The Texas Commission on Environmental Quality (TCEQ, agency, or commission) adopts the amendments to §§285.3 - 285.6, 285.32 - 285.36, 285.90, and 285.91.

Sections 285.3, 285.6, 285.32 - 285.34, and 285.91 are adopted *with changes* to the proposed text as published in the July 13, 2012, issue of the *Texas Register* (37 TexReg 5198). Sections 285.4, 285.5, 285.35, 285.36, and 285.90 are adopted *without changes* to the proposed text and will not be republished.

Background and Summary of the Factual Basis for the Adopted Rules

The adopted rulemaking updates the rule requirements. The adopted rules remove setbacks between on-site sewage facility (OSSF) components and drainage easements; clarify that a permit and an approved plan are required to construct, alter, repair, extend, or operate an OSSF; and exempt subdivisions from submitting planning materials when a tract is divided into two five-acre or larger tracts. The adopted rules allow the repair or alteration of existing cluster systems. The adopted rules update sizing formulas for leaching chambers. The adopted rulemaking requires new or replacement disinfection devices to be certified by a third party. The adopted rules add the option to reduce the size of aerobic treatment units when using an equalization tank; establish guidelines for the installation of new equalization tanks; and clarify what constitutes an emergency repair. The adopted rules increase the cleanout spacing to 100 feet for consistency with the Uniform Plumbing Code; add language that applies to pipes

that cross drainage easements; and clarify that once tanks are no longer used to hold sewage, they must be abandoned. The adopted rules allow another option for sewage pipes installed under a driveway or sidewalk, and update figures and tables to be consistent with the changes discussed previously.

Section by Section Discussion

§285.3, General Requirements

The rule adoption amends §285.3(a) to clarify that an approved plan is necessary, in addition to a permit, to construct, alter, repair, extend, or operate an OSSF. The adopted amendment clarifies requirements for the public and incorporates statutory language to be consistent with the Texas Health and Safety Code (THSC), §366.051(a).

§285.4, Facility Planning

The rule adoption adds §285.4(a)(1)(C), which does not require the submittal of planning materials if a platted or unplatted subdivision tract is divided into two tracts with five or more acres for family transfers. The adopted amendment will not have a negative impact on water quality because lots that are five or more acres can support an OSSF. The adoption also changes "public water supply" to "public water system" in §285.4(a)(1) to provide consistency with the Public Water Supply Rules (30 TAC Chapter 290).

§285.5, Submittal Requirements for Planning Materials

The adopted rulemaking includes §285.5(a)(2)(E), which requires that all applications for new OSSF construction within the Edwards Aquifer Recharge Zone have a professional design.

§285.6, Cluster Systems

Adopted §285.6(a) and (b) state that new cluster systems are not authorized under Chapter 285, but existing cluster systems may be repaired or altered if there is no increase in the volume of the permitted flow or change in the nature of the permitted flow. Most cluster systems that are failing were previously required to obtain a permit under 30 TAC Chapter 309, Subchapter C, but it was difficult for existing cluster systems to qualify for this permit. The adopted amendment allows cluster system owners to repair or alter the system instead of replacing the system or operating a system that does not meet the permit requirements. Based on comments received, the language in §285.6(b) was changed to clarify that alterations that increase the flow or change the nature of the permitted flow may require authorization under other statute.

§285.32, Criteria for Sewage Treatment Systems

Adopted §285.32(a)(8) was added to provide guidance for pipes that cross a drainage easement. The adopted rule also increases the cleanout spacing to 100 feet for consistency with the Uniform Plumbing Code. Adopted §285.32(c)(1) provides an

option to reduce the size of aerobic treatment units through the installation of an equalization tank. The adopted rule also amends §285.32(b)(1)(C) to match the figure contained in §285.90(7). The adopted rule modifies §285.32(d) to clarify when an OSSF must be designed by a professional engineer or a professional sanitarian.

§285.33, Criteria for Effluent Disposal Systems

The adopted rulemaking outlines the requirements for pipe that crosses a drainage easement. The adopted rulemaking also updates the formulas that are used to determine the appropriate length of leaching chambers. It also clarifies the allowable gravel content for soils beneath low pressure dosing and drip irrigation systems. The adopted rule requires that all new disinfection devices used in OSSFs be listed as an American National Standard Institute (ANSI)/National Sanitation Foundation (NSF) Standard 46 approved dispenser or disinfection device for wastewater treatment systems. The adopted rulemaking allows the placement and replacement of a disinfection device on existing systems to be an emergency repair that may be performed by a licensed Installer II, a licensed maintenance provider, or a registered maintenance technician. Third party certification will improve reliability of chlorinators that are used in OSSFs and decrease the potential for disease transmission through OSSFs. Based on comments received, the commission added language in §285.33(d)(2)(D) to include ANSI accredited testing institutions. The commission also changed the reference from "National Science Foundation" to "National Sanitation

Foundation" based on comments received.

Seeking Comments Regarding the Mandatory Use of NSF Certified Disinfection Devices

The commission sought comments related to the efficiency of NSF certified disinfection devices and the impacts of transitioning to the mandatory use of such devices by requiring the use of NSF certified disinfection devices in on-site sewage facilities after a specified date. The commission specifically requested comments on the efficiency of disinfection devices, the cost of disinfection devices to the consumer, and an appropriate effective date. The commission received comments from three manufacturers of disinfection equipment and one local designated representative. Based on the comments received and additional research done by staff, the commission is requiring disinfection equipment to be certified as either a chlorine dispenser or a disinfection device on the effective date, and by January 1, 2016, disinfection equipment must be certified as disinfection devices.

§285.34, Other Requirements

The adopted rulemaking amends §285.34(b)(4), which provides the requirements if an equalization tank is used. The adopted rule offers a potentially lower cost option to reduce aerobic treatment unit sizing if an equalization tank is installed.

§285.35, Emergency Repairs

The adopted rulemaking clarifies the list of items that are considered emergency repairs. The adopted rulemaking replaces the word "installer" with "individual authorized to make the repair" to accommodate that an installer, maintenance technician or maintenance provider might perform the emergency repair.

§285.36, Abandoned Tanks, Boreholes, Cesspools, and Seepage Pits

The adopted rulemaking clarifies that a tank that is no longer used to hold sewage must be abandoned.

§285.90, Figures

The adopted rule implements changes in Figure 3 that would provide space for an authorized individual to indicate that the access ports were secured before leaving the site in accordance with House Bill 240, 82nd Legislature, 2011.

§285.91, Tables

The adopted rule clarifies that Table II (Aerobic Treatment Unit Sizing) also applies to apartments and townhomes and clarifies the required aerobic treatment unit sizing for one to three bedroom homes. The adopted rule removes drainage easements from Table X. The adopted rule changes Table X to allow another option for sewage pipes that are installed under a driveway or sidewalk.

Draft Regulatory Impact Analysis Determination

The commission reviewed this rulemaking action in light of the regulatory analysis requirements of the Administrative Procedure Act, Texas Government Code, §2001.001 *et. seq.*, and determined that the adopted rules are not subject to Texas Government Code, §2001.0225 because they do not meet the definition of "major environmental rule" as defined in Texas Government Code, §2001.0225(g)(3). A "major environmental rule" means a rule, the specific intent of which, is 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. The intent of the adopted rules is to update the rules by removing setbacks between OSSF components and drainage easements; by clarifying that a permit and an approved plan are required to construct, alter, repair, extend, or operate an OSSF; and by exempting subdivisions from submitting planning materials when a tract is divided into two five-acre or larger tracts. The adopted rules are also intended to allow the repair or alteration of existing cluster systems. The adopted rules are intended to update sizing formulas for leaching chambers. The adopted rules are intended to require new or replacement disinfection devices to be certified by a third party. The adopted rules are intended to add the option to reduce the size of aerobic treatment units when using an equalization tank; to establish guidelines for the installation of new equalization tanks;

to clarify what constitutes an emergency repair; and to update figures and tables to be consistent with the previous list of changes. Protection of human health and the environment may be a by-product of these proposed rules, but it is not the specific intent of the rules.

Further, these adopted 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. These adopted rules are not expected to result in significant fiscal implications for OSSF aerobic system owners, installers, aerobic system maintenance providers, engineers, sanitarians, site evaluators, authorized agents or designated representatives. Similarly, these adopted rules are not expected to affect the environment and public health and safety in any material, adverse way. Thus, these adopted rules do not meet the definition of "a major environmental rule" as defined in Texas Government Code, §2001.0225(g)(3), and do not require a full regulatory impact analysis.

Furthermore, these adopted rules do not meet any of the four applicability requirements listed in Texas Government Code, §2001.0225(a). Texas Government Code, §2001.0225(a) applies only to a major environmental rule that: 1) exceeds a standard set by federal law, unless the rule is specifically required by state law; 2) exceeds an express requirement of state law, unless the rule is specifically required by federal law;

3) exceeds 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) adopts a rule solely under the general powers of the agency instead of under a specific state law. The adopted rules do not exceed a federal standard because there are no federal standards regulating on-site sewage facilities. The adopted rules do not exceed an express requirement of state law. THSC, §366.012(a) grants the commission specific authority to adopt rules concerning on-site sewage disposal systems. Also, the adopted rules do not exceed a requirement of an agreement because there are no delegation agreements or contracts between the State of Texas and an agency or representative of the federal government to implement a state and federal program regarding on-site sewage facilities. Finally, these rules are being adopted under specific state laws, in addition to the general powers of the agency. Therefore, Texas Government Code, §2001.0225 is not applicable to these adopted rules.

The commission invited public comment regarding this draft regulatory impact analysis determination. No comments were received on the regulatory impact analysis determination.

Takings Impact Assessment

The commission evaluated these adopted rules and performed an analysis of whether these adopted rules constitute a taking under Texas Government Code, Chapter 2007.

The purpose of these adopted rules is to update the rules. The adopted rules would substantially advance this stated purpose by removing setbacks between OSSF components and drainage easements; by clarifying that a permit and an approved plan are required to construct, alter, repair, extend, or operate an OSSF; and by exempting subdivisions from submitting planning materials when a tract is divided into two five-acre or larger tracts. The adopted rules allow for the repair or alteration of existing cluster systems, which was not allowed under previous rules. The adopted rules update sizing formulas for leaching chambers. The adopted rules require new or replacement disinfection devices to be certified by a third party. The adopted rules add an option to reduce the size of aerobic treatment units when an equalization tank is used; establish guidelines for the installation of new equalization tanks; clarify what constitutes an emergency repair; and update figures and tables to be consistent with the previous list of changes.

Promulgation and enforcement of these adopted rules would be neither a statutory nor a constitutional taking of private real property. Specifically, the subject adopted regulations do not affect a landowner's rights in private real property because this rulemaking does not burden nor restrict or limit the owner's right to property and reduce its value by 25% or more beyond that which would otherwise exist in the absence of the regulations. These adopted rules do not affect private real property.

Consistency with the Coastal Management Program

The commission reviewed the adopted rulemaking and found that the adoption 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 commission conducted a consistency determination for the adopted 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 adopted amendments include Nonpoint Source (NPS) Water Pollution and require, under the THSC, Chapter 366 (governing on-site sewage disposal systems) that on-site disposal systems be located, designed, operated, inspected, and maintained so as to prevent releases of pollutants that may

adversely affect coastal waters. The adopted amendments will make the rules more protective by allowing the repair or alteration of existing cluster systems and by clarifying what constitutes an emergency repair, and therefore, the amendments are consistent with the CMP policies.

Promulgation and enforcement of these rules will not violate or exceed any standards identified in the applicable CMP goals and policies because the adopted rules are consistent with these CMP goals and policies, because these rules do not create or have a direct or significant adverse effect on any coastal natural resource areas, and because the adopted rules do not relax current treatment or disposal standards.

The commission invited public comment regarding the consistency with the coastal management program during the public comment period. No comments were received on the CMP.

Public Comment

A public hearing on this proposal was held in Austin on August 6, 2012. The comment period closed August 13, 2012. The commission received comments from two individuals with DIR Manufacturing (DIR), and from representatives of Gulf Coast Testing (GCT), Clearstream Wastewater Systems (CWS), AAA Wastewater (AAA), Waller County (WC), Lower Colorado River Authority (LCRA), and two individuals with the City of Austin (COA). One individual not affiliated with an organization or company

also commented.

Response to Comments

LCRA requested changes to §285.6(b) to clarify that some alterations to an existing cluster system might require authorization under another statute.

The commission agrees and added language to §285.6(b) to clarify that alterations that increase flow or change the nature of the permitted flow may need authorization under other statutes.

LCRA requested that additional language be added to §285.32(a)(8) and §285.33(a)(6) to addresses erosion for drainage easement crossings.

The commission agrees and added language to §285.32(a)(8) and §285.33(a)(6) to clarify that construction should protect the pipe and drainage area from erosion.

One individual commented in support of §285.32(c)(1) which allows an option for flow equalization when using aerobic treatment units.

The commission appreciates this comment. No changes were made in response to this comment.

GCT requested that the language in §285.33(d)(2)(D) that is related to the certification of disinfection equipment should not be limited to approval by NSF International only, but expanded to include any ANSI accredited testing institution.

The commission agrees with this comment and has added language to §285.33(d)(2)(D) to include ANSI accredited testing institutions.

One individual commented that the reference in §285.34(a) should be changed from National Science Foundation to National Sanitation Foundation.

The commission agrees and changed the language in §285.34(a) from National Science Foundation to National Sanitation Foundation.

LCRA recommended changes to §285.90(5) to clarify the maximum single line drainfield restrictions.

This figure was not proposed to be changed. However, the commission will consider this issue in future rulemaking. No changes were made in response to this comment.

AAA commented that the ANSI/NSF Standard 46 testing protocol for disinfection devices is more protective of the environment and the public health when compared to the protocol for chlorine dispensers. The reason given was that the disinfection testing protocol uses treated wastewater and tests bacterial kill rather than using tap water and measuring chlorine added to the tap water.

The commission agrees that the testing protocol for disinfection devices is more protective of the public health and environment than the testing protocol for chlorine dispensers. Adopted §285.33(d)(2)(D) was amended to require that all disinfection equipment be listed as approved disinfection devices under ANSI/NSF Standard 46 beginning three years after the effective date of these rules.

CWS requested a two-year lead time if the commission decides to adopt a rule requiring disinfection equipment to be certified and listed solely as disinfection devices under ANSI/NSF Standard 46.

The commission agrees that lead time is necessary, and §285.33(d)(2)(D) was amended to provide three years before disinfection equipment is required to be listed as an approved disinfection device under ANSI/NSF

Standard 46.

DIR commented that they favor the proposal for new disinfection equipment to be listed as approved dispensers or disinfection devices for wastewater systems by NSF International under ANSI/NSF Standard 46. They also commented that they would not favor a requirement that disinfection equipment be listed solely as disinfection devices by NSF International under ANSI/NSF Standard 46 due to concerns about the cost of developing new technology, the cost of patents, the cost of testing the product and the cost of monitoring fecal coliform rather than chlorine residual. One individual commented that he expects to see a price increase for disinfection devices currently approved under ANSI/NSF Standard 46 if they are required by the rules.

The commission understands that meeting a higher standard for disinfection equipment will include costs to the equipment manufacturers and ultimately to the consumer. Presently, there are multiple manufacturers of certified disinfection equipment, so there should be competition and choices for consumers. There are also benefits provided by improving the performance of disinfection equipment. The commission respectfully does not agree that the field performance of disinfection equipment listed as disinfection devices has to be monitored by measuring fecal coliform. The commission will continue to allow listed disinfection

devices to be monitored by either chlorine residual or fecal coliform. No changes to rule language were made as a result of this comment.

WC commented that there was no need to adopt a requirement that disinfection equipment be listed solely as disinfection devices certified by NSF International under ANSI/NSF Standard 46. The commenter felt that equipment certified as chlorine dispensers should be grandfathered. The commenter also stated that disinfection equipment should be sized to hold enough chlorine for three to four months.

The commission respectfully disagrees with the comment that certification and testing of disinfection equipment is not necessary. The commission believes that third party testing to a nationally recognized standard will increase the reliability and performance of disinfection equipment. The commission recognizes that property owners will need to maintain and replenish their disinfection equipment. No changes were made to the rule language as a result of this comment.

One individual commented that disinfection devices certified as chlorine dispensers under ANSI/NSF Standard 46 add too much chlorine to a system and cause premature equipment breakdown. If NSF approved chlorine dispensers are required, the commenter wants to be able to adjust the chlorine level in the field.

The commission shares the concern and agrees with the need to adjust the equipment in the field. We have contacted NSF about allowing field adjustment, and they have indicated a willingness to address this concern. No changes were made to the rule language as a result of this comment.

COA commented that TCEQ should have had broader outreach to the regulated community in announcing the stakeholder meeting. One individual gave three examples of suggested rule changes he would have proposed at the stakeholder meeting if he had been aware of the meeting.

The stakeholder meeting was well attended (27 people). The meeting was posted on the OSSF program Web page on the TCEQ Web site. One state association provided notice to all of their members. The meeting was attended by manufacturers, designated representatives, OSSF installers, OSSF designers and individuals who own septic systems. COA's comments were noted and will be considered for future rulemaking. No changes were made to the rule as a result of this comment.

SUBCHAPTER A: GENERAL PROVISIONS
§§285.3 - 285.6

Statutory Authority

These amendments are adopted under Texas Water Code (TWC), §5.012, concerning Declaration of Policy; TWC, §5.013, concerning the General Jurisdiction of the Commission; TWC, §5.102, concerning General Powers; and TWC, §5.103, concerning Rules. These amendments are also adopted under Texas Health and Safety Code (THSC), §366.001, concerning Policy and Purpose; THSC, §366.011, concerning General Supervision and Authority; THSC, §366.012, concerning Rules Concerning On-Site Sewage Disposal Systems; THSC, §366.051, concerning Permits; THSC, §366.052, concerning Permit Not Required for On-Site Sewage Disposal on Certain Single Residences; THSC, §366.053, concerning Permit Application; THSC, §366.054, concerning Notice From Installer; THSC, §366.056, concerning Approval of On-Site Sewage Disposal System; THSC, §366.057, concerning Permit Issuance; THSC, §366.058, concerning Permit Fee; and THSC, §366.059, concerning Permit Fee Paid to Department of Authorized Agent.

These adopted amendments implement TWC, §§5.012, 5.013, 5.102, 5.103, and THSC, §§366.001, 366.011, 366.012, 366.051 - 366.054, and 366.056 - 366.059.

§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) [for an 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, or inspection are required for an OSSF for a single family dwelling located on a tract of land that is ten acres or larger 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.

(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).

§285.4. Facility Planning.

(a) Land planning and site evaluation. Property that will use an <u>on-site sewage facility (OSSF)</u> [OSSF] for sewage disposal shall be evaluated for overall site suitability. For property located on the Edwards Aquifer recharge zone, see §285.40 of this title (relating to OSSFs on the Recharge Zone of the Edwards Aquifer) for additional

requirements. The following requirements apply to all sites where an OSSF may be located.

(1) Residential lot sizing.

(A) Platted or unplatted subdivisions served by a public water system [supply]. Subdivisions of single family dwellings platted or created after the effective date of this section, served by a public water supply and using individual OSSFs for sewage disposal, shall have lots of at least 1/2 acre.

(B) Platted or unplatted subdivisions not served by a public water system [supply]. Subdivisions of single family dwellings platted or created after the effective date of this section, not served by a public water supply and using individual OSSFs, shall have lots of at least one acre.

(C) A platted or unplatted subdivision where one tract is divided into four or fewer parts; where each tract is five acres or larger; and each tract is to be sold, given, or otherwise transferred to an individual who is related to the owner within the third degree by consanguinity or affinity, as determined under Texas Government Code, Chapter 573 is exempt from submitting planning materials required in this section.

(2) Manufactured housing communities or multi-unit residential developments. The owners of manufactured housing communities or multi-unit residential developments that are served by an OSSF and rent or lease space shall submit a sewage disposal plan to the permitting authority for approval. The total anticipated sewage flow for the individual tract of land shall not exceed 5,000 gallons per day. The plan shall be prepared by a professional engineer or professional sanitarian. This plan is in addition to the requirements of subsection (c) of this section.

(b) Approval of OSSF systems on existing small lots or tracts.

(1) Existing small lots or tracts that do not meet the minimum lot size requirements under subsection (a)(1)(A) or (B) of this section, and were either subdivided before January 1, 1988, or had a site-specific sewage disposal plan approved between January 1, 1988, and the effective date of this section, are allowed to use OSSFs, but the OSSFs must comply with the requirements set forth in this Chapter.

(2) The owner of a single family dwelling on an existing small lot or tract (property 1) may transport the wastewater from the dwelling to an OSSF at another location (property 2) provided that:

(A) both properties (properties 1 and 2) are owned by the same person;

(B) the owner or owner's agent demonstrates that no OSSF authorized under these rules can be installed on the property which contains the single-family dwelling (property 1);

(C) if property not owned by the owner of properties 1 and 2 must be crossed in transporting the sewage, the application includes all right-of-ways and permanent easements needed for the sewage conveyance lines; and

(D) the application includes an affidavit indicating that the owner or the owner's agent recorded the information required by §285.3(b)(3) of this title (relating to General Requirements) on the real property deeds of both properties (properties 1 and 2). The deed recording shall state that the properties cannot be sold separately.

(c) Review of subdivision or development plans. Persons proposing residential subdivisions, manufactured housing communities, multi-unit residential developments, business parks, or other similar structures that use OSSFs for sewage disposal shall

submit planning materials for these developments to the permitting authority and receive approval prior to submitting an OSSF application.

(1) The planning materials must be prepared by a professional engineer or professional sanitarian and must include:

(A) an overall site plan;

(B) a topographic map;

(C) a 100-year floodplain map;

(D) a soil survey;

(E) the locations of water wells;

(F) the locations of easements, as identified in §285.91(10) of this title (relating to Tables);

(G) a comprehensive drainage plan;

(H) a complete report detailing the types of OSSFs to be considered and their compatibility with area-wide drainage and groundwater; and

(I) other requirements, including Edwards Aquifer requirements that are pertinent to the proposed OSSF.

(2) If the proposed development includes restaurants or buildings with food service establishments, the planning materials must show adequate land area for doubling the land needed for the treatment units. The designer may consider increasing the amount of land area for the treatment units beyond doubling the minimum required area.

(3) The permitting authority will either approve or deny the planning materials, in writing, within 45 days of receipt.

§285.5. Submittal Requirements for Planning Materials.

(a) Submittal of planning material. Planning materials required under this chapter shall be submitted by the owner, or owner's agent, to the permitting authority for review and approval according to this section. All planning materials shall comply with this chapter and shall be submitted according to §285.91(9) of this title (relating to

Tables). A legal description of the property where an on-site sewage facility (OSSF) is to be installed must be included with the permit application. Additionally, a scale drawing of the OSSF, all structures served by the OSSF, and all items specified in §285.30(b) of this title (relating to Site Evaluation) and §285.91(10) of this title must be included with the permit application.

(1) Planning materials prepared by an owner or installer. Either the owner or installer may prepare the planning materials for any proposed OSSF not requiring the preparation of plans according to paragraphs (2) or (3) of this subsection.

(2) Planning materials prepared by a professional engineer or professional sanitarian. OSSF planning materials shall be prepared by a professional engineer or professional sanitarian (with appropriate seal, date, and signature) as follows, unless otherwise specified in this chapter:

(A) any proposals for treatment or disposal that are not standard as described in Subchapter D of this chapter (relating to Planning, Construction, and Installation Standards for OSSFs) unless otherwise specified under §285.91(9) of this title;

(B) any proposal for an OSSF to serve manufactured housing communities, recreational vehicle parks, or multi-unit residential developments where spaces are rented or leased;

(C) all subdivision and development plans as required in §285.4(c) of this title (relating to Facility Planning); [or]

(D) a proposal for multiple treatment and disposal systems on large tracts of land; or [.]

(E) all applications for new OSSF construction within the Edwards Aquifer Recharge Zone.

(3) Planning materials prepared by a professional engineer. OSSF planning materials shall be prepared by a professional engineer (with appropriate seal, date, and signature) as follows, unless otherwise specified in this chapter:

(A) all proposals for non-standard treatment systems that require secondary treatment as detailed in Subchapter D of this chapter; or

(B) verifications that precast concrete septic tanks conform to the requirements of §285.32(b)(1)(E)(i) of this title (relating to Criteria for Sewage Treatment Systems); or

(C) designs demonstrating that the requirements of §285.31(c)(2) of this title (relating to Selection Criteria for Treatment and Disposal Systems) related to the regulated floodway have been met.

(b) Review of planning materials.

(1) Standard planning materials. All planning materials for standard treatment or disposal systems shall be reviewed by the permitting authority.

(2) Non-standard planning materials. The executive director shall review and respond to initial plans for all non-standard planning material for any system described in §285.32(d) of this title and §285.33(d)(6) of this title (relating to Criteria for Effluent Disposal Systems) within ten calendar days of receipt of the planning materials. After favorable review by the executive director, the same non-standard system planning materials may be reviewed and approved by the authorized agent for different locations, provided the same site conditions exist for which the planning materials were developed.

(3) Proprietary planning materials. Planning materials for proprietary treatment or disposal systems, as described in §285.32(c) or §285.33(c) of this title, shall be submitted to the executive director for review. The systems and the testing protocol shall be approved by the executive director before the systems can be installed in the state.

§285.6. Cluster Systems.

(a) Cluster ~~New cluster~~ [Cluster] systems are not authorized under this chapter after the effective date of these rules. Cluster ~~New cluster~~ [Cluster] systems may be authorized under other chapters of this title including Chapter 331 of this title (relating to Underground Injection Control).

(b) Existing cluster systems may be repaired or altered under this chapter. However, the alteration may not result in an increase in the volume of the permitted flow or change the nature of the permitted flow. Existing cluster systems may be required to be authorized under other chapters of this title when the system has to be expanded or altered in a manner that increases the volume or changes the nature of the permitted flow. [Existing cluster systems may not be repaired, altered, or extended

under this chapter and may require authorization under other chapters of this title including Chapter 331 of this title when the system is malfunctioning or expanded.]

SUBCHAPTER D: PLANNING, CONSTRUCTION, AND INSTALLATION STANDARDS FOR OSSFS §§285.32 - 285.36

Statutory Authority

These amendments are adopted under Texas Water Code (TWC), §5.012, concerning Declaration of Policy; TWC, §5.013, concerning the General Jurisdiction of the Commission; TWC, §5.102, concerning General Powers; and TWC, §5.103, concerning Rules. These amendments are also adopted under Texas Health and Safety Code (THSC), §366.001, concerning Policy and Purpose; THSC, §366.011, concerning General Supervision and Authority; THSC, §366.012, concerning Rules Concerning On-Site Sewage Disposal Systems; THSC, §366.051, concerning Permits; THSC, §366.052, concerning Permit Not Required for On-Site Sewage Disposal on Certain Single Residences; THSC, §366.053, concerning Permit Application; THSC, §366.054, concerning Notice From Installer; THSC, §366.056, concerning Approval of On-Site Sewage Disposal System; THSC, §366.057, concerning Permit Issuance; THSC, §366.058, concerning Permit Fee; and THSC, §366.059, concerning Permit Fee Paid to Department of Authorized Agent.

These adopted amendments implement TWC, §§5.012, 5.013, 5.102, 5.103, and THSC, §§366.001, 366.011, 366.012, 366.051 - 366.054, and 366.056 - 366.059.

§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 [50] 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 locater 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 [one-half] 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. The risers shall extend from the tank surface to 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 [American Society for Testing and Materials (]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=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. <u>Proprietary treatment systems that serve single family residences, combined flows from single family residences, or multi-unit residential</u>

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. [Proprietary treatment systems must be designed using Table II, located in Figure: 30 TAC §285.91(2) of this title (relating to Septic Tank and Aerobic Treatment Unit Sizing).] Leak testing shall be performed in accordance with subsection (b)(1)(H) of this section [§285.32(b)(1)(H) of this title (relating to Leak Testing)].

(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 [(relating to Other Requirements)].

(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 National Sanitation ~~Science~~ Foundation (NSF) [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)(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) (No change to the figure as it currently exists in TAC.)

(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 locater 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), [and suitable soils (Class Ib, II, or III) lie below unsuitable soil caps,] 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) (No change to the figure as it currently exists in TAC.)

(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) (No change to the figure as it currently exists in TAC.)

(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) (No change to the figure as it currently exists in TAC.)

(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) (No change to the figure as it currently exists in TAC.)

(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) (No change to the figure as it currently exists in TAC.)

(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) (No change to the figure as it currently exists in TAC.)

(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) ~~(C)~~ 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) ~~(D)~~ 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) ~~(E)~~ 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) ~~(F)~~ 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) (No change to the figure as it currently exists in TAC.)

(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 <u>and the excavation is the same width as the chamber</u>.

Figure: 30 TAC §285.33(c)(2)(A)(i) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.33(c)(2)(A)(ii) (No change to the figure as it currently exists in TAC.)

(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)(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 ~~devices~~ shall be listed as approved dispensers or disinfection devices for wastewater systems by National Sanitation Foundation (NSF) International or by an ANSI accredited testing institution under ANSI/NSF Standard 46, ~~approved and listed under any subsequently adopted ANSI/NSF standard for wastewater disinfection devices,~~ 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. [Approved disinfection methods shall include chlorination, ozonation, ultraviolet radiation, or other method approved by the executive director.] 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 (Ri = 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) (No change to the figure as it currently exists in TAC.)

(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 National Sanitation ~~Science~~ Foundation (NSF) [NSF] 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 flows equal to or less than 1,000 gallons per day. Dual pumps are required for 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 shall conform to the requirements 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. 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.

§285.35. Emergency Repairs.

(a) An emergency repair may be made to an on-site sewage facility (OSSF) [OSSF] providing that the repair:

(1) is made for the abatement of an immediate, serious and dangerous health hazard; and

(2) does not constitute an alteration of that OSSF system's planning materials and function.

(b) Emergency repairs include tasks such as replacing tank lids, replacing inlet and outlet devices, repairing risers and riser caps, repairing or replacing disinfection devices, repairing damaged drip irrigation tubing and repairing solid lines. Such repairs must meet criteria established in this chapter.

(c) The individual authorized to make the repair [installer] shall notify the permitting authority, in writing, within 72 hours after starting the emergency repairs. The notice must include a detailed description of the methods and materials used in the repair.

(d) An inspection of the emergency repairs may be required at the discretion of the permitting authority.

§285.36. Abandoned Tanks, Boreholes, Cesspools, and Seepage Pits.

(a) A [An abandoned tank is a] tank that is not to be used again for holding sewage shall be abandoned.

(b) To properly abandon, the owner shall conduct the following actions, in the order listed.

(1) All tanks, boreholes, cesspools, seepage pits, holding tanks, and pump tanks shall have the wastewater removed by a waste transporter, holding a current registration with the executive director.

(2) All tanks, boreholes, cesspools, seepage pits, holding tanks, and pump tanks shall be filled to ground level with fill material (less than three inches in diameter) which is free of organic and construction debris.

SUBCHAPTER I: APPENDICES
§285.90, §285.91

Statutory Authority

These amendments are adopted under Texas Water Code (TWC), §5.012, concerning Declaration of Policy; TWC, §5.013, concerning the General Jurisdiction of the Commission; TWC, §5.102, concerning General Powers; and TWC, §5.103, concerning Rules. These amendments are also adopted under Texas Health and Safety Code (THSC), §366.001, concerning Policy and Purpose; THSC, §366.011, concerning General Supervision and Authority; THSC, §366.012, concerning Rules Concerning On-Site Sewage Disposal Systems; THSC, §366.051, concerning Permits; THSC, §366.052, concerning Permit Not Required for On-Site Sewage Disposal on Certain Single Residences; THSC, §366.053, concerning Permit Application; THSC, §366.054, concerning Notice From Installer; THSC, §366.056, concerning Approval of On-Site Sewage Disposal System; THSC, §366.057, concerning Permit Issuance; THSC, §366.058, concerning Permit Fee; and THSC, §366.059, concerning Permit Fee Paid to Department of Authorized Agent.

These adopted amendments implement TWC, §§5.012, 5.013, 5.102, 5.103, and THSC, §§366.001, 366.011, 366.012, 366.051 - 366.054, and 366.056 - 366.059.

§285.90. Figures.

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

(1) Figure 1. Maximum Application Rates for Surface Application of Treated Effluent in Texas.

Figure: 30 TAC §285.90(1) (No change to the figure as it currently exists in TAC.)

(2) Figure 2. Model Affidavit to the Public.

Figure: 30 TAC §285.90(2) (No change to the figure as it currently exists in TAC.)

(3) Figure 3. Sample Testing and Reporting Record.

Figure: 30 TAC §285.90(3)

[Figure: 30 TAC §285.90(3)]

Figure 3. Sample Testing and Reporting Record.

This testing and reporting record shall be completed, signed, and dated after each maintenance check and test. One copy shall be retained by the maintenance provider performing the maintenance. The second copy shall be sent to the local permitting authority and the third copy shall be sent to the system owner.

1. Required frequency of maintenance check and tests - (daily, weekly, monthly, quarterly, every 4 months).
Actual date of test: _____

2. System inspection:

Property Address:_____

Permit Number:_____

Person Performing Inspection: _____

_____
(Signature of Licensed Maintenance Provider)

Company Name (if applicable): _____

Company physical address: _____

_____

Company Telephone: _____

Inspected Item	**Operational**	**Inoperative**
Aerators		
Filters		
Irrigation Pumps		
Recirculation Pumps		
Sludge Condition		
Disinfection Device		
Chlorine Supply		
Electrical Circuits		
Distribution System		

Sprayfield Vegetation/Seeding
(if applicable)

Other as Noted

3. Repairs to system (list all components replaced): _____

_____

_____

4. Access ports secured after the maintenance and inspection activities were completed
Yes ☐ No ☐

If not secured, explain:

_____

_____

5. [4] Tests required and results:

Test	Required Yes ☐ No ☐	Results mg/l, mpn/100 ml, or trace	Test Method
BOD (Grab)			
TSS (Grab)			
Cl_2 (Grab)			
Fecal Coliform			

6. [5] Date(s) responded to owner complaints during reporting period (attach copy of complaint and findings):

_____

_____

7. [6] General comments or recommendations:

_____

_____

_____

(4) Figure 4. Typical Drainfields - Sectional View.

Figure: 30 TAC §285.90(4) (No change to the figure as it currently exists in TAC.)

(5) Figure 5. Typical Drainfields.

Figure: 30 TAC §285.90(5) (No change to the figure as it currently exists in TAC.)

(6) Figure 6. Two Compartment Septic Tank.

Figure: 30 TAC §285.90(6) (No change to the figure as it currently exists in TAC.)

(7) Figure 7. Two Septic Tanks in Series.

Figure: 30 TAC §285.90(7) (No change to the figure as it currently exists in TAC.)

(8) Figure 8. Intermittent Sand Filters.

Figure: 30 TAC §285.90(8) (No change to the figure as it currently exists in TAC.)

(9) Figure 9. Intermittent Sand Filter Underdrain and Pumpwell.

Figure: 30 TAC §285.90(9) (No change to the figure as it currently exists in TAC.)

§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) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.91(2)

[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 [RESIDENCE]

Number of bedrooms/living area of home	Minimum Aerobic Tank Treatment Capacity (gallons per day per residential unit)
Three bedrooms and < 2,501 sq. ft. or Less than three bedrooms and 1,500 < sq. ft. < 2,501	360[400]
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.	1,200

or Less than ten bedrooms and 10,000 < sq. ft. < 11,501	
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) (No change to the figure as it currently exists in TAC.)

(4) Table IV. Required Testing and Reporting.

Figure: 30 TAC §285.91(4) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.91(5) (No change to the figure as it currently exists in TAC.)

(6) Table VI. USDA Soil Textural Classifications.

Figure: 30 TAC §285.91(6) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.91(7) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC 285.91(8) (No change to the figure as it currently exists in TAC.)

(9) Table IX. OSSF System Designation.

Figure: 30 TAC §285.91(9) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.91(10)

[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 16 TAC	50	50	50	20	50	50

§76.1000(a)(1)						
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 $R_a < 0.1$ 75 when $R_a > 0.1$ (With Secondary Treatment & Disinfection - 50)
Foundations, Buildings, Surface Improvements, Property Lines, Swimming Pools, and Other Structures	5	5	5	5 Pipe may run beneath driveways and sidewalks or up to surface improvements if <u>it is</u>	No Separation Distances Except: Property lines - 20[6] Swimming Pools - 25	No Separation Distances Except[4]: Property Lines - 5

				Schedule 80 pipe or sleeved in Schedule 40 pipe Pipe containing secondary effluent has no setbacks from building foundations		
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	1	1	1	1	1	1

Easements	No setbacks if permission is granted by easement holder	No setbacks if permission is granted by easement holder	No setbacks if permission is granted by easement holder	No setbacks if permission is granted by easement holder	No setbacks if permission is granted by easement holder	No setbacks if permission is granted by easement holder
Slopes Where Seeps may Occur[, drainage easements] and detention ponds	5	25	5	10	10	10 when $R_a < 0.1$ 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 $R_a < 0.1$ 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 ~~(OSSF)~~ 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 ~~(relating to Public Drinking Water)~~.
6. Separation distance may be reduced to 10 feet when sprinkler operation is controlled by commercial 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) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.91(12) (No change to the figure as it currently exists in TAC.)

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

Figure: 30 TAC §285.91(13) (No change to the figure as it currently exists in TAC.)