

The Texas Commission on Environmental Quality (TCEQ, agency, or commission) proposes amendments to §§285.2, 285.3, 285.7, 285.32-285.34, 285.38, 285.39, 285.64, and 285.91.

Background and Summary of the Factual Basis for the Proposed Rules

On November 12, 2020, the Texas On-Site Wastewater Association (TOWA) filed a petition for rulemaking. On April 5, 2021, B&J Wakefield Services, Inc. (Wakefield) filed a petition for rulemaking. On December 16, 2020, and May 19, 2021, respectively, the commission directed the executive director (ED) to initiate rulemaking after stakeholder involvement concerning the issues raised in the petitions. The petitions requested amendments to several sections, and the ED considered the changes recommended by TOWA and Wakefield. House Bill (HB) 1680 87th Leg., R.S. Legislative Session (2021) allows leased portions of federal properties to be considered separately for the purposes of the implementation of 30 Texas Administrative Code (TAC) Chapter 285. HB 1680 does not require rulemaking; however, the ED has determined that implementing the bill language through rulemaking will clarify the requirements. This rulemaking would incorporate some, but not all, of the changes recommended by TOWA, none of the changes recommended by Wakefield, and the requirement regulating on-site sewage facilities (OSSFs) on certain leased land that is owned by the federal government. The proposed rules would update the definition of "direct communication" to ensure that, in addition to the installer and the installer's apprentice being able to communicate directly, the maintenance provider and the

maintenance provider's technician would also be able to communicate directly. The updated definition would also allow any form of immediate communication rather than specifying "in person, by telephone, or by radio."

The proposed rules would clarify that: single family dwellings located on a tract of land that is ten acres or larger must adhere to all the requirements of Chapter 285 that are not specifically listed in the rule as exempt; all required tags must indicate the maintenance dates and maintenance provider information must be located outside the motor cover, control panel, or breaker box; "flows" are in reference to "hydraulic flows", and installers and owners can be parties in a contract with a maintenance provider.

The proposed rules would require risers to be installed over all inspection and cleanout ports, and all risers be at least two inches above grade. This requirement would be effective with permits issued on September 1, 2023, and later.

The proposed rules would update the language for timers used in dosing systems, and the requirement for purple fittings for reclaimed water systems.

The proposed rules would allow flexible conduit to be used in areas between the buried pipe and the control panels where rigid pipe is not feasible, with a limit of four feet of flexible conduit.

In addition to the above changes, the proposed rules would correct references and cross-references.

The proposed rules would implement HB 1680 (87th Reg. (2021)) by adding the requirement that if a tract of land owned by the federal government contains separately leased individual parts, each leased part is considered a separate tract of land.

Section by Section Discussion

§285.2, Definitions

The proposal would amend the definition of "direct communication" in §285.2(18) to include communication between the installer and the apprentice, and the maintenance provider and the maintenance technician. The proposal removes the examples of means of communication to reflect that the modernization of communication provides for better, more efficient communication.

§285.3, General Requirements

The proposal would amend §285.3(f)(2) to clarify that the 10-acre exception only applies to the requirements for planning materials, permits, or inspections at an OSSF at a single-family dwelling and not allow exception from the planning, construction and installation standards as required by Chapter 285, Subchapter D. The current

provision has been misinterpreted by homeowners, installers, authorized agents, and other stakeholders as meaning that single-family dwellings on 10 acres or more were exempt from the entirety of Chapter 285. This clarification would help authorized agents to better understand the regulatory requirements for large properties and correctly implement the rules, resulting in better protection of public health and the environment.

The proposal would also amend §285.3(f) to add paragraph (4) to incorporate the requirement from HB 1680 (87th Leg., R.S.2021) into the rule. The statute provides that “If a tract of land owned by the federal government contains separately leased individual parts, each leased part is considered a separate tract of land for purposes of this chapter, or a rule adopted under this chapter.”

§285.7, Maintenance Requirements

The proposal to amend §285.7(e)(2) would clarify that the required weather resistant tag must be located outside of the motor cover, control panel, or breaker box. The proposed language would improve safety for homeowners as it would require easy access to the maintenance provider’s contact information.

The proposal to amend §285.7(c) will correct the reference from "§285.7(d)(1)(A) - (E)" to "§285.7(d)(1)(A) - (F)." This correction is necessary as the provision "(F)" requires the business physical address and telephone number for the maintenance provider, which

is important for the maintenance contract.

§285.32, Criteria for Sewage Treatment Systems

The proposal to amend §285.32(b)(1)(D) would require tank risers to be at least two inches above grade. Currently the risers on some OSSFs are installed at or below grade, which makes maintenance of the OSSF difficult. This change would allow easier access to the OSSF for maintenance. Additionally, requiring risers to be installed two inches above grade will help prevent the OSSF from being infiltrated with rainwater during rain events. This requirement would be effective with permits issued on September 1, 2023, and later.

The proposal to amend §285.32(c)(5)(A) would remove the descriptor for the initials "NSF". The reference to National Sanitation Foundation (NSF) is outdated.

The proposal to amend §285.32(d)(5) corrects the reference to read "§285.34(c)".

§285.33, Criteria for Effluent Disposal Systems

The proposal to amend §285.33(c)(4) corrects the reference to "§285.32(c)(5)" rather than "§285.32(c)(4)(B)".

The proposal to amend §285.33(d)(2)(D) would remove the descriptor for the initials

“NSF.” The reference to National Sanitation Foundation (NSF) is outdated.

The proposal to amend §285.33(d)(2)(G)(i) would remove the requirement that a commercial irrigation timer be used. Other timers that are readily available provide the same functionality and level of service.

The proposal to amend §285.33(d)(2)(G)(iii)(I) would remove the requirement that a commercial irrigation timer be used. This is not a defined term and other commercially available products provide the needed functionality and level of service.

The proposal to amend §285.33(d)(2)(G)(iii)(II) would remove the requirement that a commercial irrigation timer be used. This is not a defined term and other commercially available products provide the needed functionality and level of service.

The proposal to amend §285.33(d)(2)(G)(v) would remove the requirement for fittings in distribution systems for reclaimed water systems from being permanently colored purple. The use of purple pipe is to clearly distinguish piping used for wastewater from other pipes, however, purple fittings are not readily available and are more expensive. The use of non-purple fittings will not affect an individual’s ability to distinguish piping used for wastewater from piping used for other purposes since the pipe is still required to be purple.

§285.34, Other Requirements

The proposal to amend §285.34(a) would remove the descriptor for the initials “NSF.” The reference to National Sanitation Foundation (NSF) is outdated.

The proposal to amend §285.34(b)(3) would clarify the type of flow by adding the word "hydraulic" to the provision. By adding the word "hydraulic", the rules will clearly identify the referenced flows as those within the OSSF system (wastewater generated onsite).

The proposal to amend §285.34(c) would allow up to four feet of electrical wiring that is not buried to be contained in water-tight flexible electric conduit, rather than in rigid pipe. Flexible conduit would provide sufficient safety measures to prevent infiltration or other exposures of the wiring to damage. The amended language is necessary to address wire protection in tight spaces, that are typically between the buried electrical wiring and the panel(s), that sometimes make configuring rigid conduit difficult. The amended provision will not require significant cost and design revisions.

*§285.38, Prevention of Unauthorized Access to On-Site Sewage Facilities
(OSSFS)*

The proposal to amend §285.38(c) would require all inspection and cleanout ports to have risers that extend to at least two inches above grade. This change eliminates the exception that the inspection and cleanout ports of septic tanks are not required to

have risers. This change would allow easier access to the OSSF for maintenance and inspection. Additionally, requiring risers to be installed two inches above grade will help prevent the OSSF from being infiltrated with rainwater during rain events. This requirement would be effective with permits issued on September 1, 2023, and later.

The proposal to delete §285.38(d) is necessary to prevent ambiguity in the rules since §285.38(c) will no longer exempt septic tank inspection and cleanout ports from having risers.

The subsequent provisions were relabeled accordingly.

§285.64, Duties and Responsibilities of Maintenance Providers and Maintenance Technicians.

The proposal to amend §285.64(a)(5) would clarify that the maintenance provider is contracted to perform maintenance on an OSSF. The proposed change would remove the ambiguity in the rule that the installer is the only person that may contract with a maintenance provider to provide maintenance on an OSSF. After the end of the two-year period after installation, the homeowner is responsible for either contracting with a maintenance provider or obtaining the necessary training to maintain the OSSF system themselves.

§285.91 Tables.

The proposal to amend §285.91 (2) Table 2 addresses the minimum aerobic tank treatment capacity for one and two bedroom homes with less than 1501 square feet. This correction adds these homes to the table and resolves the questions that arise as a result of the smaller homes not being addressed.

The proposal to amend §285.91 (10) Table 10 corrects the reference to read "§76.1000(a)(1)" rather than "§76.100(a)(1)." This correction is necessary as the current reference is incorrect.

The proposal to amend §285.91 (10) Table 10 updates the reference from the Ra value "less than" to read the Ra value "equal to" 0.1. This correction is necessary as the current reference is incorrect. As indicated in §285.91 (1) Table 1, no reference to an Ra value less than 0.1 is given, but rather an Ra value of equal to 0.1 is given.

The proposal to amend §285.91 (Table 10) (Footnote 6) updates the language for timers to remove the reference to "commercial irrigation" timers to align with the updated language that is proposed in §285.33(d)(2)(G)(i). This change would remove ambiguity in the amended rules that the language "commercial irrigation" from the provision for timers.

Fiscal Note: Costs to State and Local Government

Jené Bearse, deputy director of the Budget and Planning Division, has determined that

for the first five-year period the proposed rules are in effect, no fiscal implications are anticipated for the agency or for other units of state or local government as a result of administration or enforcement of the proposed rule.

Public Benefits and Costs

Ms. Bearse determined that for each year of the first five years the proposed rules are in effect, the public benefit anticipated will be improved environmental impacts resulting from the decreased potential for infiltration that could result from risers that are below ground level. Another benefit will be clear regulations, consistency with industry terminology and standards, and compliance with recent changes to state law.

The proposed rulemaking may have a fiscal implication for a business or individual if they own or operate a new or altered on-site sewage facility that is required to install a riser over all inspection and cleanout ports. Depending on several variables, the cost for a riser is estimated to be between \$100 and \$400. For the purpose of this fiscal note, it is assumed that owners and operators of facilities are correctly implementing the existing regulations that are in effect prior to this proposed rulemaking.

Local Employment Impact Statement

The commission reviewed this proposed rulemaking and determined that a Local Employment Impact Statement is not required because the proposed rulemaking does not adversely affect a local economy in a material way for the first five years that the

proposed rule is in effect.

Rural Community Impact Statement

The commission reviewed this proposed rulemaking and determined that the proposed rulemaking does not adversely affect rural communities in a material way for the first five years that the proposed rules are in effect. The amendments would apply statewide and have the same effect in rural communities as in urban communities.

Small Business and Micro-Business Assessment

No adverse fiscal implications are anticipated for small or micro-businesses due to the implementation or administration of the proposed rule for the first five-year period the proposed rules are in effect.

Small Business Regulatory Flexibility Analysis

The commission reviewed this proposed rulemaking and determined that a Small Business Regulatory Flexibility Analysis is not required because the proposed rule does not adversely affect a small or micro-business in a material way for the first five years the proposed rules are in effect.

Government Growth Impact Statement

The commission prepared a Government Growth Impact Statement assessment for this proposed rulemaking. The proposed rulemaking does not create or eliminate a

government program and will not require an increase or decrease in future legislative appropriations to the agency. The proposed rulemaking does not require the creation of new employee positions, eliminate current employee positions, nor require an increase or decrease in fees paid to the agency. The proposed rulemaking does amend an existing regulation, but it does not increase or decrease the number of individuals subject to its applicability. During the first five years, the proposed rule should not impact positively or negatively the state's economy.

Draft Regulatory Impact Analysis Determination

The commission reviewed the proposed rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225 and determined that the rulemaking is not subject to Texas Government Code, §2001.0225. Texas Government Code, §2001.0225 applies to a "Major environmental rule" which is defined in Texas Government Code, §2001.0225(g)(3) as a rule with a specific intent "to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state."

First, the proposed rulemaking does not meet the statutory definition of a "Major environmental rule" because its specific intent is not to protect the environment or reduce risks to human health from environmental exposure. The purpose of this

rulemaking is to update the rules in 30 TAC 285 to make them current with industry standards and practices.

Second, the proposed rulemaking does not meet the statutory definition of a “Major environmental rule” because the proposed rules would not adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. It is not anticipated that the cost of complying with the proposed rules will be significant with respect to the economy as a whole or with respect to a sector of the economy; therefore, the proposed amendments will not adversely affect in a material way the economy, a sector of the economy, competition, or jobs.

Finally, the proposed rulemaking does not meet any of the four applicability requirements for a “Major environmental rule” listed in Texas Government Code, §2001.0225(a). Texas Government Code, §2001.0225 only applies to a major environmental rule, the result of which is to: “1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4) adopt a rule solely under the general powers of the agency instead of under a specific state law. This proposed rulemaking does not meet any of the four preceding

applicability requirements because this rulemaking: 1) does not exceed any standard set by federal law for the regulation of OSSFs; 2) does not exceed any express requirements of state law related to the regulation of OSSFs; 3) does not exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; and 4) is not proposed solely under the general powers of the agency.

Since this proposed rulemaking does not meet the statutory definition of a “Major environmental rule” nor does it meet any of the four applicability requirements for a “Major environmental rule,” this rulemaking is not subject to Texas Government Code, §2001.0225.

The commission invites public comment regarding the Draft Regulatory Impact Analysis Determination during the public comment period. Written comments on the Draft Regulatory Impact Analysis Determination may be submitted to the contact person at the address listed under the Submittal of Comments section of this preamble.

Takings Impact Assessment

The commission evaluated this rulemaking and performed an analysis of whether the proposed rules would constitute a taking. Texas Government Code, §2007.002(5), defines a taking as either: 1) a governmental action that affects private real property,

in whole or in part or temporarily or permanently, in a manner that requires the governmental entity to compensate the private real property owner as provided by the Fifth and Fourteenth Amendments to the United States Constitution or Sections 17 or 19, Article I, Texas Constitution; or 2) a governmental action that affects an owner's private real property that is the subject of the governmental action, in whole or in part or temporarily or permanently, in a manner that restricts or limits the owner's right to the property that would otherwise exist in the absence of the governmental action; and is the producing cause of a reduction of at least 25% in the market value of the affected private real property, determined by comparing the market value of the property as if the governmental action is not in effect and the market value of the property determined as if the governmental action is in effect. The commission determined that the proposed rules would not constitute a taking as that term is defined under Texas Government Code, §2007.002(5). Specifically, the proposed rules would not affect any landowner's rights in private real property, and there are no burdens that would be imposed on private real property by the proposed rules.

Consistency with the Coastal Management Program

The ED reviewed the proposed rulemaking and found that the proposal is subject to the Texas Coastal Management Program (CMP) in accordance with the Coastal Coordination Act, Texas Natural Resources Code, §33.201 et seq., and therefore must be consistent with all applicable CMP goals and policies. The ED conducted a consistency determination for the proposed rules in accordance with Coastal

Coordination Act Implementation Rules, 31 TAC §505.22 and found the adopted rulemaking is consistent with the applicable CMP goals and policies. The applicable goals of the CMP are: to protect, preserve, restore, and enhance the diversity, quality, quantity, functions, and values of coastal natural resource areas; to ensure sound management of all coastal resources by allowing for compatible economic development and multiple human uses of the coastal zone; to ensure and enhance planned public access to and enjoyment of the coastal zone in a manner that is compatible with private property rights and other uses of the coastal zone; and to balance these competing interests. The specific CMP policies applicable to these proposed amendments include clarifications in OSSF rules, updated language to be consistent with industry standards, require technical changes to provide easier access for maintenance of OSSFs, and implement House Bill 1680 87th Leg. (2021) which would allow separately leased individual parts of federal lands to be considered as separate tracts for the purposes of Chapter 285. In addition to these changes, several typographical errors and incorrect references within Chapter 285 would be corrected. Promulgation and enforcement of these proposed rules will not violate or exceed any standards identified in the applicable CMP goals and policies because the proposed rules are consistent with these CMP goals and policies, because these proposed rules do not create or have a direct or significant adverse effect on any coastal natural resource areas, and because the proposed rules do not relax current treatment or disposal standards.

Written comments on the consistency of this rulemaking may be submitted to the contact person at the address listed under the Submittal of Comments section of this preamble.

Announcement of Hearing

The commission will hold a hybrid virtual and in-person public hearing on this proposal in Austin on January 30, 2023, at 10:00 a.m. in Building E, Room 201S at the commission's central office located at 12100 Park 35 Circle. The hearing is structured for the receipt of oral or written comments by interested persons. Individuals may present oral statements when called upon in order of registration. Open discussion will not be permitted during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes prior to the hearing.

Individuals who plan to attend the hearing virtually and want to provide oral comments and/or want their attendance on record must register by Thursday, January 26, 2023. To register for the hearing, please email Rules@tceq.texas.gov and provide the following information: your name, your affiliation, your email address, your phone number, and whether or not you plan to provide oral comments during the hearing. Instructions for participating in the hearing will be sent on Friday, January 27, 2023, to those who register for the hearing.

For the public who do not wish to provide oral comments but would like to view the

hearing may do so at no cost at:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_YTY1YzE1NTMtN2UzZC00ZDVmLWEwMWOtYTBjYTBkMj00ZTJk%40thread.v2/0?context=%7b%22Tid%22%3a%22871a83a4-a1ce-4b7a-8156-3bcd93a08fba%22%2c%22Oid%22%3a%22e74a40ea-69d4-469d-a8ef-06f2c9ac2a80%22%2c%22IsBroadcastMeeting%22%3a%22true%7d

Persons who have special communication or other accommodation needs who are planning to attend the hearing should contact Sandy Wong, Office of Legal Services at (512) 239-1802 or 1-800-RELAY-TX (TDD). Requests should be made as far in advance as possible.

Submittal of Comments

Written comments may be submitted to Cecilia Mena, MC 205, Office of Legal Services, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to *fax4808@tceq.texas.gov*. Electronic comments may be submitted at: <https://tceq.commentinput.com/>. File size restrictions may apply to comments being submitted via the TCEQ Public Comment system. All comments should reference Rule Project Number 2021-030-285-CE. The comment period closes on January 31, 2023. Please choose one of the methods provided to submit your written comments.

Copies of the proposed rulemaking can be obtained from the commission's website at

https://www.tceq.texas.gov/rules/propose_adopt.html. For further information, please contact Donna Cospers, Program Support Section, at (512) 239-1324 or donna.cospers@tceq.texas.gov .

SUBCHAPTER A: GENERAL PROVISIONS

§285.2, §285.3, §285.7

Statutory Authority

These amendments are proposed under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; TWC, §5.013, which establishes the commission’s authority over onsite sewage facilities; TWC, §5.103 and §5.105, which establish the commission’s general authority to adopt rules. No other statutes, articles, or codes are affected by the proposal.

This rulemaking implements House Bill 1680, 87th Leg. (2021), codified as Texas Health and Safety Code, §366.006, which provides that certain tracts of land owned by the federal government that contain separately leased parts are considered a separate tract of land for purposes of on-site sewage facilities permitting.

§285.2. Definitions.

The following words and terms in this section are in addition to the definitions in Chapter 3 and Chapter 30 of this title (relating to Definitions and Occupational Licenses and Registrations). The words and terms in this section, when used in this chapter, have the following meanings.

(1) Aerobic digestion--The bacterial decomposition and stabilization of sewage in the presence of free oxygen.

(2) Alter--To change an on-site sewage facility resulting in:

(A) an increase in the volume of permitted flow;

(B) a change in the nature of permitted influent;

(C) a change from the planning materials approved by the permitting authority;

(D) a change in construction; or

(E) an increase, lengthening, or expansion of the treatment or disposal system.

(3) Anaerobic digestion--The bacterial decomposition and stabilization of sewage in the absence of free oxygen.

(4) Apprentice--An individual who has been properly registered with the executive director according to Chapter 30 of this title (relating to Occupational Licenses and Registrations), and is undertaking a training program under the direct supervision of a licensed installer.

(5) Authorization to construct--Written permission from the permitting authority to construct an on-site sewage facility showing the date the permission was granted. The authorization to construct is the first part of the permit.

(6) Authorized agent--A local governmental entity that has been delegated the authority by the executive director to implement and enforce the rules adopted under Texas Health and Safety Code, Chapter 366.

(7) Borehole--A drilled hole four feet or greater in depth and one to three feet in diameter.

(8) Certified professional soil scientist--An individual who has met the certification requirements of the American Society of Agronomy to engage in the practice of soil science.

(9) Cesspool--A non-watertight, covered receptacle intended for the receipt and partial treatment of sewage. This device is constructed such that its

sidewalls and bottom are open-jointed to allow the gradual discharge of liquids while retaining the solids for anaerobic decomposition.

(10) Cluster system--A sewage collection, treatment, and disposal system designed to serve two or more sewage-generating units on separate legal tracts where the total combined flow from all units does not exceed 5,000 gallons per day.

(11) Commercial or institutional facility--Any building that is not used as a single-family dwelling or duplex.

(12) Compensation--A payment to construct, alter, repair, extend, maintain, or install an on-site sewage facility. Payment may be in the form of cash, check, charge, or other form of monetary exchange or exchange of property or services for service rendered.

(13) Composting toilet--A self-contained treatment and disposal facility constructed to decompose non-waterborne human wastes through bacterial action.

(14) Condensate drain--A pipe that is used for the disposal of water generated by air conditioners, refrigeration equipment, or other equipment.

(15) Construct--To engage in any activity related to the installation, alteration, extension, or repair of an on-site sewage facility (OSSF), including all activities from disturbing the soils through connecting the system to the building or property served by the OSSF. Activities relating to a site evaluation are not considered construction.

(16) Delegate--The executive director's act of assigning authority to implement the on-site sewage facility program under this chapter.

(17) Designated representative--An individual who holds a valid license issued by the executive director according to Chapter 30 of this title (relating to Occupational Licenses and Registrations), and who is designated by the authorized agent to review permit applications, site evaluations, or planning materials, or conduct inspections on on-site sewage facilities.

(18) Direct communication--The demonstrated ability of an installer and the apprentice to immediately communicate with each other, and the maintenance provider and the maintenance technician to immediately communicate with each other [to communicate immediately with each other in person, by telephone, or by radio].

(19) Direct supervision--The responsibility of an installer to oversee, direct, and approve all actions of an apprentice relating to the construction of an on-

site sewage facility, or the responsibility of a maintenance provider to oversee, direct, and approve all actions of a maintenance technician relating to the maintenance of an on-site sewage facility.

(20) Discharge--To deposit, conduct, drain, emit, throw, run, allow to seep, or otherwise release or dispose of, or to allow, permit, or suffer any of these acts or omissions.

(21) Edwards Aquifer--That portion of an arcuate belt of porous, waterbearing predominantly carbonate rocks (limestones) known as the Edwards (Balcones Fault Zone) Aquifer trending from west to east to northeast in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson Counties; and composed of the Salmon Peak Limestone, McKnight Formation, West Nueces Formation, Devil's River Limestone, Person Formation, Kainer Formation, Edwards Group, and Georgetown Formation, or as amended under Chapter 213 of this title (relating to Edwards Aquifer). The permeable aquifer units generally overlie the less-permeable Glen Rose Formation to the south, overlie the less-permeable Comanche Peak and Walnut formations north of the Colorado River, and underlie the less-permeable Del Rio Clay regionally.

(22) Edwards Aquifer Recharge Zone--That area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other

geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer. The recharge zone is identified as a geographic area delineated on official maps located in the agency's central office and in the appropriate regional office, or as amended by Chapter 213 of this title (relating to Edwards Aquifer).

(23) Extend--To alter an on-site sewage facility resulting in an increase in capacity, lengthening, or expansion of the existing treatment or disposal system.

(24) Floodplain (100-year)--Any area susceptible to inundation by flood waters from any source and subject to the statistical 100-year flood (has a 1% chance of flooding each year).

(25) Floodway--The channel of a watercourse and the adjacent land areas (within a portion of the 100-year floodplain) that must be reserved in order to discharge the 100-year flood without cumulatively increasing the water surface elevation more than one foot above the 100-year flood elevation before encroachment into the 100-year floodplain.

(26) Geotextile filter fabric--A non-woven fabric suitable for wastewater applications.

(27) Gravel-less drainfield pipe--An eight-inch or ten-inch diameter geotextile fabric-wrapped piping product without gravel or media.

(28) Grease interceptor--Floatation chambers where grease floats to the water surface and is retained while the clearer water underneath is discharged.

(29) Groundwater--Subsurface water occurring in soils and geologic formations that are fully saturated either year-round or on a seasonal or intermittent basis.

(30) Holding tank--A watertight container equipped with a high-level alarm used to receive and store sewage pending its delivery to an approved treatment process.

(31) Individual--A single living human being.

(32) Install--To put in place or construct any portion of an on-site sewage facility.

(33) Installer--An individual who is compensated by another to construct an on-site sewage facility.

(34) Local governmental entity--A municipality, county, river authority, or special district, including groundwater conservation districts, soil and water conservation districts, and public health districts.

(35) Maintenance--Required or routine performance checks, examinations, upkeep, cleaning, or mechanical adjustments to an on-site sewage facility, including replacement of pumps, filters, aerator lines, valves, or electrical components. Maintenance does not include alterations.

(36) Maintenance findings--The results of a required performance check or component examination on a specific on-site sewage facility.

(37) Maintenance provider--An individual who maintains on-site sewage facilities for compensation. Through August 31, 2009, a maintenance company is a person or business that maintains on-site sewage facilities for compensation.

(38) Maintenance technician--An individual who holds a valid registration issued by the executive director to maintain on-site sewage facilities and works under a maintenance provider.

(39) Malfunctioning OSSF--An on-site sewage facility that is causing a nuisance or is not operating in compliance with this chapter.

(40) Manufactured housing community--Any area developed or used for lease or rental of space for two or more manufactured homes.

(41) Multi-unit residential development--Any area developed or used for a structure or combination of structures designed to lease or rent space to house two or more families.

(42) Notice of approval--Written permission from the permitting authority to operate an on-site sewage facility. The notice of approval is the final part of the permit.

(43) Nuisance—

(A) sewage, human excreta, or other organic waste discharged or exposed in a manner that makes it a potential instrument or medium in the transmission of disease to or between persons;

(B) an overflow from a septic tank or similar device, including surface discharge from or groundwater contamination by a component of an on-site sewage facility; or

(C) a blatant discharge from an OSSF.

(44) On-site sewage disposal system--One or more systems that:

(A) do not treat or dispose of more than 5,000 gallons of sewage each day; and

(B) are used only for disposal of sewage produced on a site where any part of the system is located.

(45) On-site sewage facility (OSSF)--An on-site sewage disposal system.

(46) On-site waste disposal order--An order, ordinance, or resolution adopted by a local governmental entity and approved by the executive director.

(47) Operate--To use an on-site sewage facility.

(48) Owner--A person who owns property served by an on-site sewage facility (OSSF), or a person who owns an OSSF. This includes any person who holds legal possession or ownership of a total or partial interest in the structure or property served by an OSSF.

(49) Owner's agent--An installer, professional sanitarian, or professional engineer who is authorized to submit the permit application and the planning materials to the permitting authority on behalf of the owner.

(50) Permit--An authorization, issued by the permitting authority, to construct or operate an on-site sewage facility. The permit consists of the authorization to construct (including the approved planning materials) and the notice of approval.

(51) Permitting authority--The executive director or an authorized agent.

(52) Planning material--Plans, applications, site evaluations, and other supporting materials submitted to the permitting authority for the purpose of obtaining a permit.

(53) Platted--The subdivision of property which has been recorded with a county or municipality in an official plat record.

(54) Pretreatment tank--A tank placed ahead of a treatment unit that functions as an interceptor for materials such as plastics, clothing, hair, and grease that are potentially harmful to treatment unit components.

(55) Professional engineer--An individual licensed by the Texas Board of Professional Engineers to engage in the practice of engineering in the State of Texas.

(56) Professional sanitarian--An individual registered by the Texas Department of State Health Services to carry out educational and inspection duties in the field of sanitation in the State of Texas.

(57) Proprietary system--An on-site sewage facility treatment or disposal system that is produced or marketed under exclusive legal right of the manufacturer or designer or for which a patent, trade name, trademark, or copyright is used by a person or company.

(58) Recharge feature--Permeable geologic or manmade feature located on the Edwards Aquifer Recharge Zone where:

(A) a potential for hydraulic interconnectedness between the surface and the aquifer exists; and

(B) rapid infiltration from the on-site sewage facility to the subsurface may occur.

(59) Recreational vehicle park--A single tract of land that has rental spaces for two or more vehicles that are intended for recreational use only and has a combined wastewater flow of less than 5,000 gallons per day.

(60) Regional office--A regional office of the agency.

(61) Repair--To replace any components of an on-site sewage facility (OSSF) in situations not included under emergency repairs according to §285.35 of this title (relating to Emergency Repairs), excluding maintenance. The replacement of tanks or drainfields is considered a repair and requires a permit for the entire OSSF system.

(62) Scum--A mass of organic or inorganic matter which floats on the surface of sewage.

(63) Secondary treatment--The process of reducing pollutants to the levels specified in Chapter 309 of this title (relating to Domestic Wastewater Effluent Limitation and Plant Siting).

(64) Seepage pit--An unlined covered excavation in the ground which operates in essentially the same manner as a cesspool.

(65) Septic tank--A watertight covered receptacle constructed to receive, store, and treat sewage by: separating solids from the liquid; digesting organic matter under anaerobic conditions; storing the digested solids through a period of detention; and allowing the clarified liquid to be disposed of by a method approved under this chapter.

(66) Sewage--Waste that:

(A) is primarily organic and biodegradable or decomposable; and

(B) originates as human, animal, or plant waste from certain activities, including the use of toilet facilities, washing, bathing, and preparing food.

(67) Single family dwelling--A structure that is either built on or brought to a site, for use as a residence for one family. A single family dwelling includes all detached buildings located on the residential property and routinely used only by members of the household of the single family dwelling.

(68) Site evaluator--An individual who holds a valid license issued by the executive director according to Chapter 30 of this title (relating to Occupational Licenses and Registrations) and who conducts preconstruction site evaluations, including visiting a site and performing soil analysis, a site survey, or other activities

necessary to determine the suitability of a site for an on-site sewage facility. A professional engineer may perform site evaluations without obtaining a site evaluator license.

(69) Sludge--A semi-liquid mass of partially decomposed organic and inorganic matter which settles at or near the bottom of a receptacle containing sewage.

(70) Soil--The upper layer of the surface of the earth that serves as a natural medium for the growth of plants.

(71) Soil absorption system--A subsurface method for the treatment and disposal of sewage which relies on the soil's ability to treat and absorb moisture and allow its dispersal by lateral and vertical movement through and between individual soil particles.

(72) Subdivision--A division of a tract of land, regardless of whether it is made by using a metes and bounds description in a deed of conveyance or in a contract for a deed, by using a contract of sale or other executory contract to convey, or by using any other method.

(73) Testing and reporting--Routine inspection, sampling and performance checks performed by the maintenance provider or maintenance

technician and the submittal of findings to the OSSF owner and the permitting authority. Testing and reporting does not include repair or replacement of parts.

(74) Well--A water well, injection well, dewatering well, monitoring well, piezometer well, observation well, or recovery well as defined under Texas Water Code, Chapters 26, 32, and 33, and 16 TAC Chapter 76 (relating to Water Well Drillers and Water Well Pump Installers).

§285.3. General Requirements.

(a) Permit required. A person shall hold a permit and an approved plan to construct, alter, repair, extend, or operate an on-site sewage facility (OSSF) unless the OSSF meets one of the exceptions in subsection (f) of this section.

(1) All aspects of the permitting, planning, construction, operation, and maintenance of OSSFs shall be conducted according to this chapter, or according to an order, ordinance, or resolution of an authorized agent.

(2) The executive director is the permitting authority unless a local governmental entity has an OSSF order, ordinance, or resolution approved by the executive director. In areas where the executive director is the permitting authority, the staff from the appropriate regional office shall be responsible for the proper implementation of this chapter.

(3) Permits shall be transferred to a new owner automatically upon sale or other legal transfer of an OSSF.

(4) Conditioning of Permits. The permitting authority may require conditions to a permit in order to ensure that the permitted OSSF system will operate in accordance with the planning materials and system approval. Failure to comply with these conditions is a violation of the permit and this chapter. Any violation of a condition of a permit that would be considered an alteration as defined in §285.2(2) of this title (relating to Definitions) would require a new permit.

(b) General Application Requirements.

(1) The owner or owner's agent must obtain an authorization to construct from the permitting authority before construction may begin on an OSSF. Before an authorization to construct can be issued, the permitting authority shall require submittal of the following from the owner or owner's agent:

(A) an application, on the form provided by the permitting authority;

(B) all planning materials, according to §285.5 of this title (relating to Submittal Requirements for Planning Materials);

(C) the results of a site evaluation, conducted according to §285.30 of this title (relating to Site Evaluation); and

(D) the appropriate fee.

(2) Variance requests shall be submitted with the application and shall be reviewed by the permitting authority according to subsection (h) of this section.

(3) Before the permitting authority issues an authorization to construct, the owner of OSSFs identified in §285.91(12) of this title (relating to Tables) or the owner's agent, must record an affidavit in the county deed records of the county or counties where the OSSF is located. Additionally, the owner or the owner's agent must submit, to the permitting authority, an affidavit affirming the recording. An example of the affidavit is located in §285.90(2) of this title (relating to Figures). The affidavit must include:

(A) the owner's full name;

(B) the legal description of the property;

(C) that an OSSF requiring continuous maintenance is located on the property;

(D) that the permit for the OSSF is transferred to the new owner upon transfer of the property; and

(E) that at any time after the initial two-year service policy, the owner of an aerobic treatment system for a single family residence shall either obtain a maintenance contract within 30 days of the transfer or maintain the system personally.

(c) Action on Applications. The permitting authority shall either approve or deny an application within 30 days of receiving an application. If the application and planning materials are approved, the permitting authority shall issue an authorization to construct. If the application and planning materials are denied, the permitting authority shall explain the reasons for the denial in writing to the owner, and the owner's agent.

(d) Construction and Inspection.

(1) An authorization to construct is valid for one calendar year from the date of its issuance. If the installer does not request a construction inspection by the

permitting authority within one year of the issuance of the authorization to construct, the authorization to construct expires, and the owner will be required to submit a new application and application fee before an OSSF can be installed. A new application and application fee are not required if the owner decides not to install an OSSF.

(2) The installer shall notify the permitting authority at least five working days (Monday through Friday, excluding holidays) before the date the OSSF will be ready for inspection.

(3) The permitting authority shall conduct a construction inspection.

(4) If the OSSF does not pass the construction inspection, the permitting authority shall:

(A) at the close of the inspection, advise the owner and the owner's agent, if present, of the deficiencies identified and that the OSSF cannot be used until it passes inspection; and

(B) within seven calendar days after the inspection, issue a letter to the owner and the owner's agent listing the deficiencies identified and stating that the OSSF cannot be used until it passes inspection.

(5) If a reinspection is necessary, a reinspection fee may be assessed by the permitting authority.

(6) The reinspection fee must be paid before the reinspection is conducted.

(e) Notice of Approval.

(1) Within seven calendar days after the OSSF has passed the construction inspection, the permitting authority shall issue, to the owner or owner's agent, a written notice of approval for the OSSF.

(2) The notice of approval shall have a unique identification number, and shall be issued in the name of the owner.

(f) Exceptions.

(1) An owner of an OSSF will not be required to comply with the permitting, operation, and installation requirements of this chapter if the OSSF is not creating a nuisance and:

(A) the OSSF was installed before September 1, 1989, provided the system has not been altered, and is not in need of repair;

(B) the OSSF was installed before the effective date of the order, ordinance, or resolution in areas where the local governmental entity had an approved order, ordinance, or resolution dated before September 1, 1989, provided the system has not been altered and is not in need of repair; or

(C) the owner received authorization to construct from a permitting authority before the effective date of this chapter.

(2) No planning materials, permit, and inspections are not required for an OSSF for a single family dwelling located on a tract of land that is ten acres or larger provided the OSSF complies with all other requirements of Chapter 285, Subchapter D: Planning, Construction, and Installation Standards for OSSFs, and:

(A) the OSSF is not causing a nuisance or polluting groundwater;

(B) all parts of the OSSF are at least 100 feet from the property line;

(C) the effluent is disposed of on the property; and

(D) the single family dwelling is the only dwelling located on that tract of land.

(3) Connecting recreational vehicles or manufactured homes to rental spaces is not considered construction if the existing OSSF system is not altered.

(4) If a tract of land that is owned by the federal government contains separately leased individual parts, each leased part is considered a separate tract of land for the purposes of 30 TAC Chapter 285.

(g) Exclusions. The following systems are not authorized by this subchapter and may require a permit under Chapter 205 or Chapter 305 of this title (relating to General Permits for Waste Discharges or Consolidated Permits, respectively):

(1) one or more systems that cumulatively treat and dispose of more than 5,000 gallons of sewage per day on one piece of property;

(2) any system that accepts waste that is either municipal, agricultural, industrial, or other waste as defined in Texas Water Code, Chapter 26;

(3) any system that will discharge into or adjacent to waters in the state;

or

(4) any new cluster systems.

(h) Variances. Requests for variances from provisions of this chapter may be considered by the appropriate permitting authority on a case-by-case basis.

(1) A variance may be granted if the owner, or a professional sanitarian or professional engineer representing the owner, demonstrates to the satisfaction of the permitting authority that conditions are such that equivalent or greater protection of the public health and the environment can be provided by alternate means. Variances for separation distances shall not be granted unless the provisions of this chapter cannot be met.

(2) Any request for a variance under this subsection must contain planning materials prepared by either a professional sanitarian or a professional engineer (with appropriate seal, date, and signature).

(i) Unauthorized systems. Boreholes, cesspools, and seepage pits are prohibited for installation or use. Boreholes, cesspools, and seepage pits that treat or dispose of less than 5,000 gallons of sewage per day shall be closed according to §285.36 of this

title (relating to Abandoned Tanks, Boreholes, Cesspools, and Seepage Pits). Boreholes, cesspools, and seepage pits that exceed 5,000 gallons of sewage per day must be closed as a Class V injection well under Chapter 331 of this title (relating to Underground Injection Control).

§285.7. Maintenance Requirements.

(a) Maintenance contract requirements. Maintenance contract requirements for all on-site sewage facilities (OSSFs) are identified in §285.91(12) of this title (relating to Tables). The permit holder shall ensure that the OSSF is properly operated and maintained in accordance with this chapter. Homeowners who maintain their own systems are exempt from contract requirements, as provided in subsection (d)(4) of this section.

(b) Maintenance provider.

(1) Effective September 1, 2009, in order to perform maintenance on an OSSF, an individual must either be licensed by the TCEQ as a maintenance provider or registered by the TCEQ as a maintenance technician and employed by a licensed maintenance provider. Prior to September 1, 2009, in order to perform maintenance on an OSSF, an individual must be registered by the TCEQ as a maintenance provider.

(2) Effective September 1, 2009, the maintenance provider will be responsible for fulfilling the requirements of the maintenance contract. The maintenance provider will be responsible for the work performed by registered maintenance technicians under their direct supervision. Prior to September 1, 2009, the maintenance company will be responsible for fulfilling the requirements of the maintenance contract.

(3) Effective September 1, 2009, the maintenance provider must sign all maintenance reports.

(c) Initial Two-Year Service Policy. The initial two-year service policy shall be effective for two years from the date the OSSF is first used. For a new single family dwelling, this date is the date of sale by the builder. For an existing single family dwelling this date is the date the notice of approval is issued by the permitting authority. The owner, or owner's agent shall provide the permitting authority with a copy of the signed initial two-year service policy before the system is approved for use. The initial service policy shall meet the minimum guidelines for maintenance contracts, as described in §285.7(d)(1)(A) - (F) [§285.7(d)(1)(A) - (E)] and the individual fulfilling the service policy shall be a maintenance provider or a maintenance technician working under the supervision of a maintenance provider.

(d) Maintenance contracts. OSSFs required to have maintenance contracts are identified in §285.91(12) of this title.

(1) Contract provisions. The OSSF maintenance contract shall, at a minimum:

(A) list items that are covered by the contract;

(B) specify a time frame in which the maintenance provider or maintenance technician will visit the property in response to a complaint by the property owner regarding the operation of the system;

(C) specify the name of the maintenance provider who is responsible for fulfilling the terms of the maintenance contract;

(D) identify the frequency of routine maintenance and the frequency of the required testing and reporting;

(E) identify who is responsible for maintaining the disinfection unit; and

(F) indicate the business physical address and telephone number for the maintenance provider.

(2) Contract submittals. Unless the owner maintains the system, as excepted by paragraph (4) of this subsection, a copy of the signed maintenance contract shall be provided by the owner to the permitting authority 30 days before the expiration of the initial two-year service policy. For the time period after the initial two-year service policy, the owner is required to have a new maintenance contract signed and submitted to the permitting authority at least 30 days before the contract expires unless the owner maintains the system, as excepted by paragraph (4) of this subsection.

(3) Amendments or terminations.

(A) Effective September 1, 2009, if the maintenance provider discontinues the maintenance contract, the maintenance provider shall notify, in writing, the permitting authority, the manufacturer, and the owner at least 30 days before the date service will cease. Prior to September 1, 2009, if the maintenance company discontinues the maintenance contract, the maintenance company shall notify, in writing, the permitting authority, the manufacturer, and the owner at least 30 days before the date service will cease.

(B) Effective September 1, 2009, if the owner discontinues the maintenance contract, the maintenance provider shall notify, in writing, the permitting authority and the manufacturer at least 30 days before the date service will cease. Prior to September 1, 2009, if the owner discontinues the maintenance contract, the maintenance company shall notify, in writing, the permitting authority and the manufacturer at least 30 days before the date service will cease.

(C) Effective September 1, 2009, if a maintenance contract is discontinued or terminated, the owner shall contract with another maintenance provider and provide the permitting authority with a copy of the new signed maintenance contract no later than 30 days after termination, unless the owner meets the requirements of paragraph (4) of this subsection. Prior to September 1, 2009, if a maintenance contract is discontinued or terminated, the owner shall contract with another maintenance company and provide the permitting authority with a copy of the new signed maintenance contract no later than 30 days after termination, unless the owner meets the requirements of paragraph (4) of this subsection.

(4) Exceptions to maintenance contract. At the end of the initial two-year service policy, the owner of an OSSF for a single family residence shall either maintain the system personally or obtain a new maintenance contract.

(A) If the residence is sold before the end of the initial two-year service policy period, the terms of the initial service policy will apply to the new owner.

(B) An owner may not maintain an OSSF under the provisions of this section for commercial, speculative residential, or multifamily property.

(e) Testing and reporting. OSSFs that must be tested are identified in §285.91(12) of this title.

(1) Effective September 1, 2009, the maintenance provider shall test and report for each system as required in §285.91(12) of this title. Prior to September 1, 2009, the maintenance company shall test and report for each system as required in §285.91(12) of this title. The report must:

(A) include any responses to owner complaints; the results of the maintenance provider's findings as described in §285.90(3) of this title (relating to Figures) and the test results as required in §285.91(4) of this title, including procedures for the maintenance of the unit approved by the executive director; and

(B) be submitted to the permitting authority and the owner within 14 days after the date the test is performed.

(2) To provide the owner with a record of the maintenance check, the maintenance provider shall install a weather resistant tag, or some other form of weather resistant identification, on the system at the beginning of each maintenance contract. The weather resistant tag or other form of weather resistant identification must be located on the outside of the motor cover, control panel, or breaker box. This identification shall:

(A) identify the maintenance provider;

(B) list the telephone number of the maintenance provider;

(C) specify the start date of the contract; and

(D) be either punched or indelibly marked with the date the system was checked at the time of each maintenance check, including any maintenance check in response to owner complaints.

(3) The number of required tests may be reduced to two per year for all systems having electronic monitoring and automatic telephone or radio access that will notify the maintenance provider of system or components failure and will monitor the amount of disinfection in the system. The maintenance provider shall be

responsible for ensuring that the electronic monitoring and automatic telephone or radio access systems are working properly.

(4) The owner of an OSSF for a single family residence who elects to maintain their unit through the exemption described in subsection (d)(4) of this section is not subject to testing and reporting requirements.

(f) Replacement parts. The manufacturer of the installed on-site aerobic system shall make available to the homeowner all replacement parts for that aerobic system to any homeowner who elects to maintain the on-site aerobic system as identified in subsection (d)(4) of this section. The manufacturer shall also make replacement parts available to installers and maintenance providers. Failure to do so may result in removal of the manufacturer's product(s) from the list of approved systems.

(g) Inspections by authorized agents or commission. An authorized agent or the commission may inspect an on-site sewage system using aerobic treatment at any time.

**SUBCHAPTER D: PLANNING, CONSTRUCTION, AND INSTALLATION STANDARDS
FOR OSSFS**

§§285.32 - 285.34, §285.38, §285.39

Statutory Authority

These amendments are proposed under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; TWC, §5.013, which establishes the commission's authority over onsite sewage facilities; TWC, §5.103 and §5.105, which establish the commission's general authority to adopt rules. No other statutes, articles, or codes are affected by the proposal.

This rulemaking implements House Bill 1680 (87th legislative session), codified as Texas Health and Safety Code §366.006, which provides that certain tracts of land owned by the federal government that contain separately leased parts is considered a separate tract of land for purposes of on-site sewage facilities permitting.

§285.32. Criteria for Sewage Treatment Systems.

- (a) Pipe from building to treatment system.

(1) The pipe from the sewer stub out to the treatment system shall be constructed of cast iron, ductile iron, polyvinyl chloride (PVC) Schedule 40, standard dimension ratio (SDR) 26 or other material approved by the executive director.

(2) The pipe shall be watertight.

(3) The slope of the pipe shall be no less than 1/8 inch fall per foot of pipe.

(4) The sewer stub out should be as shallow as possible to facilitate gravity flow.

(5) A two-way cleanout plug must be provided between the sewer stub out and the treatment tank. Only sanitary type fittings constructed of PVC Schedule 40 or SDR 26 shall be used on this section of the sewer. An additional cleanout plug shall be provided every 100 feet on long runs of pipe and within five feet of 90 degree bends.

(6) Additional cleanout plugs shall be of the single sanitary type.

(7) The pipe shall have a minimum inside diameter of three inches.

(8) Pipe that crosses drainage easements shall be sleeved with American Society for Testing and Materials (ASTM) Schedule 40 pipe; the pipes shall be buried at least one foot below the surface, or buried less than one foot and encased in concrete; the outside pipe shall have locator tape attached to the pipe; and markers shall be placed at the easement boundaries to indicate the location of the pipe crossing. Crossings shall be designed and constructed in a manner that protects the pipe and the drainage way from erosion.

(b) Standard treatment systems.

(1) Septic tanks. A septic tank shall meet the following requirements.

(A) Tank volume. The liquid volume of a septic tank, measured from the bottom of the outlet, shall not be less than established in §285.91(2) of this title (relating to Tables). Additionally, the liquid depth of the tank shall not be less than 30 inches.

(B) Inlet and outlet devices. The flowline of the tank's inlet device in the first compartment of a two-compartment tank, or in the first tank in a series of tanks, shall be at least three inches higher than the flowline of the outlet device. For a configuration of the tank and inlet and outlet devices, see §285.90(6) and (7) of this title (relating to Figures). The inlet devices shall be "T" branch fittings, constructed

baffles or other structures or fittings approved by the executive director. The outlet devices shall use a "T" unless an executive director approved fitting is installed on the outlet. All inlet and outlet devices shall be installed water tight to the septic tank walls and shall be a minimum of three inches in diameter.

(C) Baffles and series tanks. All septic tanks shall be divided into two or three compartments by the use of baffles or by connecting two or more tanks in a series.

(i) Baffled tanks. In a baffled tank, the baffle shall be located so that one half to two thirds of the total tank volume is located in the first compartment. Baffles shall be constructed the full width and height of the tank with a gap between the top of the baffle and the tank top. The baffle shall have an opening located below the liquid level of the tank at a depth between 25% and 50% of the liquid level. The opening may be a slot or hole. If a "T" is fitted to the slot or hole, the inlet to the fitting shall be at the depth stated in this paragraph. See §285.90(6) of this title for details. Any metal structures, fittings, or fastenings shall be stainless steel.

(ii) Series tanks. Two or more tanks shall be arranged in a series to attain the required liquid volume. The first tank in a two-tank system shall contain at least one half to two thirds the required volume. The first tank in a three-tank system shall contain at least one-third of the total required volume, but no less

than 500 gallons. The first tank in a four or more tank system shall contain no less than 500 gallons, and the last tank in a four or more tank system shall contain no more than one third of the total required volume. Interconnecting inlet and outlet devices may be installed at the same elevation for multiple tank installations.

(D) Inspection or cleanout ports. All septic tanks shall have inspection or cleanout ports located on the tank top over the inlet and outlet devices. Each inspection or cleanout port shall be offset to allow for pumping of the tank. The ports may be configured in any manner as long as the smallest dimension of the opening is at least 12 inches, and is large enough to provide for maintenance and for equipment removal. Septic tanks buried more than 12 inches below the ground surface shall have risers over the port openings. **For all OSSF's permitted** on or after September 1, 2023, the risers shall extend from the tank surface to a minimum of two inches above grade [no more than six inches below the ground]. The risers shall be sealed to the tank. The risers shall have inside diameters which are equal to or larger than the inspection or cleanout ports. The risers shall be fitted with removable watertight caps and prevent unauthorized access.

(E) Septic tank design and construction materials. The septic tank shall be of sturdy, water-tight construction. The tank shall be designed and constructed so that all joints, seams, component parts, and fittings prevent groundwater from entering the tank, and prevent wastewater from exiting the tank,

except through designed inlet and outlet openings. Materials used shall be steel-reinforced poured-in-place concrete, steel-reinforced precast concrete, fiberglass, reinforced plastic polyethylene, or other materials approved by the executive director. Metal septic tanks are prohibited. The septic tank shall be structurally designed to resist buckling from internal hydraulic loading and exterior loading caused by earth fill and additional surface loads. Tanks exhibiting deflections, leaks, or structural defects shall not be used. Sweating at construction joints is acceptable on concrete tanks.

(i) Precast concrete tanks. In addition to the general requirements in this subparagraph, precast concrete tanks shall conform to requirements in the Materials and Manufacture Section and the Structural Design Requirements Section of ASTM Designation: C 1227, Standard Specification for Precast Concrete Septic Tanks (2000) or under any other standards approved by the executive director. A professional engineer shall verify in writing that the manufacturer is in compliance with ASTM Standard C 1227. This verification shall be submitted to the permitting authority from the tank manufacturer. If this verification has not been previously submitted or accepted by the permitting authority, a new verification shall be completed within 30 days of the effective date of this section.

(ii) Fiberglass and plastic polyethylene tank specifications.

(I) The tank shall be fabricated to perform its intended function when installed. The tank shall not be adversely affected by normal vibration, shock, climate conditions, nor typical household chemicals. The tank shall be free of rough or sharp edges that would interfere with installation or service of the tank.

(II) Full or empty tanks shall not collapse or rupture when subjected to earth and hydrostatic pressures.

(iii) Poured-in-place concrete tanks. Concrete tanks shall be structurally sound and water-tight. The concrete tank shall be designed by a professional engineer.

(iv) Tank manufacturer specifications. All precast or prefabricated tanks shall be clearly and permanently marked, tagged, or stamped with the manufacturer's name, address, and tank capacity. The identification shall be near the level of the outlet and be clearly visible. Additionally, the direction of flow into and out of the tank shall be indicated by arrows or other identification, and shall be clearly marked at the inlet and outlet.

(F) Installation of tanks. For gravity disposal systems, septic tanks must be installed with at least a 12 inch drop in elevation from the bottom of the

outlet pipe to the bottom of the disposal area. A minimum of four inches of sand, sandy loam, clay loam, or pea gravel, free of rock larger than 1/2 inch in diameter, shall be placed under and around all tanks, except poured-in-place concrete tanks. Unless otherwise approved by the permitting authority, tank excavations shall be left open until they have been inspected by the permitting authority. Tank excavations must be backfilled with soil or pea gravel that is free of rock larger than 1/2 inch in diameter. Class IV soils and gravel larger than one-half inch in diameter are not acceptable for use as backfill material. If the top of a septic tank extends above the ground surface, soil may be mounded over the tank to maintain slope to the drainfield.

(G) Pretreatment (Trash) tanks. If an aerobic treatment unit does not prevent plastic and other non-digestible sewage from interfering with aeration lines and diffusers, the executive director may require the use of a pretreatment tank. All pretreatment tanks shall meet all applicable structural and fitting requirements of this section.

(H) Leak Testing. At the discretion of the permitting authority, leak testing using water filled to the inside level of the tank lid or to the top of the tank riser(s) may be required.

(2) Intermittent sand filters. A typical layout and cross-section of an intermittent sand filter is presented in §285.90(8) of this title. Requirements for intermittent sand filters are as follows.

(A) Sand media specifications. Sand filter media must meet ASTM C-33 specifications as outlined in §285.91(11) of this title.

(B) Loading rate. The loading rate shall not exceed 1.2 gallons per day per square foot.

(C) Surface area. The minimum surface area shall be calculated using the formula: $Q/1.2 = \text{Surface Area (Square Feet)}$, where Q is the wastewater flow in gallons per day.

(D) Thickness of sand media. There shall be a minimum of 24 inches of sand media.

(E) Filter bed containment. The filter bed containment shall be an impervious lined pit or tank. Liners shall meet the specifications detailed in §285.33(b)(2)(A) of this title (relating to Criteria for Effluent Disposal Systems).

(F) Underdrains. For gravity discharge of effluent to a drainfield, there shall be a three inch layer of pea gravel over a six inch layer of 0.75 inch gravel, that contains the underdrain collection pipe. When pumpwells are to be used to pump the effluent from the underdrain to the drainfield, they must be constructed of concrete or plastic sewer pipe. The pumpwell must contain a sufficient number of holes so that effluent can flow from the gravel void space as rapidly as the effluent is pumped out of the pumpwell to the drainfield. Refer to §285.90(9) of this title.

(c) Proprietary treatment systems. This subsection does not apply to proprietary septic tanks described in subsection (b)(1) of this section.

(1) Tank sizing. Proprietary treatment systems that serve single family residences, combined flows from single family residences, or multi-unit residential developments shall be designed using Table II in §285.91(2) of this title unless there is an equalization tank preceding the aerobic treatment unit. If there is an equalization tank preceding the aerobic treatment unit, the equalization tank shall meet the requirements set forth in §285.34(b)(4) of this title (relating to Other Requirements) and the aerobic treatment units can be sized using the wastewater flows in Table III in §285.91(3) of this title. Proprietary Treatment systems for non-residential facilities shall be sized using the wastewater flows in Table III in §285.91(3) of this title. Leak testing shall be performed in accordance with subsection (b)(1)(H) of this section.

(2) Installation. Proprietary treatment systems shall be installed according to this subchapter. If the manufacturer has installation specifications that are more stringent than given in this subchapter, the manufacturer shall submit these specifications to the executive director for review. If approved by the executive director, the treatment systems may be installed according to these more stringent specifications. Any subsequent changes to these manufacturer's installation specifications must be approved by the executive director before installation. Inspection, cleanout ports, or maintenance ports shall have risers installed according to the riser installation provisions in subsection (b)(1)(D) of this section. Tank excavations shall be backfilled according to the backfill provisions in subsection (b)(1)(F) of this section. At the discretion of the permitting authority, leak testing using water filled to the inside level of the tank lid or to the top of the riser(s) may be required.

(3) System maintenance. Ongoing maintenance contracts are required for all proprietary treatment systems except those systems maintained by homeowners under the provisions of §285.7(d)(4) of this title (relating to Maintenance Requirements). The maintenance contract shall satisfy §285.7(d) of this title.

(4) Electrical wiring. Electrical wiring for proprietary systems shall be according to §285.34(c) of this title.

(5) Approval of proprietary treatment systems. Proprietary treatment systems must be approved by the executive director prior to their installation and use. Approval of proprietary treatment systems shall follow the procedures found in this section. After the effective date of these rules, only systems tested according to subparagraph (A) or (B) of this paragraph will be placed on the list of approved systems. The list may be obtained from the executive director. All systems on the list of approved systems on the effective date of these rules shall continue to be listed subject to the retesting requirements in paragraph (6) of this subsection. In addition, all proprietary treatment systems undergoing testing under this paragraph on the effective date of these rules shall be considered for inclusion on the list of approved systems.

(A) Treatment systems that have been tested by and are currently listed by NSF [National Sanitation Foundation (NSF)] International as Class I systems under NSF Standard 40 (2005) or have been tested and certified as Class I systems according to NSF Standard 40 (2005), by an American National Standard Institute (ANSI) accredited testing institution, or under any other standards approved by the executive director, shall be considered for approval by the executive director. All systems approved by the executive director on the effective date of these rules shall continue to be listed on the list of approved systems, subject to retesting under the requirements of NSF Standard 40 (2005), and Certification Policies for Wastewater Treatment Devices (1997) or under any standards approved by the executive director.

The manufacturers of proprietary treatment systems and the accredited certification institution must comply with all the provisions of NSF Standard 40 (2005), and Certification Policies for Wastewater Treatment Devices (1997) or under any standards approved by the executive director.

(i) Proprietary units under this section have been approved to treat flows equal to or less than their rated capacity and with an influent wastewater strength ranging from a 30-day average Carbonaceous Biochemical Oxygen Demand (CBOD) concentration between 100 milligrams per liter (mg/l) and 300 mg/l and a 30-day average TSS concentration between 100 mg/l and 350 mg/l.

(ii) Proprietary units may be used as components in an overall treatment system treating influent stronger than the ranges listed in this section. However, the overall treatment system will be considered a non-standard treatment system and shall meet the requirements set forth in subsection (d) of this section.

(B) Treatment systems that will not be accepted for testing because of system size or type by NSF International, or ANSI accredited third party testing institutions, and are not approved systems at the time of the effective date of these rules, may only be approved in the following manner.

(i) The proprietary systems shall be tested by an independent third party for two years and all the supporting data from the test shall be submitted to the executive director for review and approval, or denial before the system is marketed for sale in the state.

(ii) The independent third party shall obtain a temporary authorization from the executive director before testing. The temporary authorization shall contain the following:

(I) the number of systems to be tested (between 20 and 50);

(II) the location of the test sites (the test sites must be typical of the sites where the system will be used if final authorization is granted);

(III) provisions as to how the proprietary system will be installed and maintained;

(IV) the testing protocol for collecting and analyzing samples from the system;

(V) the equipment monitoring procedures, if applicable; and

(VI) provisions for recording data and data retention necessary to evaluate the performance as well as the effect of the proprietary system on public health, groundwater, and surface waters.

(iii) Permitting authorities may issue authorizations to construct upon receipt of the temporary authorization. The owner must be advised, in writing, that the system is temporarily approved for testing. If a system fails, regardless of the reason, it shall be replaced with a system that meets the requirements of this subchapter by the manufacturer at the manufacturer's expense. A system installed under this subparagraph is the responsibility of the manufacturer until the system has obtained final authorization by the executive director according to this subparagraph.

(iv) Upon completion of the two-year test period, the executive director shall require the independent third party to submit a detailed report on the performance of the system. After evaluating the report, the executive director may issue conditional approval of the system, or may deny use of the system.

(I) The conditional approval will authorize installations only in areas similar to the area in which the system was tested.

(II) The conditional approval shall be for a specified performance and evaluation (monitoring) period, not to exceed an additional five years. The system must be monitored according to a plan approved by the executive director. Approval or disapproval of these systems will be based on their performance during the monitoring period. Failure of one or more of the installed systems may be cause for disapproval of the proprietary system. The owner must be advised, in writing, that the system is conditionally approved.

(III) If the executive director denies use of the system after the two-year period, the executive director shall provide, in writing, the reasons for denying the use of the system. If a system fails, regardless of the reason, it shall be replaced with a system that meets the requirements of this subchapter by the manufacturer at the manufacturer's expense.

(v) Upon successful completion of the monitoring period, the monitoring requirements may be lifted by the executive director, the notice of approval may be made permanent for the test systems and the systems will be deemed suitable for use in conditions similar to areas in which the systems were tested and monitored.

(6) System reviews. The manufacturers of systems that are approved for listing under this section shall ensure that their systems are reviewed every seven years, or as often as deemed necessary by the executive director, starting from the date the system was originally added to the executive director's approved list. All reviews shall be completed before the end of the seven-year period. The manufacturer of any system that was approved by the executive director more than seven years before the effective date of these rules, will be given 365 days from the effective date of these rules to complete a review.

(A) The review shall be performed by either an ANSI accredited institution according to the reevaluation requirements in NSF Standard 40 (2005), and Certification Policies for Wastewater Treatment Devices (1997), or under any standards approved by the executive director, or by an independent third party for those systems not tested under NSF Standard 40.

(B) If the system being reviewed was not approved under the requirements of NSF Standard 40, the independent third party shall evaluate between 20 and 50 systems in the state that have been in operation for at least two years and are the same design as originally approved.

(C) The review under this subsection shall include an evaluation of:

- (i) the short-term and long-term effectiveness of the system;
- (ii) the structural integrity of the system;
- (iii) the maintenance of the system;
- (iv) owner access to maintenance support;
- (v) any impacts that system failures may have had on the environment; and
- (vi) an evaluation of the effectiveness of the manufacturer's installer training program.

(D) Any system that is not approved by the executive director as a result of the review will be removed from the list of approved systems. The manufacturer shall ensure that maintenance support remains available for the existing systems.

(d) Non-standard treatment systems. All OSSFs not described or defined in subsections (b) and (c) of this section are non-standard treatment systems. These

systems shall be designed by a professional engineer or a professional sanitarian in accordance with §285.91(9) of this title, and the planning materials shall be submitted to the permitting authority for review according to §285.5(b)(2) of this title (relating to Submittal Requirements for Planning Materials). Upon approval of the planning materials, an authorization to construct will be issued by the permitting authority.

(1) Non-standard treatment systems include all forms of the activated sludge process, rotating biological contactors, recirculating sand filters, trickling type filters, submerged rock biological filters, and sand filters not described in subsection (b)(2) of this section.

(2) The planning materials for non-standard treatment systems submitted for review will be evaluated using the criteria established in this chapter, or basic engineering and scientific principles.

(3) Approval for a non-standard treatment system is limited to the specific system described in the planning materials. Approval is on a case-by-case basis only.

(4) The need for ongoing maintenance contracts shall be determined by the permitting authority based on the review required by §285.5(b) of this title. If the

permitting authority determines that a maintenance contract is required, the contract must meet the requirements in §285.7 of this title.

(5) Electrical wiring for non-standard treatment systems shall be installed according to §285.34(c) [§285.34(c)(4)] of this title.

(e) Effluent quality. The following effluent criteria shall be met by the treatment systems for those disposal systems listed in §285.33 of this title that require secondary treatment.

Figure: 30 TAC §285.32(e)

Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS):

30-day average.....	20 mg/l
seven-day average.....	30 mg/l
Daily Maximum.....	45 mg/l
Single Grab.....	65 mg/l

pH..... 6.0 - 9.0 standard units

Carbonaceous Biochemical Oxygen Demand (CBOD) - to be used instead of BOD for proprietary treatment systems tested after 1996

30-day average.....	15 mg/l
seven-day average.....	25 mg/l
Daily Maximum.....	40 mg/l
Single Grab.....	60 mg/l

The 30-day average is the average of all 30-day averages, and seven-day average is the average of all seven-day averages over the length of the testing period.

(f) Other Design Considerations.

(1) Restaurant/food establishment sewage. When designing for restaurants, food service establishments, or similar activities, the minimum design strength value shall be 1,200 mg/l Biochemical Oxygen Demand (BOD) after a properly sized grease trap/interceptor. It is the responsibility of the designer to properly design a system which reduces the wastewater strength to 140 mg/l BOD prior to disposal unless secondary treatment levels are required.

(2) Other high-strength sewage. For situations where sewage as defined in this chapter is expected to be a higher strength than residential sewage, it is the responsibility of the professional designer to justify sewage design strength estimations and properly design a system that reduces the wastewater strength to 140 mg/l BOD prior to disposal unless secondary treatment levels are required. Residential sewage is sewage that has a strength of less than 300 mg/l BOD.

(3) Flow equalization. The designer should consider whether flow-equalization will be needed for the treatment system to function properly.

§285.33. Criteria for Effluent Disposal Systems.

(a) General requirements.

(1) All disposal systems in this section shall have an approved treatment system as specified in §285.32(b) - (d) of this title (relating to Criteria for Sewage Treatment Systems).

(2) All criteria in this section shall be met before the permitting authority issues an authorization to construct.

(3) The pipe between all treatment tanks and the pipe from the final treatment tank to a gravity disposal system shall be a minimum of three inches in diameter and be American Society for Testing and Materials (ASTM) 3034, Standard dimension ratio (SDR) 35 polyvinyl chloride (PVC) pipe or a pipe with an equivalent or stronger pipe stiffness at a 5% deflection. The pipe must maintain a continuous fall to the disposal system.

(4) The pipe from the final treatment tank to a gravity disposal system shall be a minimum of five feet in length.

(5) Except for drip irrigation tubing, pipe under internal pressure within any part of an on-site sewage facility system shall meet the minimum requirements of ASTM Schedule 40.

(6) Pipe that crosses drainage easements shall be sleeved with ASTM Schedule 40 pipe; the pipes shall be buried at least one foot below the surface, or buried less than one foot and encased in concrete; the outside pipe shall have locator tape attached to the pipe; and markers shall be placed at the easement boundaries to indicate the location of the pipe crossing. Crossings shall be designed and constructed in a manner that protects the pipe and the drainage way from erosion.

(b) Standard disposal systems. Acceptable standard disposal methods shall consist of a drainfield to disperse the effluent either into adjacent soil (absorptive) or into the surrounding air through evapotranspiration (evaporation and transpiration).

(1) Absorptive drainfield. An absorptive drainfield shall only be used in suitable soil. There shall be two feet of suitable soil from the bottom of the excavation to either a restrictive horizon or to groundwater.

(A) Excavation. The excavation must be made in suitable soils as described in §285.31(b) of this title (relating to Selection Criteria for Treatment and Disposal Systems).

(i) The excavation shall be at least 18 inches deep but shall not exceed a depth of either three feet or six inches below the soil freeze depth, whichever is deeper. Single excavations shall not exceed 150 feet.

(ii) In areas of the state where annual precipitation is less than 26 inches per year (as identified in the Climatic Atlas of Texas, (1983) published by the Texas Department of Water Resources or other standards approved by the executive director), the maximum permissible excavation depth shall be five feet.

(iii) Multiple excavations must be separated horizontally by at least three feet of undisturbed soil. The sidewalls and bottom of the excavation must be scarified as needed. When there are multiple excavations, it is recommended that the ends be looped together.

(iv) The bottom of the excavation shall be not less than 18 inches in width.

(v) The bottom of the excavation shall be level to within one inch over each 25 feet of excavation or within three inches over the entire excavation, whichever is less.

(vi) If the borings or backhoe pits excavated during the site evaluation encounter a rock horizon and the site evaluation shows that there is both suitable soil from the bottom of the rock horizon to two feet below the bottom of the proposed excavation and no groundwater anywhere within two feet of the bottom of

the proposed excavation, a standard subsurface disposal system may be used, providing the following are met.

(I) The depth of the excavation shall comply with clause (i) of this subparagraph.

(II) The rock horizon shall be at least six inches above the bottom of the excavation.

(III) Surface runoff shall be prevented from flowing over the disposal area.

(IV) Subsurface flow along the top of the rock horizon shall be prevented from flowing into the excavation.

(V) The sidewall area will not be counted toward the required absorptive area.

(VI) The formulas in clause (vii)(I) - (III) of this subparagraph shall be adjusted so that no credit is given for sidewall area.

(VII) No single pipe drainfields on sloping ground as shown in §285.90(5) of this title (relating to Figures) or no systems using serial loading shall be used.

(vii) The size of the excavation shall be calculated using data from §285.91(1) and (3) of this title (relating to Tables). The soil application rate is based on the most restrictive horizon along the media, or within two feet below the bottom of the excavation. The formula $A = Q/Ra$ shall be used to determine the total absorptive area where:

Figure: 30 TAC §285.33(b)(1)(A)(vii)

A = absorptive area

Q = average daily sewage flow in gallons per day

Ra = soil application rate in gallons per square foot per day

(I) The absorptive area shall be calculated by adding the bottom area (L x W) of the excavation to the total absorptive area along the excavated perimeter $2(L+W)$, (in feet) multiplied by one foot.

Figure: 30 TAC §285.33(b)(1)(A)(vii)(I)

$$\text{Absorptive Area} = (L \times W) + 2 (L+W) \times 1.0 \text{ ft}$$

Where: L = excavation length

W = excavation width

(II) The length of the excavation may be determined as follows when the area and width are known.

Figure: 30 TAC §285.33(b)(1)(A)(vii)(II)

$$L = (A - 2W) / (W + 2)$$

A = absorptive area

W = excavation width

(III) For excavations three feet wide or less, use the following formula, or §285.91(8) of this title to determine L.

Figure: 30 TAC §285.33(b)(1)(A)(vii)(III)

$$L = A / (W + 2)$$

A = absorptive area

W = excavation width

(B) Media. The media shall consist of clean, washed and graded gravel, broken concrete, rock, crushed stone, chipped tires, or similar aggregate that is generally one uniform size and approved by the executive director. The size of the media must range from 0.75 - 2.0 inches as measured along its greatest dimension except as noted in clause (i) of this subparagraph.

(i) If chipped tires are used:

(I) a geotextile fabric heavier than specified in subparagraph (E) of this paragraph must be used; and

(II) the size of the chipped tires must not exceed three inches as measured along their greatest dimension.

(ii) Soft media such as oyster shell and soft limestone shall not be used.

(C) Drainline. The drainline shall be constructed of perforated distribution pipe and fittings in compliance with any one of the following specifications:

(i) three- or four-inch diameter PVC pipe with an SDR of 35 or stronger;

(ii) four-inch diameter corrugated polyethylene, ASTM F405 in rigid ten foot joints;

(iii) three- or four-inch diameter polyethylene smoothwall, ASTM F810;

(iv) three- or four-inch diameter PVC ASTM D2729 pipe;

(v) three- or four-inch diameter polyethylene ASTM F892 corrugated pipe with a smoothwall interior and fittings; or

(vi) any other pipe approved by the executive director.

(D) Drainline installation requirements. The drainline shall be placed in the media with at least six inches of media between the bottom of the excavation and the bottom of the drainline. The drainline shall be completely covered by the media and the drainline perforations shall be below the horizontal center line of the pipe. For typical drainfield configurations, see §285.90(5) of this title. For excavations greater than four feet in width, the maximum distance between parallel

drainlines shall be four feet (center to center). Multiple drainlines shall be manifolded together with solid or perforated pipe. Additionally, the ends of the multiple drainlines opposite the manifolded end shall either be manifolded together with a solid line, looped together using a perforated pipe and media, or capped.

(E) Permeable soil barrier. Geotextile fabric shall be used as the permeable soil barrier and shall be placed between the top of the media and the excavation backfill. Geotextile fabric shall conform to the following specifications for unwoven, spun-bounded polypropylene, polyester, or nylon filter wrap.

Figure: 30 TAC §285.33(b)(1)(E)

Minimum values

Weight oz/sq yd (ASTM D3776) 0.70

Grab Strength lbs (ASTM D4632) 11

Air Permeability cfm/sq ft (ASTM D737) 500

Water Flow Rate gpm/sq ft @ 3" head (ASTM D4491) 33

Trapezoidal Tear Strength Lbs (ASTM D4533) 6

(F) Backfilling. Only Class Ib, II, or III soils as described in §285.30 of this title (relating to Site Evaluation) shall be used for backfill. Class Ia and IV soils are specifically prohibited for use as a backfill material. The backfill material shall be mounded over the excavated area so that the center of the backfilled area slopes down

to the outer perimeter of the excavated area to allow for settling. Surface runoff impacting the disposal area is not permitted and the diversion method shall be addressed during development of the planning materials.

(G) Drainfields on irregular terrain. Where the ground slope is greater than 15% but less than 30%, a multiple line drainfield may be constructed along descending contours as shown in §285.90(5) of this title. An overflow line shall be provided from the upper excavations to the lower excavations. The overflow line shall be constructed from solid pipe with an SDR of 35 or stronger, and the excavation carrying the overflow pipe shall be backfilled with soil only.

(H) Drainfield plans. A number of sketches, specifications, and details for drainfield construction are provided in §285.90(4) and (5) of this title.

(2) Evapotranspirative (ET) system. An ET system may be used in soils which are classified as unsuitable for standard subsurface absorption systems according to §285.31(b) of this title with respect to texture, restrictive horizons, or groundwater. Water saving devices must be used if an ET system is to be installed. ET systems shall only be used in areas of the state where the annual average evaporation exceeds the annual rainfall. Evaporation data is provided in §285.91(7) of this title.

(A) Liners. An impervious liner shall be used between the excavated surface and the ET system in all Class Ia soils, where seasonal groundwater tables penetrate the excavation, and where a minimum of two feet of suitable soil does not exist between the excavated surface and either a restrictive horizon or groundwater. Liners shall be rubber, plastic, reinforced concrete, gunite, or compacted clay (one foot thick or more). If the liner is rubber or plastic, it must be impervious, and each layer must be at least 20 mils thick. Rubber or plastic liners must be protected from exposed rocks and stones by covering the excavated surface with a uniform sand cushion at least four inches thick. Clay liners shall have a permeability of 10^{-7} centimeters/second or less, as tested by a certified soil laboratory.

(B) ET system sizing. The following formula shall be used to calculate the top surface area of an ET system.

Figure: 30 TAC §285.33(b)(2)(B)

$$A = 1.6 Q/Ret$$

Where: A = total top surface area of the excavations.

Q = estimated daily water usage in gallons/day in §285.91(3) of this title (relating to Tables).

Ret = net local evaporation rate in §285.91(7) of this title.

(C) The owner of the ET system shall be advised by the person preparing the planning materials of the limits placed on the system by the Q selected. If the Q is less than required by §285.91(3) of this title, the flow rate shall be included as a condition to the permit, and stated in an affidavit properly filed and recorded in the deed records of the county as specified in §285.3(b)(3) of this title (relating to General Requirements).

(D) Backfill material. Backfill material shall consist of Class II soil as described in §285.30 of this title. All drainlines must be surrounded by a minimum of one foot of media. Backfill shall be used to fill the excavation between the media to allow the backfill material to contact the bottom of the excavation.

(E) Vegetative cover for transpiration. The final grade shall be covered with vegetation fully capable of taking maximum advantage of transpiration. Evergreen bushes with shallow root systems may be planted in the disposal area to assist in water uptake. Grasses with dormant periods shall be overseeded to provide year-round transpiration.

(F) ET systems. ET systems shall be divided into two or more equal excavations connected by flow control valves. One excavation may be removed from service for an extended period of time to allow it to dry out and decompose biological material which might plug the excavation. If one of the excavations is removed from

service, the daily water usage must be reduced to prevent overloading of the excavation(s) still in operation. Normally, an excavation must be removed from service for two to three dry months for biological breakdown to occur.

(G) ET system plans. A number of sketches for ET system construction are provided in §285.90(4) and (5) of this title.

(3) Pumped effluent drainfield. Pumped effluent drainfields shall use the specifications for low-pressure dosed drainfields described in subsection (d)(1) of this section, with the following exceptions.

(A) Applicability. If the slope of the site is greater than 2.0%, pumped effluent drainfields shall not be used. Pumped effluent drainfields may only be used by single family dwellings.

(B) Length of distribution pipe. There shall be at least 1,000 linear feet of perforated pipe for a two bedroom single family dwelling. For each additional bedroom, there shall be an additional 400 linear feet of perforated pipe. No individual distribution line shall exceed 70 feet in length from the header.

(C) Excavation width and horizontal separation. The excavated area shall be at least six inches wide. There shall be at least three feet of separation between trenches.

(D) Lateral depth and vertical separation. All drainfield laterals shall be between 18 inches and three feet deep. There shall be a minimum vertical separation distance of one foot from the bottom of the excavation to a restrictive horizon, and a minimum vertical separation of two feet from the bottom of the excavation to groundwater.

(E) Media. Each dosing pipe shall be placed with the drain holes facing down and placed on top of at least six inches of media (pea gravel or media up to two inches measured along its greatest dimension).

(F) Pipe and hole size. The distribution (dosing) and manifold (header) pipe shall be 1.25 - 1.5 inches in diameter. The manifold may have a diameter larger than the distribution pipe, but shall not exceed 1.5 inches in diameter. Distribution (dosing) pipe holes shall be 3/16 - 1/4 inch in diameter and shall be spaced five feet apart.

(G) Pump size. Pumped effluent drainfields shall use at least a 1/2 horsepower pump.

(H) Backfilling. Only Class Ib, II, or III soils as described in §285.30(b)(1)(A) of this title shall be used for backfill.

(c) Proprietary disposal systems.

(1) Gravel-less drainfield piping. Gravel-less pipe may be used only on sites suitable for standard subsurface sewage disposal methods. Gravel-less pipe shall be eight-inch or ten-inch diameter corrugated perforated polyethylene pipe. The pipe shall be enclosed in a layer of unwoven spun-bonded polypropylene, polyester, or nylon filter wrap. Gravel-less pipe shall meet ASTM F-667 Standard Specifications for large diameter corrugated high density polyethylene (ASTM D 1248) tubing. The filter cloth must meet the same material specifications as described under subsection (b)(1)(E) of this section.

(A) Planning parameters. Gravel-less drainfield pipe may be substituted for drainline pipe in both absorptive and ET systems. When gravel-less pipe is substituted, media will not be required. ET systems shall be backfilled with Class II soils only. All other planning parameters for absorptive or ET systems apply to drainfields using gravel-less pipe.

(B) Installation. The connection from the solid line leaving the treatment tank to the gravel-less line shall be made by using an eight or ten-inch offset connector. The gravel-less line shall be laid level, the continuous stripe shall be up, and the lines shall be joined together with couplings. A filter cloth must be pulled over the joint to eliminate soil infiltration. The gravel-less pipe must be held in place during initial backfilling to prevent movement of the pipe. The end of each gravel-less line shall have an end cap and an inspection port. The inspection port shall allow for easy monitoring of the amount of sludge or suspended solids in the line, and allow the distribution lines to be back-flushed.

(C) Drainfield sizing. To determine appropriate drainfield sizing, use a drainfield width of $W = 2.0$ feet for an eight-inch diameter gravel-less pipe, and an excavation width of $W = 2.5$ for a ten-inch gravel-less pipe.

Figure: 30 TAC §285.33(c)(1)(C)

$$L = A/(W+2)$$

A = absorptive area as calculated in subsection (b)(1)(A)(vii) of this section

W = excavation width

(2) Leaching chambers. Leaching chambers are bottomless chambers that are installed in a drainfield excavation with the open bottom of the chamber in direct

contact with the excavation. The ends of the chamber rows shall be linked together with non-perforated sewer pipe. The chambers shall completely cover the excavation, and adjacent chambers must be in contact with each other in such a manner that the chambers will not separate. To obtain the reduction in drainfield size allowed in subparagraph (A)(i) and (ii) of this paragraph for excavations wider than the chambers, the chambers shall be placed edge to edge.

(A) The following formulas shall be used to determine the length of an excavation using leaching chambers.

(i) The following formula is used for leaching chambers without water saving devices and the excavation is the same width as the chamber.

Figure: 30 TAC §285.33(c)(2)(A)(i)

$$L = 0.6A/(W+2)$$

Where: A = minimum absorptive area calculated with no flow reduction; and
W = leaching chamber panel width

(ii) The following formula is used for leaching chambers with water saving devices and the excavation is the same width as the chamber.

Figure: 30 TAC §285.33(c)(2)(A)(ii)

$$L = 0.75A/(W+2)$$

Where: A = minimum absorptive area calculated with flow reduction; and

W = leaching chamber panel width

(iii) The following formula is used for leaching chambers without water saving devices and the excavation width is greater than the width of the chamber.

Figure: 30 TAC §285.33(c)(2)(A)(iii)

$$L = (0.6A - 2W) / (W + 2)$$

Where: A = minimum absorptive area calculated with no flow reduction; and

W = width of excavation

(iv) The following formula is used for leaching chambers with water saving devices and the excavation width is greater than the width of the chamber.

Figure: 30 TAC §285.33(c)(2)(A)(iv)

$$L = (0.75A - 2W) / (W + 2)$$

Where: A = minimum absorptive area calculated with no flow reduction; and

W = width of excavation

(B) Leaching chambers shall not be used for absorptive drainfields in Class Ia or IV soils. Leaching chambers may be used instead of media in ET systems, low-pressure dosed drainfields, and soil substitution drainfields; however, the size of the drainfield shall not be reduced from the required area.

(C) Backfill covering leaching chambers shall be Class Ib, II, or III soil.

(3) Drip irrigation. Drip irrigation systems using secondary treatment may be used in all soil classes including Class IV soils. The system must be equipped with a filtering device capable of filtering particles larger than 100 microns and that meets the manufacturer's requirements.

(A) Drainfield layout. The drainfield shall consist of a matrix of small-diameter pressurized lines, buried at least six inches deep, and pressure reducing emitters spaced at a maximum of 30-inch intervals. The pressure reducing emitter shall restrict the flow of effluent to a flow rate low enough to ensure equal distribution of effluent throughout the drainfield.

(B) Effluent quality. The treatment preceding a drip irrigation system shall treat the wastewater to secondary treatment as described in §285.32(e) of

this title unless the drip irrigation system has been approved by the executive director as a proprietary disposal system without the use of secondary treatment.

(C) System flushing. Systems must be equipped to flush the contents of the lines back to the pretreatment unit when intermittent flushing is used. If continuous flushing is used during the pumping cycle, the contents of the lines must be returned to the pump tank.

(D) Loading rates. Pressure reducing emitters can be used in all classes of soils using loading rates specified in §285.91(1) of this title. Pressure reducing emitters are assumed to wet four square feet of absorptive area per emitter; however, overlapping areas shall only be counted once toward absorptive area requirements. The loading rate shall be based on the most restrictive soil horizon within one foot of the pressure reducing emitter. When solid rock is less than 12 inches below the pressure reducing emitter, the loading rate shall be based on Class IV soils.

(E) Vertical separation distance. There shall be a minimum of one foot of soil (with less than 60% gravel) between the pressure reducing emitter and groundwater and six inches between the pressure reducing emitter and solid rock, or fractured rock. For proprietary disposal systems that do not pretreat to secondary treatment, there shall be two feet of soil (with less than 30% gravel) between the

groundwater and pressure reducing emitter and one foot of soil between solid rock or fractured rock and the pressure reducing emitter.

(F) Labeling or listing. All drip irrigation system devices shall either be labeled by the manufacturer as suitable for use with domestic sewage, or be on the list of approved devices maintained by the executive director according to §285.32(c)(4) of this title.

(4) Approval of proprietary disposal systems. All proprietary disposal systems, other than those described in this section, shall be approved by the executive director before they may be used. Proprietary disposal systems shall be approved by the executive director using the procedures established in §285.32(c)(5) [§285.32(c)(4)(B)] of this title.

(d) Nonstandard disposal systems. All disposal systems not described or defined in subsections (b) and (c) of this section are nonstandard disposal systems. Planning materials for nonstandard disposal systems must be developed by a professional engineer or professional sanitarian using basic engineering and scientific principles. The planning materials for paragraphs (1) - (5) of this subsection shall be submitted to the permitting authority and the permitting authority shall review and either approve or disapprove them on a case-by-case basis according to §285.5 of this title (relating to Submittal Requirements for Planning Materials). Electrical wiring for

nonstandard disposal systems shall be installed according to §285.34(c) of this title (relating to Other Requirements). Upon approval of the planning materials, an authorization to construct will be issued by the permitting authority. Approval for a nonstandard disposal system is limited to the specific system described in the planning materials for the specific location. The systems identified in paragraphs (1) - (5) of this subsection must meet these requirements, in addition to the requirements identified for each specific system in this section.

(1) Low-pressure dosed drainfield. Effluent from this type of system shall be pumped, under low pressure, into a solid wall force main and then into a perforated distribution pipe installed within the drainfield area.

(A) The effluent pump in the pump tank must be capable of an operating range that will assure that effluent is delivered to the most distant point of the perforated piping network, yet not be excessive to the point that blowouts occur.

(B) A start/stop switch or timer must be included in the system to control the dosing pump. An audible and visible high water alarm, on an electric circuit separate from the pump, must be provided.

(C) Pressure dosing systems shall be installed according to either design criteria in the North Carolina State University Sea Grant College Publication

UNC-S82-03 (1982) or other publications containing criteria or data on pressure dosed systems which are acceptable to the permitting authority. Additionally, the following sizing parameters are required for all low-pressure dosed drainfields and shall be used in place of the sizing parameters in the North Carolina State University Sea Grant College Publication or other acceptable publications.

(i) The low-pressure dosed drainfield area shall be sized according to the effluent loading rates in §285.91(1) of this title and the wastewater usage rates in §285.91(3) of this title. The effluent loading rate (Ra) in the formula in §285.91(1) of this title shall be based on the most restrictive horizon one foot below the bottom of the excavation. Excavated areas can be as close as three feet apart, measured center to center. All excavations shall be at least six inches wide. To determine the length of the excavation, use the following formulas, where L = excavation length, and A = absorptive area.

(I) If the media in the excavation is at least one foot deep, the length of the excavation is $L = A/(w+2)$ where:

(-a-) w = the width of the excavation for excavations one foot wide or greater; or

(-b-) $w = 1$ for all excavations less than one foot wide.

(II) If the media in the excavation is less than one foot deep, the length of the excavation is $L = A/(w + 2H)$, where H = the depth of the media in feet and:

(-a-) w = the width of the excavation for excavations one foot wide or greater; or

(-b-) $w = 1$ for all excavations less than one foot wide.

(ii) Each dosing pipe shall be placed with the drain holes facing down and placed on top of at least six inches of media (pea gravel or media up to two inches measured along the greatest dimension).

(iii) Geotextile fabric meeting the criteria in subsection (b)(1)(E) of this section shall be placed over the media. The excavation shall be backfilled with Class Ib, II, or III soil.

(iv) There shall be a minimum of one foot of soil (with less than 30% gravel) between the bottom of the excavation and solid or fractured rock. There shall be a minimum of two feet of soil (with less than 30% gravel) between the bottom of the excavation and groundwater.

(2) Surface application systems. Surface application systems include those systems that spray treated effluent onto the ground.

(A) Acceptable surface application areas. Land acceptable for surface application shall have a flat terrain (with less than or equal to 15% slope) and shall be covered with grasses, evergreen shrubs, bushes, trees, or landscaped beds containing mixed vegetation. There shall be nothing in the surface application area within ten feet of the sprinkler which would interfere with the uniform application of the effluent. Sloped land (with greater than 15%) may be acceptable if it is properly landscaped and terraced to minimize runoff.

(B) Unacceptable surface application areas. Land that is used for growing food, gardens, orchards, or crops that may be used for human consumption, as well as unseeded bare ground, shall not be used for surface application.

(C) Technical report. A technical report shall be prepared for any system using surface application and shall be submitted with the planning materials

required in §285.5(a) of this title. The technical report shall describe the operation of the entire on-site sewage facility OSSF system, and shall include construction drawings, calculations, and the system flow diagram. Proprietary aerobic systems may reference the executive director's approval list instead of furnishing construction drawings for the system.

(D) Effluent disinfection. Treated effluent must be disinfected before surface application. The effluent quality in the pump tank must meet the minimum required test results specified in §285.91(4) of this title. All new disinfection equipment shall be listed as approved dispensers or disinfection devices for wastewater systems by NSF [National Sanitation Foundation (NSF)] NSF International or by an ANSI accredited testing institution under ANSI/NSF Standard 46, or approved by the executive director. After January 1, 2016, all new disinfection equipment shall be listed as disinfection devices for wastewater systems by NSF International or by an ANSI accredited testing institution under ANSI/NSF Standard 46, or approved by the executive director. Installation of disinfection devices on new systems shall be performed by a licensed installer II. Tablet or other dry chlorinators shall use calcium hypochlorite properly labeled for wastewater disinfection. The effectiveness of the disinfection procedure will be established by monitoring either the fecal coliform count or total chlorine residual from representative effluent grab samples as directed in the testing and reporting schedule. The frequency of testing, the type of tests, and the required results are shown in §285.91(4) of this title. Replacement of disinfection

devices on existing systems may be considered an emergency repair as described in §285.35 of this title (relating to Emergency Repairs) and shall be performed by either a licensed installer II, a licensed maintenance provider, or a registered maintenance technician.

(E) Minimum required application area. The minimum surface application area required shall be determined by dividing the daily usage rate (Q), established in §285.91(3) of this title, by the allowable surface application rate (R_i = effective loading rate in gallons per square foot per day) found in §285.90(1) of this title or as approved by the permitting authority.

(F) Landscaping plan. Applications for surface application disposal systems shall include a landscape plan. The landscape plan shall describe, in detail, the type of vegetation to be maintained in the disposal area. Surface application systems may apply treated and disinfected effluent upon areas with existing vegetation. If any ground within the proposed surface application area does not have vegetation, that bare area shall be seeded or covered with sod before system start-up. The vegetation shall be capable of growth, before system start-up.

(G) Uniform application of effluent. Distribution pipes, sprinklers, and other application methods or devices must provide uniform distribution of treated effluent. The application rate must be adjusted so that there is no runoff.

(i) Sprinkler criteria. The maximum inlet pressure for sprinklers shall be 40 pounds per square inch. Low angle nozzles (15 degrees or less in trajectory) shall be used in the sprinklers to keep the spray stream low and reduce aerosols. If the separation distance between the property line and the edge of the surface application area is less than 20 feet, sprinkler operation shall be controlled by [commercial irrigation] timers set to spray between midnight and 5:00 a.m.

(ii) Planning criteria. Circular spray patterns may overlap to cover all irrigated area including rectangular shapes. The overlapped area will be counted only once toward the total application area. For large systems, multiple sprinkler heads are preferred to single gun delivery systems.

(iii) Effluent storage and pumping requirements.

(I) For systems controlled by a [commercial irrigation] timer and required to spray between midnight and 5:00 a.m., there shall be at least one day of storage between the alarm-on level and the pump-on level, and a storage volume of one-third the daily flow between the alarm-on level and the inlet to the pump tank.

(II) For systems not controlled by a [commercial irrigation] timer, the minimum dosing volume shall be at least one-half the daily flow,

and a storage volume of one-third the daily flow between the alarm-on level and the inlet to the pump tank.

(III) Pump tank construction and installation shall be according to §285.34(b) of this title.

(iv) Distribution piping. Distribution piping shall be installed below the ground surface and hose bibs shall not be connected to the distribution piping. An unthreaded sampling port shall be provided in the treated effluent line in the pump tank.

(v) Color coding of distribution system. All new distribution piping, [fittings,] valve box covers, and sprinkler tops shall be permanently colored purple to identify the system as a reclaimed water system according to Chapter 210 of this title (relating to Use of Reclaimed Water).

(3) Mound drainfields. A mound drainfield is an absorptive drainfield constructed above the native soil surface. The mound consists of a distribution area installed within fill material placed on the native soil surface. The required area of the fill material is a function of the texture of the native soil surface, the depth of the native soil, basal area sizing considerations, and sideslope requirements. A description of mound construction, as well as construction requirements not addressed in this

section can be found in the North Carolina State University Sea Grant College Publication UNC-SG-82-04 (1982).

(A) A mound drainfield shall only be installed at a site where there is at least one foot of native soil; however, approval for installation on sites with less than one foot of native soil may be granted by the permitting authority on a case-by-case basis.

(B) Mounds and mound distribution systems must be constructed with the longest dimension parallel to the contour of the site.

(C) Soil classification, loading rates (R(a)), and wastewater usage rates (Q) shall all be obtained from this chapter.

(D) The depth of soil material (with less than 30% gravel) between the bottom of the media and a restrictive horizon must be at least 1.5 feet to the restrictive horizon or two feet to groundwater. The soil material includes both the fill and the native soil.

(E) The distribution area is defined as the interface area between the media containing the distribution piping and the fill material or the native soil, if applicable. The distribution length is the dimension parallel with the contour and

equivalent to the length of the distribution media which must also run parallel with the contour. The distribution lines within the distribution media must extend to 12 inches of the end of the distribution media. The distribution width is defined as the distribution area divided by the distribution length.

(i) The formula $A(d) = Q/R(a)$ shall be used for calculating the minimum required distribution area of the mound where:

Figure: 30 TAC §285.33(d)(3)(E)(i)

$A(d)$ = minimum required distribution absorptive area in square feet

Q = design wastewater usage rate in gallons per day

$R(a)$ = most restrictive application rate between the fill material or the soil surface if the soil surface is within four inches of the bottom of the distribution media. The application rate is in gallons per square foot per day.

(ii) The area credited toward the minimum required distribution area can be determined in either of the following ways.

(I) If the distribution area consists of a continuous six-inch layer of media over the fill, the credited area is the bottom interface area between the media and soil beneath the media.

(II) If the distribution area consists of rows of media and distribution piping, the credited area can be calculated using the formulas listed in paragraph (1)(C)(i)(I) or (II) of this subsection depending on the depth of the media.

(iii) For sites with greater than 2% slopes and solid bedrock, saturated zones, or class IV horizons within two feet of the native soil surface, the length to width ratio of the distribution area must be at least 7:1. For sites with greater than 2% slopes and no solid bedrock, saturated zones, or class IV horizons within two feet of the native soil surface, the length to width ratio of the distribution area must be at least 4:1. No length to width ratio is required on a site with 2% slope or less.

(iv) Effluent must be pressure dosed into the distribution piping to ensure equal distribution and to control application rates.

(v) If a continuous layer of media is used, the dosing lines must not be spaced more than three feet apart. If rows of media are used, the rows may be as close as three feet apart, measured edge to edge.

(vi) The dosing holes must not be greater than three feet apart.

(F) The basal area is defined as the interface area between the native soil surface and the fill material. The formula $A(b) = Q/R(a)$ must be used for calculating the minimum required basal area of the mound where: $A(b)$ = minimum required basal absorptive area in square feet; Q = design wastewater usage rate in gallons per day; $R(a)$ = application rate of the native soil surface in gallons per square foot per day.

(i) On sites with greater than 2% slope, the area credited toward the required minimum basal area is computed by multiplying the length of the distribution system by the distance from the upslope edge of the distribution system to the downslope toe of the mound.

(ii) On sites with 2% slopes or less, the area credited toward the minimum required basal area sizing includes all areas below the distribution system as well as the side slope area on all side slope areas greater than six inches deep.

(G) Mounds shall only be installed on sites with less than 10% slope.

(H) The toe of the mound is considered the edge of the soil absorption system.

(I) The side slopes must be no steeper than three to one.

(J) There must be at least six inches of backfill over the distribution media and the mound shall be crowned to shed water.

(4) Soil substitution drainfields. Soil substitution drainfields may be constructed in Class Ia soils, highly permeable fractured rock, highly permeable fissured rock, or Class II and III soils with greater than 30% gravel.

(A) A soil substitution drainfield must not be used in Class IV soils or Class IV soils with greater than 30% gravel. Class III or IV soil shall not be used as the substituted soil in a soil substitution drainfield. There must be at least two feet of substituted soil between the bottom of the media and groundwater.

(B) A soil substitution drainfield is constructed similar to a standard absorptive drainfield except that a minimum two foot thick Class Ib or Class II soil buffer shall be placed below and on all sides of the drainfield excavation. The soil buffer must extend at least to the top of the media. The two-foot buffer area along the sides of the excavation is not credited as bottom area in calculating absorptive area. However, the interface between the media and the substituted soil is credited as absorptive area.

(C) Soil substitution drainfields must be designed to address soil compaction to prevent unlevel disposal. It is recommended that low-pressure dosing be used for effluent distribution. The edge of the substituted soil is considered the edge of the soil absorption drainfield in determining the appropriate separation distances as listed in §285.91(10) of this title.

(D) Class Ia soils do not provide adequate treatment of wastewater through soil contact. A soil substitution drainfield may be constructed in Class Ia soils in order to provide adequate soil for treatment. Absorptive area sizing must be based on the textural class of the substituted soil and must follow the formulas in subsection (b)(1)(A)(vii)(I) of this section.

(E) Highly permeable fractured and fissured rock, which contains soil in the fractures and fissures, does not provide adequate treatment of wastewater through soil contact. A soil substitution drainfield can be constructed in this permeable fractured and fissured rock in order to provide adequate soil for treatment. Absorptive area sizing must be based on the most restrictive textural class between either the native soil residing in the fractures or fissures or the substituted soil. The sizing must follow the formulas in subsection (b)(1)(A)(vii)(I) of this section.

(F) Class II and III soils with greater than 30% gravel do not provide adequate treatment of wastewater through soil contact. A soil substitution drainfield can be constructed in Class II or III soils with greater than 30% gravel in order to provide adequate soil for treatment. Absorptive area sizing must be based on the most restrictive textural class between either the non-gravel portion of the native soil or the substituted soil. The sizing must follow the formulas in subsection (b)(1)(A)(vii)(I) of this section.

(5) Drainfields following secondary treatment and disinfection.

Subsurface drainfields following secondary treatment and disinfection may be constructed in Class Ia soils, fractured rock, fissured rock, or other conditions where insufficient soil depth will allow septic tank effluent to reach fractured rock or fissured rock, as long as the following conditions are met.

(A) Drainfield sizing.

(i) If the unsuitable feature is Class Ia soil, the disposal area sizing shall be based on the application rate for Class Ib soil. Some form of pressure distribution shall be used for effluent disposal.

(ii) If the unsuitable feature is fractured or fissured rock, the system sizing should be based on the application rate for Class III soil. Some form of pressure distribution system shall be used for effluent disposal.

(B) Effluent disinfection. Treated effluent must be disinfected as indicated in §285.32(e) of this title before discharging into the drainfield.

(C) Other requirements. The affidavit, maintenance, and testing and reporting requirements of §285.3(b)(3) of this title and §285.7(a) and (d) of this title (relating to Maintenance Requirements) apply to these systems.

(6) All other nonstandard disposal systems. The planning materials for all non-standard disposal systems not described in paragraphs (1) - (5) of this subsection shall be submitted to the executive director for review according to §285.5(b)(2) of this title before the systems can be installed.

§285.34. Other Requirements.

(a) Septic tank effluent filters. Effective 180 days after the effective date of these rules, all effluent filters that are installed in septic tanks shall be listed and approved under the NSF [National Sanitation Foundation (NSF)] International Standard 46 (2000) or under any standard approved by the executive director.

(b) Pump tanks. Pump tanks may be necessary when the septic tank outlet is at a lower elevation than the disposal field or for systems that require pressure disposal. All requirements in §285.32(b)(1)(D) - (F) of this title (relating to Criteria for Sewage Treatment Systems) also apply to pump tanks. The pump tank shall be constructed according to the following specifications.

(1) Pump tank criteria. When effluent must be pumped to a disposal area, an appropriate pump shall be placed in a separate water-tight tank or chamber. A check valve may be required if the disposal area is above the pump tank. The pump tank shall be equipped to prevent siphoning. The tank shall be provided with an audible and visible high water alarm. If an electrical alarm is used, the power circuit for the alarm shall be separate from the power circuit for the pump. Batteries may be used for back-up power supply only. All electrical components shall be listed and labeled by Underwriters Laboratories (UL). At the discretion of the permitting authority, leak testing using water filled to the inside level of the tank lid or to the top of the riser(s) may be required.

(2) Pump tank sizing. Pump tanks shall be sized to contain one-third of a day's flow between the alarm-on level and the inlet to the pump tank. The capacity above the alarm-on level may be reduced to four hours average daily flow if the pump tank is equipped with multiple pumps. See §285.33(d)(2)(G)(iii) of this title (relating to

Criteria for Effluent Disposal Systems) for sizing of pump tanks for surface application systems.

(3) Pump specifications. A single pump may be used for hydraulic flows equal to or less than 1,000 gallons per day. Dual pumps are required for hydraulic flows greater than 1,000 gallons per day. A dual pump system shall have the "alarm on" level below the "second pump on" level, and shall have a lock-on feature in the alarm circuit so that once it is activated it will not go off when the second pump draws the liquid level below the "alarm on" level. All audible and visible alarms shall have a manual "silence" switch. The pump switch-gear shall be set such that each pump operates as the first pump on an alternating basis. All pumps shall be rated by the manufacturer for pumping sewage or sewage effluent.

(4) Equalization tanks. In addition to the requirements for pump tanks in this section, equalization tanks shall meet the following criteria:

(A) The equalization tank must be preceded by a pretreatment tank.

(B) If an equalization tank is serving residences, the tank shall have a volume between the pump intake level and the high water level of at least 50% of the design flow and be designed to time dose at equal intervals and equal doses

throughout a 24-hour period. The tank may contain a gravity line located above the high water alarm level which allows flow to the aerobic treatment unit. The design will use no fewer than 12 doses throughout the 24-hour period.

(C) If an equalization tank is designed to equalize flows over periods longer than a 24-hour period, the tank shall be designed to time dose at equal intervals and equal doses over the flow equalization time period. The design shall have a storage between the highest wastewater flow line during the period and the high level alarm equal to at least 20% of the flow generated during peak days. The tank may contain a gravity line located above the high water alarm level which allows flow to the aerobic treatment unit.

(c) Electrical wiring. All electrical wiring and their conduits shall conform to the requirements of the National Electric Code (1999) or under any other standards approved by the executive director. Additionally, all external wiring shall be installed in approved, rigid, non-metallic gray code electrical conduit. The conduit shall be buried according to the requirements in the National Electrical Code and terminated at a main circuit breaker panel or sub-panel. The permitting authority may approve up to four feet of external wiring to be contained in water-tight, flexible electrical conduit between the buried wire and the circuit breaker panel or sub-panel. Any external wiring that exceeds four feet must be contained in rigid, non-metallic gray code electrical conduit. Connections shall be in approved junction boxes. All electrical components

shall have an electrical disconnect within direct vision from the place where the electrical device is being serviced. Electrical disconnects must be weatherproof (approved for outdoor use) and have maintenance lockout provisions.

(d) Grease interceptors. Grease interceptors shall be used on kitchen waste-lines from institutions, hotels, restaurants, schools with lunchrooms, and other buildings that may discharge large amounts of greases and oils to the OSSF. Grease interceptors shall be structurally equivalent to, and backfilled according to, the requirements established for septic tanks under §285.32(b)(1)(D) - (F) of this title. The interceptor shall be installed near the plumbing fixture that discharges greasy wastewater and shall be easily accessible for cleaning. Grease interceptors shall be cleaned out periodically to prevent the discharge of grease to the disposal system. Grease interceptors shall be properly sized and installed according to the requirements of the 2000 edition of the Uniform Plumbing Code, the 1980 EPA Design Manual: Onsite Wastewater Treatment and Disposal Systems, or other prevailing code.

(e) Holding tanks. Tanks shall be constructed according to the requirements established for septic tanks under §285.32(b)(1)(D) - (E) of this title. Inlet fittings are required. No outlet fitting shall be provided. A baffle is not required. Holding tanks shall be used only on sites where other methods of sewage disposal are not feasible (these holding tank provisions do not apply to portable toilets or to an office trailer at a construction site). All holding tanks shall be equipped with an audible and visible

alarm to indicate when the tank has been filled to within 75% of its rated capacity. A port with its smallest dimension being at least 12 inches shall be provided in the tank lid for inspection, cleaning, and maintenance. This port shall be accessible from the ground surface and must be easily removable and watertight.

(1) Minimum capacity. The minimum capacity of the holding tank shall be sufficient to store the estimated or calculated daily wastewater flow for a period of one week (wastewater usage rate in gallons per day x seven days).

(2) Location. Holding tanks shall be installed in an area readily accessible to a pump truck under all weather conditions, and at a location that meets the minimum distance requirements in §285.91(10) of this title (relating to Tables).

(3) Pumping requirements. A scheduled pumping contract with a waste transporter, holding a current registration with the executive director, must be provided to the permitting authority before a holding tank may be installed. Pumping records must be retained for five years.

(f) Composting toilets. Composting toilets will be approved by the executive director provided the system has been tested and certified under NSF International Standard 41 (1999) or under any other standards approved by the executive director.

(g) Condensation. If condensate lines are plumbed directly into an OSSF, the increased water volume must be accounted for (added to the usage rate) in the system planning materials.

§285.38. Prevention of Unauthorized Access to On-Site Sewage Facilities (OSSFs).

(a) Applicability.

(1) The construction criteria under this subsection applies to:

(A) pretreatment (trash) tanks referenced in §285.32(b)(1)(G) of this title (relating to Criteria for Sewage Treatment Systems);

(B) proprietary treatment units referenced in §285.32(c) of this title;

(C) non-standard treatment units referenced in §285.32(d) of this title;

(D) pump tanks referenced in §285.34(b) of this title (relating to Other Requirements);

(E) holding tanks referenced in §285.34(e) of this title; and

(F) septic tanks referenced in §285.32(b)(1) of this title.

(2) The construction criteria found in this subsection is in addition to the construction criteria in §285.32 of this title.

(b) All tanks must have inspection or cleanout ports located on the tank top over all inlet and outlet devices. Each inspection or cleanout port must be offset to allow for pumping of the tank. The ports may be configured in any manner as long as the smallest dimension of the opening is at least 12 inches, and is large enough to provide for maintenance and equipment removal.

(c) For all OSSF's permitted on or after September 1, 2023, [All With the exception of septic tanks, all] inspection and cleanout ports shall have risers over the port openings which extend to a minimum of two inches above grade. A secondary plug, cap, or other suitable restraint system shall be provided below the riser cap to prevent tank entry if the cap is unknowingly damaged or removed.

[(d) All septic tanks buried more than 12 inches below the ground shall have risers over the port openings. The risers shall extend from the tank surface to no more than six inches below the ground. A secondary plug, cap, or other suitable restraint

system shall be provided below the riser cap to prevent tank entry if the cap is unknowingly damaged or removed.]

(d) [(e)] Risers.

(1) The risers shall have inside diameters which are equal to or larger than the inspection or cleanout ports.

(2) Risers must be permanently fastened to the tank lid or cast into the tank. The connection between the riser and the tank lid must be watertight.

(3) Risers must be fitted with removable watertight caps and protected against unauthorized intrusions. Acceptable protective measures include:

(A) a padlock;

(B) a cover that can be removed with tools;

(C) a cover having a minimum net weight of 29.5 kilograms (65 pounds) set into a recess of the tank lid; or

(D) any other means approved by the executive director.

(4) Risers and riser caps exposed to sunlight must have ultraviolet light protection.

(5) Risers must be able to withstand the pressures created by the surrounding soil.

(e) [(f)] Installation of a riser to any component of a new OSSF is considered construction under this chapter and must be performed by a licensed installer.

(f) [(g)] Installation of risers for OSSF components installed on or after September 1, 2012, are considered an emergency repair as described in §285.35 of this title (relating to Emergency Repairs) and may be performed by either a licensed Installer, licensed maintenance provider, or registered maintenance technician.

(g) [(h)] Any person who accesses any secured lid(s) or cover(s) on an OSSF shall secure the lid(s) or cover(s) when access is complete.

(h) [(i)] All inspection reports sent to Authorized Agents, Regional Offices, and homeowners must document that the access to the OSSF inspection and cleanout ports was secured after the maintenance or inspection activities were completed or that the

OSSF system owner refused to pay for repairs that were needed to secure the OSSF inspection and cleanout ports.

§285.39. On-Site Sewage Facilities Maintenance and Management Practices.

(a) An installer shall provide the owner of an on-site sewage facility (OSSF) with written information regarding maintenance and management practices and water conservation measures related to the OSSF installed, repaired, or maintained by the installer.

(b) Owners shall have the treatment tanks pumped on a regular basis in order to prevent sludge accumulation from spilling over to the next tank or the outlet device. Owners of treatment tanks shall engage only persons registered with the executive director to transport the treatment tank contents.

(c) Owners shall not allow driveways, storage buildings, or other structures to be constructed over the treatment or disposal systems.

**SUBCHAPTER F: LICENSING AND REGISTRATION REQUIREMENTS FOR INSTALLERS,
APPRENTICES, DESIGNATED REPRESENTATIVES, SITE EVALUATORS,
MAINTENANCE PROVIDERS, AND MAINTENANCE TECHNICIANS**

§285.64

Statutory Authority

These amendments are proposed under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over onsite sewage facilities; §5.103 and §5.105, which establish the commission's general authority to adopt rules. No other statutes, articles, or codes are affected by the proposal.

This rulemaking implements House Bill 1680 (87th legislative session), codified as Texas Health and Safety Code, §366.006, which provides that certain tracts of land owned by the federal government that contain separately leased parts is considered a separate tract of land for purposes of on-site sewage facilities permitting.

§285.64. Duties and Responsibilities of Maintenance Providers and Maintenance Technicians.

(a) A maintenance provider shall:

(1) possess a current license from the executive director;

(2) ensure maintenance of accurate records of fees, inspections, and reports;

(3) satisfy the requirements of the maintenance contract between the homeowner of the OSSF system and the maintenance provider according to §285.7 of this title (relating to Maintenance Requirements);

(4) maintain a current address and phone number with the executive director and submit any change in address or phone number to the executive director in writing within 30 days after the date of the change; and

(5) perform maintenance on each OSSF system under executed contract, keep a maintenance record, and submit maintenance reports to the permitting authority and the owner of the OSSF with [for] whom the maintenance provider is [installer has] contracted to provide maintenance, according to §285.7 of this title.

(b) A maintenance technician shall:

(1) possess a current registration from the executive director;

(2) represent his supervising maintenance provider while performing maintenance on an OSSF;

(3) perform services associated with OSSF maintenance under the direct supervision and direction of the maintenance provider on-site or be in direct communication with the maintenance provider;

(4) not receive compensation for OSSF maintenance from anyone except the supervising maintenance provider;

(5) maintain a current address and phone number with the executive director and submit any change in address or phone number to the executive director in writing within 30 days after the date of the change; and

(6) not advertise or otherwise portray themselves as a maintenance provider.

SUBCHAPTER I: APPENDICES

§285.91

Statutory Authority

These amendments are proposed under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; TWC, §5.013, which establishes the commission's authority over onsite sewage facilities; TWC, §5.103 and §5.105, which establish the commission's general authority to adopt rules. No other statutes, articles, or codes are affected by the proposal.

This rulemaking implements House Bill 1680 (87th legislative session), codified as Texas Health and Safety Code, §366.006, which provides that certain tracts of land owned by the federal government that contain separately leased parts is considered a separate tract of land for purposes of on-site sewage facilities permitting.

§285.91. Tables.

The following tables are necessary for the proper location, planning, construction, and installation of an on-site sewage facility (OSSF).

- (1) Table I. Effluent Loading Requirements Based on Soil Classification.

Figure: 30 TAC §285.91(1)

**TABLE I
 EFFLUENT LOADING REQUIREMENTS BASED ON SOIL CLASSIFICATION**

SOIL CLASS (Refer to Table VI)	LONG TERM APPLICATION (R _a) *GALLONS PER ABSORPTIVE AREA (SF) PER DAY
Ia	>0.50
Ib	0.38
II	0.25
III	0.20
IV	0.1

- The absorptive area consists of the bottom area of the excavation **PLUS** one foot of sidewall area around the full perimeter of the excavation.

The required absorptive area shall be calculated by the following formula:

ABSORPTIVE AREA = Q/R_a, Where Q is the wastewater usage rate in gallons per day (see Table III, Relating to Wastewater Usage Rate).

(2) Table II. Septic Tank and Aerobic Treatment Unit Sizing.

Figure: 30 TAC §285.91(2)

SEPTIC TANK MINIMUM LIQUID CAPACITY

A. Determine the applicable wastewater usage rate (Q) in TABLE III of 30 TAC Chapter 285.

B. Calculate the minimum septic tank volume (V) as follows:

1. For Q equal to or less than 250 gal/day:
 V = 750 gallons

2. For Q greater than or equal to 251 gal/day but less than or equal to 350 gal/day:
 V = 1000 gallons

3. For Q greater than or equal to 351 gal/day but less than or equal to 500 gal/day:
 V = 1250 gallons

4. For Q greater than or equal to 501 gal/day but less than or equal to 1000 gal/day:
 V = 2.5 Q

5. For Q greater than or equal to 1001 gal/day:
 V = 1,750 + 0.75Q

AEROBIC TREATMENT UNIT SIZING FOR SINGLE FAMILY RESIDENCES, COMBINED FLOWS FROM SINGLE FAMILY RESIDENCES, OR MULTI-UNIT RESIDENTIAL DEVELOPMENTS

Number of bedrooms/living area of home	Minimum Aerobic Tank Treatment Capacity (gallons per day per residential unit)
One and two bedrooms and < 1,501 sq. ft.	360
Three bedrooms and < 2,501 sq. ft. or Less than three bedrooms and 1,500 < sq. ft. < 2,501	360
Four bedrooms and < 3,501 sq. ft. or Less than four bedrooms and 2,500 < sq. ft. < 3,501	480
Five bedrooms and < 4,501 sq. ft. or Less than five bedrooms and 3,500 < sq. ft. < 4,501	600
Six bedrooms and < 5,501 sq. ft. or Less than six bedrooms and 4,500 < sq. ft. < 5,501	720
Seven bedrooms and < 7,001 sq. ft. or Less than seven bedrooms and 5,500 < sq. ft. < 7,001	840

Eight bedrooms and < 8,501 sq. ft. or Less than eight bedrooms and 7,000 < sq. ft. < 8501	960
Nine bedrooms and < 10,001 sq. ft. or Less than nine bedrooms and 8,500 < sq. ft. < 10,001	1,080
Ten bedrooms and < 11,501 sq. ft. or Less than ten bedrooms and 10,000 < sq. ft. < 11,501	1,200
For each additional bedroom above ten or 1,500 additional square feet of living area above 11,500	120

(3) Table III. Wastewater Usage Rate.

Figure: 30 TAC §285.91(3)

Table III. Wastewater Usage Rate.

This table shall be used for estimating the hydraulic loading rates only. Sizing formulas are based on residential strength BOD₅. Commercial/institutional facilities must pretreat their wastewater to 140 BOD₅ prior to disposal unless secondary treatment quality is required. For design purposes, restaurant wastewater will be assumed to have a BOD₅ of at least 1,200 mg/l after exiting the grease trap or grease interceptor.

Actual water usage data or other methods of calculating wastewater usage rates may be used by the system designer if it is accurate and acceptable to the Texas Commission on Environmental Quality or its authorized agents. If actual water use records are greater than the usage rates in this table, the system shall be designed for the higher flow.

TYPE OF FACILITY	USAGE RATE GALLONS/DAY (Without Water Saving Devices)	USAGE RATE GALLONS /DAY (With Water Saving Devices)
------------------	--	--

Single family dwelling (one or two bedrooms) - less than 1,500 square feet.	225	180
	300	240
Single family dwelling (three bedrooms) - less than 2,500 square feet.	375	300
Single family dwelling (four bedrooms) - less than 3,500 square feet.	450	360
	525	420
Single family dwelling (five bedrooms) - less than 4,500 square feet.	75	60
Single family dwelling (six bedrooms) - less than 5,500 square feet.		
Greater than 5,500 square feet, each additional 1,500 square feet or increment thereof.		
Condominium or Townhouse (one or two bedrooms)	225	180
Condominium or Townhouse (each additional bedroom)	75	60
Mobile home (one or two bedrooms)	225	180
Mobile home (each additional bedroom)	75	60
Country Clubs (per member)	25	20
Apartment houses (per bedroom)	125	100
Boarding schools (per room capacity)	50	40
Day care centers (per child with kitchen)	25	20
Day care centers (per child without kitchen)	15	12
Factories (per person per shift)	15	12
Hospitals (per bed)	200	160
Hotels and motels (per bed)	75	60
Nursing homes (per bed)	100	80
Laundries (self service per machine)	250	200
Lounges (bar and tables per person)	10	8
Movie Theaters (per seat)	5	4
Office buildings (no food or showers per occupant)	5	4
	10	8

Office buildings (with food service per occupant)		
Parks (with bathhouse per person)	15	12
Parks (without bathhouse per person)	10	8
Restaurants - minimum effluent BOD ₅ quality described above this table	35	28
Restaurants (per seat)	15	12
Restaurants (fast food per seat)		
Schools (with food service & gym per student)	25	20
Schools (without food service)	15	12
Service stations (per vehicle)	10	8
Stores (per washroom)	200	160
Swimming pool bathhouses (per person)	10	8
Travel trailer/RV parks (per space)	50	40
Vet clinics (per animal)	10	8
Construction sites (per worker)	50	40
Youth camps (per camper)	30	24

(4) Table IV. Required Testing and Reporting.

Figure: 30 TAC §285.91(4)

Table IV. Required Testing and Reporting.

Type and Size of Treatment Unit	Testing Frequency	Required Tests	Minimum Acceptable Test Results
Any Treatment Method in Conjunction with Surface Application	At least once every four months	One BOD ₅ and TSS Grab Sample Per Year (non-single family residences only) Total Chlorine Residual or Fecal Coliform at Each Required Test	BOD ₅ and TSS Grab Samples Not To Exceed 65 mg/l 0.1 mg/l Residual in Pump Tank or Fecal Coliform Not To Exceed 200 MPN/100 ml (CFU/100 ml)
Any Secondary Treatment System	At least once every four months	None	None
Non Standard	Permit Specific	Permit Specific	Permit Specific

(5) Table V. Criteria for Standard Subsurface Absorption Systems.

Figure: 30 TAC §285.91(5)

Table V. Criteria for Standard Subsurface Absorption Systems.

FACTORS	SUITABLE (S)	UNSUITABLE (U)
Topography	Slopes 0-30%	Slopes greater than 30% Complex slopes
Subsoil Texture	Soil Class Ib, II, or III soils along the sidewall and two	Soil Class Ia soils along the sidewall or within two feet below the bottom of the

	feet below the bottom of the excavation	excavation (Except for lined ET) Soil Class IV along the sidewall or within two feet below the bottom of the excavation (Except for pumped effluent and ET)
Restrictive Horizon	No restrictive horizon intersects the sidewall or is within 24 inches below the bottom of the proposed excavation.	A restrictive horizon intersects the sidewall or is within 24 inches below the bottom of the proposed excavation (Except as indicated in §285.33(b)(1)(A)(vi))
Gravel analysis	In Class II or III soils, only; Gravel portion less than 30% and gravel greater than 2.0 mm; or If greater than 30% gravel, 80% of the gravel portion must be less than 5.0 mm	All other Class II and III soils, which contain gravel in excess of what is described as suitable All other soils with greater than 30% gravel
Groundwater	No indication of seasonal groundwater anywhere within 24 inches of the bottom of the proposed excavation.	Indications of seasonal groundwater or drainage mottles anywhere within 24 inches of the bottom of the proposed excavation (Except for lined ET)
Flood Hazard	No flooding potential.	Areas located in the floodplain and regulatory floodway unless system designed according to §285.31(c)(2) Depressional areas without adequate drainage
Other		Fill material

(6) Table VI. USDA Soil Textural Classifications.

Figure: 30 TAC §285.91(6)

Table VI. USDA Soil Textural Classifications.

(7) Table VII. Yearly Average Net Evaporation (Evaporation-Rainfall).

Figure: 30 TAC §285.91(7)

TABLE VII
 ANNUAL AVERAGE NET EVAPORATION
 (EVAPORATION - RAINFALL)

REPORTING STATION	NET EVAPORATION*, RET INCHES/DAY
Amarillo	0.21
Austin	0.14
Beaumont	0.04
Big Spring	0.24
Brownsville	0.15
Chilicothe	0.20
Canyon Lake	0.15
College Station	0.12
Corpus Christi	0.15
Daingerfield	0.08
Dallas	0.14
El Paso	0.26
Fort Stockton	0.25
Houston	0.07
Laredo	0.23
Lubbock	0.21
Nacogdoches	0.06
San Antonio	0.15
San Angelo	0.23

Temple	0.15
Throckmorton	0.19
Tyler	0.08

* The calculations for all values listed include a 20% run-off consideration

(8) Table VIII. OSSF Excavation Length (3 Feet in Width or Less).

Figure: §30 TAC 285.91(8)

Table VIII. OSSF Excavation Length (3 Feet in Width or Less)

Daily Sewage Flow (Q) ²	Excavation Length (Feet)								
	Soil Class Ib			Soil Class II			Soil Class III		
	For 1.5 Foot Excavation on Width ³	For 2.0 Foot Excavation on Width	For 3.0 Foot Excavation on Width	For 1.5 Foot Excavation on Width ³	For 2.0 Foot Excavation on Width	For 3.0 Foot Excavation on Width	For 1.5 Foot Excavation on Width ³	For 2.0 Foot Excavation on Width	For 3.0 Foot Excavation on Width
100	75	66	53	114	100	80	143	125	100
125	94	82	66	143	125	100	179	156	125
150	113	99	79	171	150	120	214	188	150
180	135	118	95	206	180	144	257	225	180
200	150	132	105	229	200	160	286	250	200
225	169	148	118	257	225	180	321	281	225
240	180	158	126	274	240	192	343	300	240
275	207	181	145	314	275	220	393	344	275
300	226	197	158	343	300	240	429	375	300
325	244	214	171	371	325	260	464	406	325
360	271	237	189	411	360	288	514	450	360
375	282	247	197	429	375	300	536	469	375
400	301	263	211	457	400	320	571	500	400
420	316	276	221	480	420	336	600	525	420
450	338	296	237	514	450	360	643	563	450
475	357	313	250	543	475	380	679	594	475
500	376	329	263	571	500	400	714	625	500

1. To determine excavation lengths, greater than 3 feet in width or where the area and width are known, use the formulas provided in §285.33(b)(1)(A)(vii).
2. To determine excavation lengths (3 feet or less in width, but greater than or equal to

1.5 feet in width) for daily sewage flows (Q) not provided in this table, use the formula provided in §285.33(b)(1)(A) (vii)(III).

3. Minimum excavation width is 1.5 feet for all excavation lengths.

(9) Table IX. OSSF System Designation.

Figure: 30 TAC §285.91(9)

Table IX. OSSF System Designation.

SYSTEM DESCRIPTION	SYSTEM TYPE	PLANNING MATERIAL TO BE PREPARED BY R.S. or P.E. ²	INSTALLER REQUIREMENTS
Septic Tank & Absorptive Drainfield	Standard	No	Class I or II
Septic Tank & ET Drainfield (Unlined)	Standard	No	Class I or II
Septic Tank & ET Drainfield (Lined)	Standard	No	Class II
Septic Tank & Pumped Drainfield	Standard	No	Class I or II
Septic Tank & Leaching Chamber	Proprietary	No	Class I or II
Septic Tank & Gravelless Pipe	Proprietary	No	Class I or II
Septic Tank & Low Pressure Dosing	Non-standard	Yes	Class II
Septic Tank & Absorptive Mounds	Non-standard	Yes	Class II

Septic Tank & Soil Substitution	Non-standard	Yes	Class I or II
Septic Tank, Secondary Treatment, Filter & Surface Application	Non-standard	Yes	Class II
Aerobic Treatment & Standard Absorptive Drainfields	Proprietary	Yes	Class II
Aerobic Treatment & ET Drainfield	Proprietary	Yes	Class II
Aerobic Treatment & Leaching Chamber	Proprietary	Yes	Class II
Aerobic Treatment & Gravelless Pipe	Proprietary	Yes	Class II
Aerobic Treatment, Filter & Drip Emitter	Proprietary	Yes	Class II
Aerobic Treatment & Low Pressure Dosing	Proprietary	Yes	Class II
Aerobic Treatment & Absorptive Mounds	Proprietary	Yes	Class II
Aerobic Treatment & Surface Application	Proprietary	Yes	Class II
Any Other Treatment System	---	Yes	Class II
Any Other Subsurface Disposal System	---	(1)	(1)

Any Other Surface Disposal System	---	Yes	Class II
Non-Standard Treatment when Secondary Treatment Required	Non-Standard	Engineer Only	Class II
Holding Tank	---	No	Class I or II

- (1) Determined by the executive director based upon review required by §285.5(b)(2) of this Chapter (relating to submittal requirements for planning materials).
- (2) The site evaluation is required to be performed by either a site evaluator or a professional engineer.

(10) Table X. Minimum Required Separation Distances for On-Site Sewage Facilities.

Figure: 30 TAC §285.91(10)

Table X. Minimum Required Separation Distances for On-Site Sewage Facilities.	
	TO
FROM	Tanks Soil Absorption Systems, & Unlined ET Beds Lined Evapotranspiration Beds Sewer Pipe With Watertight Joints Surface Application (Edge of Spray Area) Drip Irrigation
Public Water Wells ²	50 150 150 50 150 150
Public Water Supply Lines ²	10 10 10 10 10 10
Wells and Underground Cisterns	50 100 50 20 100 100
Private Water Line	10 10 5 10 ⁵ except at connection to structure No separation distances 10

Wells Completed in accordance with <u>16 TAC §76.100(a)(1)</u> [16 TAC §76.1000(a)(1)]	50	50	50	20	50	50
Streams, Ponds, Lakes, Rivers, Creeks (Measured From Normal Pool Elevation and Water Level); Salt Water Bodies (High Tide Only); Retention Ponds/Basin (Spillway elevation)	50	75 LPD with secondary treatment & disinfection - 50	50	20	50	25 when $R_a \leq 0.1$ 75 when $R_a > 0.1$ (With Secondary Treatment & Disinfection - 50)
Foundations, Buildings, Surface Improvements, Property Lines, Swimming	5	5	5	5 Pipe may run beneath driveways and sidewalks or up	No Separation Distance Except: Property lines - 20 ⁶	No Separation Distance Except: Property Lines - 5

Pools, and Other Structures				to surface improvements if it is Schedule 80 pipe or sleeved in Schedule 40 pipe Pipe containing secondary effluent has no setbacks from building foundations	Swimming Pools - 25	
Underground Easements	1	1	1	1	May spray to edge of easement, but not into. Sprinkler heads must be 1 feet from easement edge	1
Overhead Easements	1 No setback	1 No setbacks	1 No setbacks if permission is	1 No setbacks if	1 No setbacks	1 No setbacks

	if permission is granted by easement holder	if permission is granted by easement holder	granted by easement holder	permission is granted by easement holder	if permission is granted by easement holder	if permission is granted by easement holder
Slopes Where Seeps may Occur and detention ponds	5	25	5	10	10	10 when $R_a \leq 0.1$ 25 when $R_a > 0.1$
Edwards Aquifer Recharge Features (See Chapter 213 of this title relating to Edwards Aquifer) ³	50	150	50	50	150	100 when $R_a \leq 0.1$ 150 when $R_a > 0.1$

1. All distances measured in feet, unless otherwise indicated
2. For additional information or revisions to these separation distances, see Chapter 290 of this title (relating to Public Drinking Water)
3. No on-site sewage facility may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde County line to the recharge zone.
4. Drip irrigation lines may not be placed under foundations.
5. Private water line/wastewater line crossings should be treated as public water line crossings, see Chapter 290 of this title.
6. Separation distance may be reduced to 10 feet when sprinkler operation is controlled by [commercial] a timer. See §285.33(d)(2)(G)(i) of this title (relating to Criteria for Effluent Disposal systems)

(11) Table XI. Intermittent Sand Filter Media Specifications (ASTM C-33).

Figure: 30 TAC §285.91(11)

**TABLE XI INTERMITTENT SAND FILTER MEDIA SPECIFICATIONS
 (ASTM C-33)**

Particle Size Distribution		
Sieve	Particle Size	Percent Passing
3/8 inch	9.50 mm	100
No. 4	4.75 mm	95 to 100
No. 8	2.36 mm	80 to 100
No. 16	1.18 mm	50 to 85
No. 30	0.60 mm	25 to 60
No. 50	0.30 mm	10 to 30
No. 100	0.15 mm	2 to 10
No. 200	0.075 mm	3

1. The sand shall have not more than 45% passing any one sieve and retained on the next consecutive sieve listed in TABLE XI.
2. The limit for material that can pass the No. 200 sieve shall not be more than 3%.

The fineness modulus shall not be less than 2.3 nor more than 3.1, and is defined as a numeric quantity to control the distribution of filter media particle sizes within the specified range for intermittent sand filters. The fineness modulus is calculated by adding the cumulative percents of samples retained on the following screens, dividing the sum by 100.

3. sizes within the specified range for intermittent sand filters. The fineness modulus is calculated by adding the cumulative percents of samples retained on the following screens, dividing the sum by 100.

U.S. Bureau of Standards	
Sieve	Particle Size
3/8 inch	9.50 mm
No. 4	4.75 mm
No. 8	2.36 mm
No. 16	1.18 mm
No. 30	0.60 mm
No. 50	0.30 mm
No. 100	0.15 mm

(12) Table XII. OSSF Maintenance Contracts, Affidavit, and Testing/Reporting Requirements.

Figure: 30 TAC §285.91(12)

Table XII. OSSF Maintenance Contracts, Affidavit, and Testing/Reporting Requirements.

SYSTEM DESCRIPTION
Septic Tank & Absorptive Drainfield
Septic Tank & ET Drainfield (Unlined)
Septic Tank & ET Drainfield (Lined)
Septic Tank & Pumped Drainfield
Septic Tank & Leaching Chamber
Septic Tank & Gravelless Pipe
Septic Tank & Low Pressure Dosing
Septic Tank & Absorptive Mounds

Septic Tank & Soil Substitution
Septic Tank, Secondary Treatment, Filter & Surface Application
Secondary Treatment & Standard Absorptive Drainfields
Secondary Treatment & ET Drainfield
Secondary Treatment & Leaching Chamber
Secondary Treatment & Gravelless Pipe
Secondary Treatment, Filter & Drip Emitter
Secondary Treatment & Low Pressure Dosing
Secondary Treatment & Absorptive Mounds
Secondary Treatment & Surface Application
Any Other Treatment System
Any Other Subsurface Disposal System
Any Other Surface Disposal System
Non-Standard Treatment and Surface Application
Holding Tank

- (1) Determined by the permitting authority based upon review required by §285.5(b) of this title (relating to Submittal Requirements for Planning Materials).
- (2) Requirements for Planning Materials). Testing criteria and reporting frequency for those systems not covered under shall be according to §285.91(4) of this title.
- (3) Required if design Q is less than required by §285.91(3) of this title.
- (4) Not required if the homeowner maintains the system.

(13) Table XIII. Disposal and Treatment Selection Criteria.

Figure: 30 TAC §285.91(13)

TABLE XIII: DISPOSAL AND TREATMENT SELECTION CRITERIA

ON-SITE SEWAGE FACILITY ⁽⁹⁾ (OSSF)	SOIL TEXTURE OR FRACTURED ROCK ⁽¹⁰⁾ (MOST RESTRICTIVE CLASS ALONG MEDIA ⁽¹⁾ or 2 FEET BELOW EXCAVATION)			MINIMUM DEPTH TO GROUNDWATER	MINIMUM DEPTH TO RESTRICTIVE HORIZON ⁽¹⁾	
Disposal Method (section) Treatment	Class Ia	Class Ib, II ⁽⁸⁾ or III ⁽⁸⁾	Class IV	Fractured Rock	MEASURED FROM BOTTOM OF MEDIA ⁽⁷⁾	MEASURED FROM BOTTOM OF MEDIA ⁽⁷⁾
Absorptive drainfield ⁽²⁾ (285.33(b)(1)) Septic tank	U	S	U	U	2 feet	2 feet
Absorptive drainfield ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	U	S ⁽⁵⁾	2 feet	2 feet
Lined E-T ⁽²⁾ Septic tank	S	S	S	S	N/A	N/A
Lined E-T ⁽²⁾ Secondary treatment	S	S	S	S	N/A	N/A
Unlined E-T ⁽²⁾ Septic tank	U	S	S	U	2 feet	2 feet
Unlined E-T ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	S	S ⁽⁵⁾	2 feet	2 feet
Pumped Effluent Drainfield ⁽³⁾ Septic tank	U	S	S	U	2 feet	1 foot
Leaching chamber ⁽²⁾ Septic tank	U	S	U	U	2 feet	2 feet

Leaching chamber ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	U	S ⁽⁵⁾	2 feet	2 feet
Gravelless pipe ⁽²⁾ Septic tank	U	S	U	U	2 feet	2 feet
Gravelless pipe ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	U	S ⁽⁵⁾	2 feet	2 feet
Drip Irrigation Septic tank/ filter	U	S	S	U	2 feet	1 foot
Drip Irrigation Secondary treatment/ filter	S ⁽⁵⁾	S	S	S ⁽⁵⁾	1 foot	6 inches
Low Pressure Dosing Septic tank	U	S	S	U	2 feet	1 foot
Low Pressure Dosing Secondary treatment	S ⁽⁵⁾	S	S	S ⁽⁵⁾	2 feet	1 foot
Mound ⁽⁴⁾ Septic tank	S	S	S	S	2 feet	1.5 feet
Mound ⁽⁴⁾ Secondary treatment	S	S	S	S	2 feet	1.5 feet
Surface application Secondary treatment	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	N/A	N/A
Surface application Non-standard treatment	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	N/A	N/A
Soil Substitution ⁽²⁾ Septic tank	S	S	U	S	2 feet	2 feet
Soil Substitution ⁽²⁾ Secondary Treatment	S	S	U	S	2 feet	2 feet

S = Suitable U = Unsuitable

- (1) An absorptive drainfield may be used, if a rock horizon is at least 6 inches above the bottom of the excavation, see §285.33(b)(1).
 - (2) If the slope in the drainfield area is greater than 30% or is complex, the area is unsuitable for the disposal method.
 - (3) Can only be installed in an area where the slope is less than or equal to 2.0%.
 - (4) Can only be installed in an area where the slope is less than 10%.
 - (5) Requires disinfection before disposal. A form of pressure distribution shall be used for effluent disposal in fractured or fissured rock.
 - (6) Requires vegetation cover and disinfection.
 - (7) When no media exists, measure from the bottom of the excavation or pipe, whichever is less.
 - (8) May require gravel analysis for further suitability analysis (see §285.30(b)(1)(B)).
 - (9) If OSSF is located within a Flood Hazard, see §285.31(c)(2) for special planning requirements.
 - (10) Includes fissured rock.
- All OSSFs require surface drainage controls if slope is less than 2%.