceived substantial risk of harm from failing systems where the regulatory capability exists to administer and enforce the provision. Linking the operating permit program to high risk areas increases the political viability of the requirement. The question is who should adopt the provision, the state or the local governments? The key is who is in better position to identify focused areas of perceived risk and to secure enforcement.*
- *Do not conduct regulatory inspection of individual systems if service-tracking programs are in place. Do conduct regulatory audits of service providers.*
- *If operating permits are issued they should be for a fixed period of time linked to the risk of failure of the design.*

6.2.2 PERMIT REVOCATION - The operating permit may be revoked for the following reasons:

- 6.2.2.1 Existence of a Type I or II compliance violation after the authorized repair period
- 6.2.2.2 Existence of a Type I or II compliance violation that is an imminent threat to human health and safety or to the natural environment
- 6.2.2.3 Persistent failure to perform required inspections and maintenance
- 6.2.2.4 Change in use or increase in the size of the structure that would significantly increase the wastewater loads and flows

- *Permit revocation - Purpose: Construction permit revocation may be necessary in very limited situations. Permit revocation is a “stop work” order. Revocation is a major action that has a high time and monetary cost to the owner and contractor and should be used only when a major health and safety issue exists. Recommendation: If a serious problem exists that will be exacerbated by continued construction, revocation can be a useful tool. If critical information is not provided at the time of permit application, the permit should not be issued to avoid having to revoke it later. Permit should expire upon transfer of property to ensure that the new owner is informed and can/will confirm with permit conditions.*

6.2.3 PERMIT ADMINISTRATION

- 6.2.3.1 PERSON SUBMITTING – The OWTS owner, owner’s agent’ assigned operator or the person performing the work may apply for a permit.
- 6.2.3.2 APPLICATION FORM – The permit application shall be filed on a form or by a method acceptable to the [NAME AGENCY]
  - 6.2.3.2.1 ATTACHMENTS – The following documents shall be attached to the permit application: [NAME DOCUMENTS] – examples: plot plan, soil report/certificate, OWTS plan and Operations and maintenance manual]
  - 6.2.3.2.2 Where to submit – [STATE WHERE TO SUBMIT]
- 6.2.3.3 RETENTION OF PERMIT DOCUMENTS

6.2.3.3.1 Permit records shall be retained as provided in this section.

6.2.3.3.1.1 Retention by owner or operator:

6.2.3.3.1.1.1 The permit and attached documents shall be retained at the worksite during construction until such time that the system is allowed to be operated. The permit documents shall be produced when requested by the inspector.

6.2.3.3.1.1.2 The operating permit and related documents [NAME DOCUMENTS] shall be retained by the owner or operator during the period the operating permit is in effect and shall be made available to the inspector within a reasonable period of time when requested by the regulatory authority.

6.2.3.3.1.2 Retention by the regulatory agency

6.2.3.3.1.2.1 The construction and modification permits and attached documents shall be maintained by the permitting agency until the system is abandoned.

The operating permit and attached documents [NAME DOCUMENTS] shall be retained by the permitting agency during the period the operating permit is in effect.

➤ *Retention of permit documents – Purpose: To provide a durable record of the permit.*

*Recommendations: The construction permit should be retained at the work site and by the regulatory agency during construction. A copy of the permit documents, especially the approved plan should be retained by the regulatory authority until the system is properly abandoned. It is unrealistic to expect the owner to retain the records because of the frequent turnover of owners.*

6.2.3.4 PLAN REVIEW – A design plan for the OWTS system shall be submitted with the permit application for new construction or modification of an existing system and shall contain the following information. Plans submitted by a Master Designer are not subject to mandatory review prior to issuance of a permit, but may be audited for the purpose of determining the continued status of the Master Designer rating.

6.2.3.4.1 A scaled drawing showing the property boundaries, the location of existing and proposed structures including the OWTS components, current or proposed easements, driveways, below ground water and utility lines, public and private wells, and surface waters. Off property features affecting applicable setback distances to OWTS components shall be shown but not necessarily to scale. On large lots, these features need not be shown if more than twice the distance of the largest setback requirement from the OWTS component. If the OWTS components are on different legal parcels than the structure served, the site plan must include all parcels with interconnected OWTS components.

6.2.3.4.2 Soil and site evaluation report

6.2.3.4.3 Operation and maintenance manuals for the OWTS treatment components including the unconfined soil dispersal component

- *Various other permits may be required to construct the home or the treatment system. In many cases, securing one permit is conditioned on securing another permit first. Often building permits are conditioned on receiving an onsite and zoning permit. NPDES permits are required for surface discharge by the EPA delegated state agency.*

6.2.3.4.4 Construction to approved plan – The OWTS shall be installed in conformance with the approved plan. If unexpected site conditions are encountered and the system is installed other than to the plan, an as-built plan shall be submitted to the approving agency.

- *Plan Review – Note: The language specifically mentions OWTS because the intent is to differentiate administrative requirements between onsite systems and cluster systems.*
- *Plan review – Purpose: To audit the system design for compliance with code provisions to reduce the risk that the system will be constructed in violation of code provisions.*

6.2.3.4.5 Cluster System - If the system is a cluster system, a single plan submission may be provided for review and permitting of the cluster design. The plan shall include the cluster system maximum influent design loads and flows accommodated by the design. A detailed specification and drawing of the standard connection between a structure's plumbing system and the first on lot treatment or off lot treatment component must be provided. Further plan review for an installation on a lot is not needed and the connection between the structure and the cluster system is subject to any plumbing permit process for the individual structure. The permit issued shall be in effect until the development served by the approved cluster system is completed, unless revoked for cause.

6.2.3.4.5.1 If the system is a cluster system or if the system serves more than one existing or proposed structure on a single parcel where the structures or housing units may be separately owned, such as in a condominium project, an easement shall be recorded for the system components.

6.2.3.5 RME - If the OWTS is owned and operated by a certified RME and the system sites are separate on-lot systems, the exceptions contained in 6.2.3.4.5 apply to the single on-lot systems.

- *Cluster system – Purpose: To differentiate administrative practices applied to cluster and onsite systems owned and operated by a certified RME. Traditional rules were developed to deal with the on-lot systems owned and operated by the individual building owners. Cluster systems owned and operated by certified RME*

*organizations should be regulated more like utilities and the regulatory attention should be shifted to the audit of the operation of the RME rather than supervising each individual lot installation. The agency should audit the RME and apply more or less attention to the RME based on the results of the audit.*

*Systems serving 20 or more people are defined as Class V injection wells under federal and state Underground Injection Control programs and need to be registered with the appropriate authority.*

6.2.3.6 SITE SUSTAINABILITY PLAN – The designer shall submit a contingency plan to both the owner and the agency to maintain an OWTS system at the site for the expected life of the structure(s) served. The presumed life of the structure is 100 years unless stated otherwise. If the site is expected to be connected to a non-OWTS conveyance and treatment system in the future, the plan may be limited to that period. The plan shall assume that each component shall fail during the life of the system and require replacement or repair, unless the designer can demonstrate indefinite operating life for the component. For the unconfined soil treatment/distribution component, the indefinite life plan may include, but is not limited to the following: rejuvenation, replacement area, the use of techniques such as alternating drainfields or pretreatment to eliminate the formation of a clogging layer.

➤ *Site sustainability plan – Purpose: Most structures will last in excess of 100 years if maintained. Many will rely on decentralized treatment systems for the life of the structure. The designer should indicate a contingency plan to maintain a system on the site either with repaired, rejuvenated or replaced components.*

#### 6.2.3.7 ADMINISTRATIVE PROCESSING REQUIREMENTS

6.2.3.7.1 TIME TO PROCESS PERMITS The agency will process a permit request, perform a plan review (if required) and issue an approval or denial of a completed permit application and/or plan review within [STATE DAYS] business days of receipt. The process time may be extended by agreement of the applicant. Failure to issue a determination within the stated time will cause the agency to rebate [SELECT PERCENT – EXAMPLE 5%] of the application fee charged each day the reply is late.

- *Time limits – Purpose: Timely administration of permits. Performance standards can apply to the work or individuals and organizations in addition to the effluent of wastewater systems. An important performance element to citizens is timeliness of code administration. Long permit review times delay home building projects, increase costs and needlessly harm the citizen. Review time performance standards should approximate the best practices in similar regulatory agencies or that provided by competitive service agencies for similar processes.*

*Recommendation: Since most plan and permit reviews are bench reviews and require an hour or two of labor at most, a target permit turn-time for these reviews should be in the range of 1 to 3 workdays. Some review agencies return plans in one day with an appointment.*

*Some agencies conduct a field audit along with the plan review. Longer review times of a day or two can be expected.*

*Agencies with insufficient staff to meet these timelines should consider authorizing third party reviewer or bypassing the review process for Master Designers. Third party review options range from peer review to contracts with private and other public review organizations for overflow work.*

- 6.2.3.7.2 WRITTEN ANSWER –The agency response shall be in writing. If the permit application or plan approval is denied, the agency shall state the specific reasons for the denial.

### 6.3 Inspection

- *Inspection – Purpose: Inspection is the audit function to promote compliance with the regulation.*

6.3.1 CONSTRUCTION INSPECTION – Except as provided below newly installed [ADD MODIFICATIONS AND MAJOR REPAIRS IF APPROPRIATE] system components may not be covered or placed into service until inspected and approved by the construction inspector. The person installing shall notify [STATE WHO TO NOTIFY] prior to covering the component. If the inspector is unable to inspect the facility within [STATE TIME], or verbally waives inspection, the contractor may cover the components.

6.3.1.1 If the installer holds a certificate of Master Installer, the person shall notify the agency of completion of the project and may cover the component(s) without inspection unless specifically requested by the agency or inspector to wait for inspection. The master installer shall inspect the system prior to cover-up and certify that the system was installed per code and permit requirements.

6.3.1.2 INSPECTION AFTER FINAL GRADING – The inspector may require an inspection after final grading and landscaping to ensure that the system is not subject to storm water erosion or ponding over the components.

### 6.3.2 OPERATION MAINTENANCE AND INSPECTION

- *Operational maintenance – Purpose: to reduce the risk that a system operates in violation of the adopted performance requirements.*

6.3.2.1 SYSTEM OPERATIONAL MAINTENANCE – The owner or RME shall have the system components serviced on the schedule required by the component manual, code provision and the conditions of the permit.

- *Operational maintenance and inspection - Purpose: To reduce the risk that the treatment system is out of compliance with adopted performance requirements.*

6.3.2.2 REGULATORY INSPECTION – The [STATE NAME OF REGULATING ENTITY] shall track the performance of required operational maintenance. If the

maintenance tracking system is not in place and/or the agency is not enforcing the maintenance requirements, the agency shall cause the inspection of each system within the timeframe specified in the component manual or the conditions contained in the permit.

6.3.2.3 Effluent sample monitoring will only be required in conditions of elevated risk of the effects of noncompliant system treatment performance and when conducted, the sampling protocol shall follow the protocols contained in the publication Standard Methods for the Examination of Water and Wastewater, and will be designed with sufficient samples taken over a short enough period to protect the human and natural environments from non-compliant effluent and to produce statistically significant results.

- *Standard Methods* is a joint publication of the American Public Health Association ([APHA](#)), the American Water Works Association ([AWWA](#)), and the Water Environment Federation ([WEF](#)).

*Effluent quality monitoring – some existing agencies require that an effluent sample be taken to measure the system performance against adopted standards. These standards are often stated as measures of central tendency like average (mean) values. Because of the natural high variation of effluent quality, numerous samples are needed to establish the mean performance of an OWTS, as high as 100-200 samples to establish confidence level of 95% often needed to sustain an enforcement action. Because adequate sample monitoring is very expensive, it is not reasonable relative to risk for the vast majority of small treatment systems.*

*Recommendation: Do not require effluent samples from small systems. Instead rely on evaluated designs and operational maintenance enforcement.*

6.3.2.4 EXISTING SYSTEM ASSESSMENT PROTOCOL - Inspection of an operating system shall comply with one or more of the following levels as directed by the authority having jurisdiction.

6.3.2.4.1 Level I - Determination of Type I compliance violation.

6.3.2.4.2 Level II - Determination of a Type III compliance condition

6.3.2.4.3 Level III - Determination of the status of the distribution component and the ability to function hydraulically under expected flows and loads.

6.3.2.4.4 Level IV - Determination of a Type II compliance violation. Compliance can be achieved by either of the two following methods.

6.3.2.4.4.1 Deemed to comply determination

6.3.2.4.4.1.1 Soil Component - The soil component design features are in conformance with the prescriptive design requirements in effect at the time the component was constructed or last modified, or if superseded by a subsequent code with retroactive application, to the applicable provision.

6.3.2.4.4.1.2 Pretreatment component – The component is in conformance with the specifications in effect at the time the permit was issued.

- *Existing system assessment protocol – Purpose: to assess the treatment train to determine the operating condition and status relative to the code provisions.*

*The main question is the level of the assessment. The inspection protocol employed can vary depending on the extent of the inspection required - the questions the agency desires to be answered. Examples of questions follow:*

*Regulator questions might be:*

- *Is the system currently failing or showing evidence of recent failure (surfacing)? (Type I violation)*
- *Does the system have the required vertical and horizontal separation distances? (Possible Type II violation)*
- *Has the use of the structure changed so that it is no longer compatible with the design?*

*The following general language expands on the code language but is not intended to be more than a guide to the development of an inspection protocol.*

*6.3.2.3.1 A Level I inspection looks for surfacing of sewage where it is not intended. This can be observed by walking the site and inspecting for discharges in buildings.*

*6.3.2.3.2 Level II inspects the mechanical, hydraulic, structural and control functions of the system components. The tanks are evaluated for needed pumping.*

*6.3.2.3.3 Level III determines the hydraulic capacity of the distribution component without discharge to the surface.*

*6.3.2.3.4 Level IV determines the status of the drainfield relative to prescriptive of performance standards covering the system.*

*These four levels can either be employed by regulators or any person, such as a new home buyer. Inspections requested by the homeowner or other private interests should not be required to serve as a regulatory inspection because of conflict of interest issues and because such a requirement would discourage voluntary inspection.*

*The results of Level III and IV inspections need careful consideration.*

- *A ponded drainfield absent surfacing is not a failed system; in fact it is likely providing an optimal level of treatment because of added treatment in the trench and by providing equal distribution.*
- *States that employ prescriptive vertical separation requirements should consider establishing a reduced separation requirement when evaluating mature systems.*
- *Level IV inspections may create a political backlash unless directed in a focused manner to a publicly perceived problem. Requiring that the drainfield be replaced when the system has a 30 inch separation instead of 36 inches may be politically and scientifically unsupportable because the system is likely*

*performing better than the new conventional system installed next door.*

6.3.2.5 REPORTING MALFUNCTIONING SYSTEM – The owner or operator shall report Type I and Type II to [STATE NAME OF AGENCY] within [STATE TIME IN DAYS].

*Recommendation: Avoid the provision if the agency has a maintenance monitoring or regulatory inspection program in place. Adopt it if there is no regulatory inspection program.*

6.4 CERTIFICATION - Prior to performing the core functions of the following classifications, a person employed to provide service to a system must possess a current certification from the indicated organizations.

6.4.1 CERTIFIED CLASSIFICATIONS -SYSTEM:

- Construction Inspector: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Designer: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Installer: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Maintainer/Operator (option: excluding homeowner): [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Plan Reviewer: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Site Evaluator: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Soil Evaluator: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]

6.4.2 CERTIFIED ORGANIZATIONS

- RME: [NAME CERTIFICATION(S) AND ORGANIZATION(S)]
- Regulatory Agency [NAME CERTIFICATION(S) AND ORGANIZATION(S)]

6.4.3 Persons holding other professional licenses that allow them to perform this work must comply with the restrictions of the license to only perform work if qualified in the area of practice.

6.4.4 DISPLAY OF CERTIFICATE - A person performing work requiring certification must produce the certification document when requested by an inspector or other government agent with jurisdiction. A regulatory agent must produce his/her certification when requested by any individual with whom the inspector is interacting as an agent of the state.

- *Certification: The term used here is generic for programs that issue either certifications or licenses. Some states provide certification programs but do not require certification to do the work. This language is targeted at states that require certification prior to working in a field. Note: the requirement of certification prior to performing commercial work is functionally the same as licensure requirements.*
- *6.4 Certification - Purpose: Reduce risk that system service providers will make “lack of knowledge” errors that affect system performance by providing a mechanism to screen applicants for skills and knowledge prior to entry and to remove the unskilled and bad actors from the business.*

6.4.5 DURATION OF CERTIFICATION - Certifications issued by the State expire [STATE DURATION OF EACH CLASSIFICATION]

- *Duration of certification – Purpose: Expiration dates keep the certification list current and allow a mechanism to enforce the obligation of continuing education. A reasonable duration is in the 2-3 year range.*

6.4.6 CONTINUING EDUCATION - Persons holding current certifications must successfully complete approved education programs taken after the effective date of the current certification and prior to application for certification renewal.

6.4.6.1 Course Approval – Education programs require prior approval by the agency issuing the certification. The content of the course shall be focused on improving the knowledge, skill and ability of certificate holders in the performance of the work covered by the certification.

6.4.6.2 Credits and Hours Required – One hour of training equals one credit hour. The required hours of training for each certification follow:

6.4.6.2.1.1 [LIST CERTIFICATION TITLE AND HOURS REQUIRED FOR EACH]

6.4.6.3 Reporting Credit Hours – The person conducting the approved program shall:

6.4.6.3.1 Provide a mechanism(s) that ensures that the individual applying for continuing education credit actually attends the full program and is attentive to the subject material.

6.4.6.3.2 Record the attendance and issue a certificate to the individual. If direct notice is required by the certifying agency, a list of attendees and other information required by the agency shall be provided to the agency.

6.4.6.3.3 Failure to Earn Required Credit Hours – Persons who fail to report sufficient credit hours for certification renewal shall be denied a new certification, with the following exceptions:

6.4.6.3.3.1 The applicant may apply for a four-month extension of the current state certificate to secure the necessary credits or to resolve disputes about approved credit hours.

6.4.6.3.3.2 The agency may grant a second extension upon the applicant showing good cause for such extension. Good cause is solely determined by the agency.

- *6.4.6. Continuing education – Purpose: Maintains and increases skills and knowledge of existing service providers.*

*Recommendation: Continuing education should be required as a condition of renewal of the certification or license. Eight to sixteen hours of approved courses is reasonable for renewal.*

6.4.7 PRIOR QUALIFICATIONS TO APPLY FOR INITIAL CERTIFICATION – Prior to applying for certification the applicant must demonstrate prior training and experience as follows:

- System Construction Inspector: [LIST REQUIREMENTS]
- System Designer: [LIST REQUIREMENTS]
- System Installer: [LIST REQUIREMENTS]

- System Maintainer/Operator (option: excluding homeowner): [LIST REQUIREMENTS]
- System Plan Reviewer: [LIST REQUIREMENTS]
- SYSTEM RME – [LIST REQUIREMENTS]
- System Site Evaluator [LIST REQUIREMENTS]
- System Soil Evaluator: [LIST REQUIREMENTS]

NOTE: IF SUBCLASSIFICATIONS EXIST SUCH AS INSTALLER I AND II, LIST THE SUBCLASSIFICATIONS.

- *Prior qualifications – Purpose: Screen applicants applying for a certification based on previous training and experience or by possession of a required license or certificate. The requirements simplify the evaluation process, but may also unfairly screen out otherwise qualified persons.*

*The requirement is often applied when the evaluation process is not sufficiently robust to actually evaluate for the full range of knowledge, skill and ability of the applicant.*

*Recommendation:*

- *Prior qualification should be avoided on entry level classifications*
- *National certification programs should provide two levels of certification for each general classification group.*
  - *Entry level – common and simple elements of the task*
  - *Journey level – broad and complex elements of the task*
- *Master level – States should adopt a classification for a person, either entry level or journey, who has demonstrated reliability in their trade to a level that permits substantially reduced regulatory attention.*

*The purpose of multilevel certification is to allow persons with narrow skills, such as ability to install conventional systems but not site constructed sand filters, to practice their trade of installing conventional systems.*

6.5 HORIZONTAL SETBACK REQUIREMENTS - The horizontal setback requirements between system components and other features shall be determined by the designer under one of the following design options:

6.5.1 Prescriptive determination as provided in Table 6.1

6.5.2 Performance Standards – The system designer shall demonstrate compliance with the following performance standards

6.5.2.1 Released effluent may not reenter a structure or pond around the structure’s footings

6.5.2.2 Effluent may not cause a violation of the applied water quality standards at a drinking water well.

6.5.2.3 Effluent may not pond in the trench of a utility service, suction or pumps discharge line.

Table 6-1 Horizontal setback requirements in feet (meters) between a component and a feature of interest where site soil evaluation was appropriately conducted

Feature	Conventional treatment system dispersal component	Advanced treatment unit dispersal component
Structure	10 (3.48)	5 (1.524)
Property line	10(3.48)	5 (1.524)
Ordinary high water mark of navigable waters	50 (15.24m)	25
Swimming pool	10 (3.48)	5(1.524)
Water service	20 (6.96)	10(3.48)
Well	50 (1.524)	25 (7.62)

- *Setback - Horizontal setback - Purpose: Horizontal setback is intended as a design safety factor. The assumption is that all components will fail to perform as expected and the setback is necessary to treat the wastewater or to avoid damage or a nuisance. These proposed prescriptive distances are similar to those found in many codes and are not based on specific site risk assessment. Under a performance standard, the time of travel in aerobic and anaerobic conditions are major determinants of risk reduction and would vary with loading rates and soil conditions. The regulatory agency should consider variances to this table when the applicant can show site characteristics that support shorter distances.*

## 6.6 DESIGN REQUIREMENTS FOR SERVICE ACCESSIBILITY AND SAFETY

### 6.6.1 NEW SYSTEMS, REPLACEMENT COMPONENTS - Service access ports to components shall be located to be accessible to service personnel as follows:

- 6.6.1.1 The location of the access port, if not visible at the surface shall be marked in a manner that the service personnel can determine its location. Such marking may include a physical marker, a detailed site plan or other acceptable method of locating the access port.
- 6.6.1.2 Service ports that, by the management plan, are accessed more frequently than once every [STATE PERIOD] shall be accessible to the surface without digging. Access ports may be covered by ornamental or other coverings provided the cover could be easily removed.
- 6.6.1.3 Other service ports, if buried, shall be located within 6 inches (15.2 cm) of the surface and accessible by hand tools.

- *6.6 Service access - Purpose: to facilitate locating system access ports by service personnel and for service/inspection activity*
- *6.6.1 Access port requirements - Purpose: To facilitate access by service personnel. The option to extend risers of existing systems is intended to cause extension of existing risers and access ports to or near the surface, not to add additional service ports.*

6.6.2 Existing systems shall have existing access ports made to conform to the access requirements provided in paragraph 6.6.1 at the first scheduled service or repair event following adoption of the code

6.7 SYSTEM ACCESS BY SERVICE EQUIPMENT - For new construction, system component access ports shall be accessible to service vehicles as provided below:

6.7.1 The horizontal distance between the pumping access port for a component and the closest parking point for a 60,000-pound truck (27,216 Kg) shall not exceed 200 feet (61 meters). For a holding tank, the parking point shall be suitable for truck access in all weather conditions during periods of occupancy.

6.7.2 The vertical elevation difference between the parking point and the bottom of the tank to be pumped shall not exceed 20 feet (6.1 meters) for vacuum, truck mounted pumps.

6.7.3 For individual systems, the vertical and horizontal requirements may be waived if other suitable transfer methods are demonstrated to the regulatory authority as enabling the servicing of the components.

*Access by service equipment – Purpose: Pump trucks weighing up to 60,000 pounds (27,216 Kg need to get close enough to the components to perform their task. Two frequent barriers are the lack of all-weather access or physical barriers like landscape planting or fencing. For scheduled pumping of septic tanks, seasonal access conditions can be accommodated by scheduling the service during dry weather. Holding tanks need frequent pumping, so all weather access is needed for year round use. Access barriers like fencing can be removed at cost to the homeowner. Regulatory restrictions on landscaping for truck access are very intrusive on the homeowner and should be avoided unless critical. The extra time and expense of getting to the components is a private matter between the pumper and owner. For cluster systems and other Management Model V conditions access can be achieved by an easement created during the platting stage of development. The access conditions should be incorporated in the management plan that is approved for the system.*

6.8 SUBSTANCES PROHIBITED IN TREATMENT SYSTEMS - No person may introduce substances into a system that would cause an exceedence of adopted effluent standards or violation of law if discharged to the ground surface or to surface waters.

➤ *Prohibited substances – Purpose: To prevent the introduction of substances that harm the treatment process or would otherwise cause a violation of law. The list of substances is too large to be included in the code. Instead the regulatory agencies should publish a notice of common substances that should not be put into a decentralized system at all or should be limited in volume. See “do not flush” list in Appendix F*

6.9 STRUCTURALLY SOUND AND WATERTIGHT COMPONENTS

6.9.1 Structurally Sound - The tank shall be structurally sound as determined by Engineering Design with appropriate safety factors. All advanced treatment unit tanks shall be listed by an ANSI accredited third party certifier as complying with NSF/ANSI Standard 40 or be designed and certified by a Professional Engineer, licensed and qualified to perform structural design. Design should contemplate all reasonably expected loading conditions, including burial depth, tank full to top of riser, an empty tank installed with

water table at top of ground and any other reasonable expected loading conditions. Manufacturer should be required to certify that all tanks manufactured meet the engineer design.

- 6.9.2 Watertight - Components intended to be watertight as specified in the permit approval shall have watertightness verified through appropriate testing and compliance.
- 6.10 ACCESS PORT SAFETY - System component access ports shall not create a safety hazard. All exposed access openings shall be guarded. Openings larger than 4 inches should be secured by bolting or locking lids or by lids that weigh a minimum of 59 lbs (from ASTM C 1227 – “7.6.1”) and are set to prevent sliding. If securing the opening cannot prevent access, then a physical barrier should be erected to prevent access to the site. Covers, risers and lids shall be capable of bearing the expected live and dead loads.
- *Component access port safety - Purpose: To reduce the risk that a component will fail structurally because of live and dead load forces. See Appendix E for more information.*

## Appendix A – Soil Loading Rate Tables

<b>Table A-1</b> <b>Maximum ATU Loading Rates Based on</b> <b>Soil Morphology and Percolation</b> <b>18-Inch Vertical Separation Between Trench/Bed Bottom</b> <b>and Limiting Factor</b>			
<b>Soil Type</b>	<b>Percolation Rate (min/in)</b>	<b>Trench (gpd/ft<sup>2</sup>)</b>	<b>Bed (gpd/ft<sup>2</sup>)</b>
<b>Group I</b> <b>Sand</b> <b>Loamy Sand</b>	<b>0&lt;5</b>	<b>3.6</b>	<b>3.3</b>
	<b>5&lt;10</b>	<b>3.1</b>	<b>2.8</b>
	<b>10&lt;15</b>	<b>2.6</b>	<b>2.2</b>
<b>Group II</b> <b>Sandy Loam</b> <b>Loam</b>	<b>15&lt;20</b>	<b>2.2</b>	<b>1.6</b>
	<b>20&lt;25</b>	<b>1.8</b>	<b>1.3</b>
	<b>25&lt;30</b>	<b>1.5</b>	<b>1.1</b>
	<b>30&lt;35</b>	<b>1.4</b>	<b>0.90</b>
	<b>35&lt;40</b>	<b>1.3</b>	<b>0.80</b>
	<b>40&lt;45</b>	<b>1.2</b>	<b>0.75</b>
<b>Group III</b> <b>Sandy Clay</b> <b>Loam</b> <b>Silt Loam</b> <b>Clay Loam</b> <b>Silty Clay Loam</b> <b>Silt</b>	<b>45&lt;50</b>	<b>1.1</b>	<b>0.65</b>
	<b>50&lt;55</b>	<b>0.95</b>	<b>0.60</b>
	<b>55&lt;60</b>	<b>0.90</b>	<b>0.55</b>
	<b>60&lt;65</b>	<b>0.85</b>	<b>0.50</b>
	<b>65&lt;70</b>	<b>0.80</b>	<b>0.45</b>
	<b>70&lt;75</b>	<b>0.75</b>	<b>0.40</b>
	<b>75&lt;80</b>	<b>0.70</b>	<b>0.38</b>
	<b>80&lt;85</b>	<b>0.65</b>	<b>0.35</b>
	<b>85&lt;90</b>	<b>0.60</b>	<b>0.33</b>
<b>Group IV</b> <b>Sandy Clay</b> <b>Silty Clay</b> <b>Clay</b>	<b>90&lt;95</b>	<b>0.45</b>	<b>0.30</b>
	<b>95&lt;100</b>	<b>0.40</b>	<b>0.28</b>
	<b>100&lt;105</b>	<b>0.35</b>	<b>0.26</b>
	<b>105&lt;110</b>	<b>0.30</b>	<b>0.24</b>
	<b>110&lt;115</b>	<b>0.25</b>	<b>0.22</b>
	<b>115&lt;120</b>	<b>0.20</b>	<b>0.20</b>
	<b>120&lt;180</b>	<b>0.10</b>	<b>0.05</b>
	<b>180&lt;240</b>	<b>0.075</b>	<b>0.05</b>

<b>Table A-2—Maximum ATU Soil Loading Rates</b> <b>12-Inch Vertical Separation</b>			
<b>Soil Property</b>		<b>Loading Rate (Gal/ft<sup>2</sup>-day)</b>	
<b>Soil Texture</b>	<b>Soil Structure</b>	<b>Trench</b>	<b>Bed</b>
<b>Coarse sand or coarser</b>	<b>N/A</b>	<b>1.6</b>	<b>12</b>
<b>Loamy coarse sand</b>	<b>N/A</b>	<b>1.4</b>	<b>1.0</b>
<b>Sand</b>	<b>N/A</b>	<b>1.2</b>	<b>0.8</b>
<b>Loamy sand</b>	<b>Weak to strong</b>	<b>1.2</b>	<b>0.8</b>

<b>Table A-2—Maximum ATU Soil Loading Rates 12-Inch Vertical Separation</b>			
<b>Soil Property</b>		<b>Loading Rate (Gal/ft<sup>2</sup>-day)</b>	
<b>Soil Texture</b>	<b>Soil Structure</b>	<b>Trench</b>	<b>Bed</b>
Loamy sand	Massive	0.7	0.4
Fine sand	Moderate or strong	0.9	0.6
Fine sand	Massive or weak	0.6	0.4
Loamy fine sand	Moderate or strong	0.9	0.6
Loamy fine sand	Massive or weak	0.6	0.4
Very fine sand	N/A	0.6	0.4
Loamy very fine sand	N/A	0.6	0.4
Sandy loam	Moderate or strong	0.9	0.6
Sandy loam	Weak or weak platy	0.6	0.4
Sandy loam	Massive	0.4	0.3
Loam	Moderate or strong	0.8	0.5
Loam	Weak or weak platy	0.6	0.4
Loam	Massive	0.4	0.3
Silt loam	Moderate or strong	0.8	0.5
Silt loam	Weak, weak platy	0.3	0.2
Silt loam	Massive	0.2	0.2
Sandy clay loam	Moderate or strong	0.6	0.4
Sandy clay loam	Weak, weak platy	0.3	0.2
Sandy clay loam	Massive	0.0	0.0
Clay loam	Moderate or strong	0.6	0.4
Clay loam	Weak, weak platy	0.3	0.2
Clay loam	Massive	0.0	0.0
Silty clay loam	Moderate or strong	0.6	0.4
Silty clay loam	Weak, weak platy	0.3	0.2
Silty clay loam	Massive	0.0	0.0
Sandy clay	Moderate or strong	0.3	0.2
Sandy clay	Massive or weak	0.1	0.05
Clay	Moderate or strong	0.3	0.2
Clay	Massive or weak	0.1	0.05
Silty clay	Moderate or	0.3	0.2

<b>Table A-2—Maximum ATU Soil Loading Rates 12-Inch Vertical Separation</b>			
<b>Soil Property</b>		<b>Loading Rate (Gal/ft<sup>2</sup>-day)</b>	
<b>Soil Texture</b>	<b>Soil Structure</b>	<b>Trench</b>	<b>Bed</b>
	<b>strong</b>		
<b>Silty clay</b>	<b>Massive or weak</b>	<b>0.1</b>	<b>0.05</b>

The tables were a compilation of material from these references:

1. Tyler, E.J. and Converse, J. – “Soil Acceptance of Onsite Wastewater as Affected by Soil Morphology and Wastewater Quality.” Madison: University of Wisconsin, Small Scale Waste Management Project, Publication 4.38, October 1994.
2. Converse, J. and Tyler E.J. – “Soil Dispersal of Highly Pretreated Effluent-Considerations for Incorporation into Code.” Madison: University of Wisconsin, Small Scale Waste Management Project, Publication 10.22, January 1999.
3. Converse, J. and Tyler E.J. – “Soil Dispersal Units with Emphasis on Aerobically Treated Domestic Effluent.” Madison: University of Wisconsin, Small Scale Waste Management Project, Publication 16.4, Revised January 1999.
4. Bohrer, R. and Converse, J. – “Soil Treatment Performance and Cold Weather Operation of Drip Distribution Systems.” Madison: University of Wisconsin, Small Scale Waste Management Project, Draft Publication, December, 2000.

## 5. Appendix B-Tank Standards

### Guidance

Fit for the Intended Use at the Site – Decentralized wastewater treatment systems need to be fit-for-use in their operating environment. The operating environment of most systems is: buried below ground, in or above ground water, empty or full of sewage. The common performance standard in many state codes is that the system's tanks are water tight and structurally sound while installed and operating.

- Water tight – Inflow of groundwater or storm water. Onsite wastewater treatment systems are designed to return a predetermined volume and quality of wastewater to the environment. A septic tank allowing inflow of water can permit large unintended volumes of ground water into the treatment and disposal system. This can overwhelm the capacity of the downstream components, which may not be able to handle the extra water and provide adequate treatment. Also surges of inflow can displace solids from the tank adversely affecting the operation and operating life expectancy of downstream components. Groundwater often has compounds such as sulfur, iron and manganese, which can severely impact the septic tank and treatment components downstream.
- Water tight – Outflow of sewage. Leaking tanks can pollute groundwater in circumstances where there is a lack of suitable soil treatment between the tank and the groundwater.
- Structurally sound – The buried tank needs to be structurally sound to withstand the live and dead loads experienced at the site to prevent cracking or collapse. The potential impacts include safety of people in the area of the tank, the operation of the treatment system and the formation of cracks or other openings that cause leaks.

In many jurisdictions, the water tight, structurally sound requirements have not been aggressively enforced. Because the manufacture and installation of truly structurally sound, watertight tanks are marginally more expensive, and because the customers are very cost sensitive, this lack of enforcement gives a price marketing advantage to vendors of poor quality tanks. This problem is compounded because the tank is “out-of-sight” and “out-of-mind” of homeowners so they may not know that the tank system is leaking or structurally unsound.

The intent of the ADWA code is that the treatment system be sustainable for the expected period that the treatment system needs to serve the structure. For most systems, that is the expected life of the structure. Sustainable means that the system components can be maintained in operating condition through maintenance, repair or replacement. This model code guidance does not suggest that an installed tank be designed to last for a 100 plus expected life of a structure. This suggests that a typical design life should be at least 25 years. Obviously, the actual life will vary depending on the waste stream influent, timely inspection, pumping and other operational factors. Robust components require less maintenance and repair and have a longer life expectancy. The determination of the targeted design life of the system can be determined by the designer/owner and/or the regulating jurisdiction.



## Appendix C – Don't Flush List - Guidance

### IMPORTANT INFORMATION FOR OWNERS OF DECENTRALIZED TREATMENT SYSTEMS Items to Avoid in Onsite System

**Inert Materials:** Plastic, rubber, scouring pads, dental floss, kitty litter, cigarette filters, bandages, hair, mop strings, lint, rags, cloth and towels do not degrade in an on-site treatment system. Inert materials will build up solids, and lead to system malfunction, clogging or increased pump out frequency.

**Paper Products:** Disposable diapers, paper towels, baby wipes, facial tissues, lotioned, scented or quilted toilet tissue, premoistened toilet paper, do not dissolve readily in an onsite treatment system, and excessive amounts of toilet tissue will also not decompose. All can lead to system malfunction, back-up or increased pump out frequency.

**Food Wastes:** Do not put animal fats & bones, grease, coffee grounds, citrus & melon rinds, corn cobs, egg shells, down the sink. Garbage disposal use should be limited to waste that cannot be scooped out and thrown in the trash. spoiled dairy products and yeasts from home brewery or baking may cause excessive growth of microbes that do not degrade sewage.

**Household Products:** Do not flush baby wipes, lotioned, scented or quilted toilet tissue, female sanitary products, cotton balls or swabs, or condoms. antimicrobial soaps and automatic disinfection tablets (blue, clear or otherwise) may kill the organisms needed to consume waste.

**Medications/Aliments:** Normal use of over the counter medications does not affect the performance of onsite systems. Do not flush expired medicines/antibiotics into an onsite treatment system. Some prescription medications are known to cause biological disruption. Among these diseases or conditions are those suffering from bulimia, severe infections (including AIDS), chronic diarrhea, intestinal/colon by- pass, or other gastrointestinal conditions and cancer. Oral or intravenous chemotherapy is known to cause serve disruption to the treatment process and will require more frequent pump out intervals or the use of biologically based additives.

**Commercial Additives:** Both the U.S. Environmental Protection Agency and the Small Flows Clearing House have reported that there is no evidence to support the use of additives with normally functioning onsite treatment systems. Some septic tank additives have been shown to do more harm than good. A normally functioning system should not require additives.

**Chemicals & Toxins:** These materials kill the microbes necessary for the biological treatment to occur: Paint, paint thinner, solvents, volatile substances, drain cleaners, automotive fluids, fuels, pesticides, herbicides, fertilizers, metals, disinfectants, sanitizers, bleach, mop water, floor stripping wastes, excessive use of household chemicals, and backwash from water softener regeneration.

**Laundry Practices:** On-site systems must process the water as it enters the system. Laundry should be spread out over the week, not all run at one time. Excessive use of detergents, especially those containing bleach, can affect system performance. Liquid detergents are recommended over powders. Fabric softener sheets are recommended over liquid softeners. Bleach should be used sparingly and at half the rate indicated on the container.

**Clear Water Waste:** From A/C discharge lines, floor drains, gutters, whole house water treatment systems and sump pumps can increase the flow to your treatment system. These flows can at least disrupt, if not destroy your treatment process.

# Appendix D

## ADWA Model State Statute

This model statute gives broad authority and specific direction to the regulatory agencies in areas of importance to ADWA.

Powers of the Department of [STATE NAME OF DEPARTMENT]

1. The Department shall promulgate regulations and have general supervision over the installation and maintenance of decentralized wastewater treatment systems serving private and public buildings for the purpose of managing risks to human health and the natural environment associated with the use of decentralized wastewater treatment systems. The department may exercise such powers which are reasonably necessary to carry out the provisions of this chapter. Such regulations shall be reasonable in construction and administration. The Department may, among other things:
  - 1.1. Appoint, and remove for cause, staff, deputies, and agents to enforce and administer the provisions of the regulations. Deputies and agents may be employed by authorized government or private sector agencies.
  - 1.2. Certify the competency of personnel and agencies that design, construct, install, evaluate sites and soils, maintain and operate installed systems, train industry personnel, inspect installed decentralized systems, and enforce and administer the regulations. Such determination of individual competency shall be by validated examination of the knowledge, skill and ability needed for competent practice of the activity.
    - 1.2.1. The re-issuance of a certification may also require continuing training to improve individual knowledge, skill and abilities.
    - 1.2.2. Any certification program or delegation of authority shall have provisions to suspend, terminate or otherwise discipline individuals and agencies holding such certifications or delegation for reasons of malfeasance, unethical practices or frequent failure to perform to adopted standards or requirements.
    - 1.2.3. The Department shall recognize certifying organizations in the following order of preference: national certification, regional certifications, statewide decentralized association certification, and state agency certifications, provided that such certification programs satisfy recognized protocols and adopted developmental standards that employ validated procedures or generally recognized standards.. The purpose of this provision is to utilize national certification programs instead of state agency developed and administered certification programs in order to promote the utilization of competent persons across political jurisdictions, reduce agency costs and promote the efficiency and effectiveness of the industry. Persons holding a current certificate from the approved organization shall be authorized to work in the Department's jurisdiction.
  - 1.3. Require periodic service and maintenance of all treatment systems on a schedule determined by the Department.

- 1.3.1. In the determination of the minimum service frequency for specific designs, the Department or agents shall take into account the relative risk of non-standard performance of the component and the risks associated with individual sites.
- 1.3.2. Require that the agencies assigned to enforce the provision shall cause the monitoring of the performance of such periodic maintenance.
- 1.4. Violations of the requirement shall be reported to the agency charged with the enforcement of the provision. Such agency shall conduct active enforcement of the service and maintenance requirements.
2. The Department shall adopt performance instead of prescriptive regulation where practicable.
3. The regulations adopted by the Department shall be uniform in application in the state.
4. The Department shall make reasonable effort to approve sufficient treatment system designs and methods as necessary to:
  - 4.1. Provide product quality and price competition among service and equipment providers to maintain optimal benefit to citizens
  - 4.2. Provide a suitable treatment device or method to serve the wastewater treatment requirements for all permitted structures not served by centralized treatment systems, for the expected life of the structure, to the extent practicable.
5. The department shall require that manufactured treatment systems and components be listed by ANSI accredited third party certifier.
  - 5.1. The evaluation protocol shall conform with the following:
    - 5.1.1. Advanced wastewater treatment systems shall be listed as complying with the requirements of NSF/ANSI Standard 40.
    - 5.1.2. Manufactured treatment systems and components that do not display an ANSI accredited third party certifiers listing mark verifying compliance with standards relevant to system or component design performance shall not be acceptable for use.
6. Evaluate the performance of advanced treatment systems serving an individual structure or cluster for conformance with adopted performance requirements for the purpose of enforcement. Such evaluation shall include a physical inspection of all structures and equipment.
  - 6.1. The inspection protocol shall conform with the following:
    - 6.1.1. All structures and equipment shall be in good working order and the system owner shall provide confirmation that routine service is being performed..
    - 6.1.2. If the system or component serving a single structure is under active management and operational service to the level specified in the permit, and the design or specification has been evaluated and found acceptable, the agency shall not conduct effluent sample monitoring.
7. Conflict of interest prohibited by regulatory personnel and agencies. It shall be considered a conflict of interest for any agency, public or private, with authority to effectively compel the repair or replacement of a system or component, if such person or agency is engaged in any activity for the private owner of the system involving the design, site and soil evaluation, installation, maintenance and repair of the system.
8. Each agency administering the provisions of the regulation shall provide timely service for all permits, reviews, inspections and approvals. Agencies that are unable to provide timely service with its own employees, shall appoint sufficient numbers of agents or deputies to maintain the required timely service level.

- 8.1. Failure to deliver timely service shall result in a fee rebate of 5% of the initial fee for each day the action exceeds the processing standard, not to exceed a reduction of 90% of the initial fee. The processing time standard for the various regulatory process are:
  - 8.1.1. Applications for a permit to construct, modify, operate or repair a treatment system – three work days from receipt of a complete application.
  - 8.1.2. Construction site inspection for a soil classification audit or to cover components – one work day from the time of the request for inspection.
  - 8.1.3. Product/method approval – 30 work days following receipt of a completed application.
  - 8.1.4. Application for certification – 7 days of receipt of a completed application. A completed application can include the requirement for a scored certification examination.
  - 8.1.5. Request for approval of training course – 3 work days after receipt of a completed application.
9. Definitions
  - 9.1. “Advanced Treatment Unit” or System means a manufactured device that has received the ADWA Award of Excellence engineered in accordance with generally accepted engineering principles and is intended to remove organic material and suspended solids in conformance with NSF/ANSI Standard 40.
  - 9.2. Certification – The registration of individuals after evaluation of the person’s knowledge, skill and ability (KSA) or demonstrated performance to a minimum standard. The term “accreditation” is synonymous as used here.
  - 9.3. “Decentralized” means a generalized class of wastewater treatment applications that includes onsite and cluster systems that discharge the treated wastewater near the point of origin. The contrasting term “centralized” refers to the extensive collection and large treatment works serving large geographic areas such as a city or metropolitan area.
    - 9.3.1. “Cluster system” means a wastewater collection and treatment system that is under some form of common ownership and management that provides treatment and dispersal/discharge or reuse of wastewater from two or more homes or buildings but less than an entire city or metropolitan area.
    - 9.3.2. “Onsite system” means a wastewater treatment system serving a single structure for which the components may be on one or more legal parcels.
  - 9.4. “Performance code” means administrative regulation that specifies the ends or results of a process or activity and allows the general use of solutions that demonstrate achievement of the objective requirement or standard.
  - 9.5. “Prescriptive code” means an administrative regulation that specifies the means of achieving an objective and excludes other means of achieving the same objective. Prescriptive codes are an alternate regulatory approach to performance codes.
  - 9.6. “Reasonable regulation” means the codified requirement and the administration of the code meet the following standards:
    - 9.6.1. The restrictions imposed will be those minimally necessary to manage the known or reasonably anticipated risks to the human and natural environments.
    - 9.6.2. Each code provision will be drafted in a manner that the obligation imposed is clear to the regulated persons.

- 9.6.3. Regulations will be accompanied by specific notes stating the purpose of the provision in order to facilitate communication as well as the development of alternate methods of compliance.
- 9.6.4. Administration and enforcement of the provisions shall be timely and enforced without invidious discrimination. “Invidious discrimination” means regulatory enforcement decisions based on arbitrary, capricious, retaliatory, or otherwise without reasonable foundation.
- 9.6.5. Code risk management requirements will be based first on accepted management, science and engineering principals. In matters of science and engineering, where the subject matter is not settled, it will be based on the best judgment of committees of experienced and expert persons in each area of practice.
- 9.7. “Uniform in application” means that subordinate levels of governments may not adopt ordinances that modify the regulation of decentralized wastewater treatment systems.
- 9.8. “Validated exam” means that the evaluation for acceptance into a certification title is consistent with the generally accepted professional standards for evaluating standardized tests and other selection procedures, such as those described in the Standards for Educational and Psychological Tests prepared by a joint committee of the American Psychological Association, the American Educational Research Association, and the National Council on Measurement in Education (American Psychological Association, Washington, D.C., 1974) (Note: taken from EEOC 41 CFR 60-3.5 - General standards for validity studies.)
- 9.9. “Wastewater” means
  - 9.9.1. Domestic wastewater normally discharged from or similar to that discharged from plumbing fixtures, appliances and devices including, but not limited to sanitary, bath, laundry, dishwashing, garbage disposal, water conditioning and cleaning wastewaters associated with dwellings, business establishments, institutions and other structures or places used for human habitation, employment or congregation exclusive of those wastes derived from industrial processes.
  - 9.9.2. Storm water and clear water wastes generated in or near buildings and as a result of other site improvements when commingled with domestic wastewater.
- 10. The Department shall appoint a Decentralized System Policy Advisory Council which may create technical subcommittees as appropriate. No member of the Department may be a voting member or officer of the Council.
  - 10.1. The council shall have [SET SIZE] members.
  - 10.2. Council membership shall be balanced with proportional representation between local government regulators, decentralized equipment manufacturers, decentralized industry service providers, users of the decentralized systems and citizen interest groups.
  - 10.3. The council, upon request of citizens affected by a Department decision or a dispute over application of the code at the local or state level governmental, may conduct a hearing and provide an advisory opinion [OR FINAL DECISION] on the matter.