

**TITLE 252. DEPARTMENT OF ENVIRONMENTAL QUALITY
CHAPTER 641. INDIVIDUAL AND SMALL PUBLIC ON-SITE SEWAGE TREATMENT
SYSTEMS**

RULEMAKING ACTION:

PERMANENT final adoption

RULES:

Subchapter 1. General Provisions

252:641-1-2. [AMENDED]

252:641-1-3. [AMENDED]

Subchapter 3. Soil Tests

252:641-3-2. [AMENDED]

252:641-3-4. [AMENDED]

Subchapter 9. Pump Tanks

252:641-9-2. [AMENDED]

Subchapter 10. Aerobic Treatment Systems

252:641-10-2. [AMENDED]

252:641-10-3. [AMENDED]

Subchapter 15. Lagoons

252:641-15-3. [AMENDED]

Appendix C. Pipe Specifications For On-Site Sewage Treatment Systems [REVOKED]

Appendix C. Pipe Specifications For On-Site Sewage Treatment Systems [NEW]

AUTHORITY:

Environmental Quality Board; 27A O.S. §§ 2-2-101, 2-2-201 and 2-6-402; and 59 O.S. § 1158.

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n/a

ANALYSIS:

The DEQ proposes to amend OAC 252:641 as follows: (1) to establish water body protection areas for siting and designing on-site sewage treatment systems; (2) to require nitrogen reduction systems to be installed prior to dispersal for any on-site sewage treatment systems located within Zone 1 of a water body protection area; (3) to prohibit any system installed within Zone 2 of a water body protection area from

being designed using a soil percolation test; and (4) to require purple pipe for any pressurized piping conveying treated wastewater for reuse. Additionally, the DEQ proposes other non-substantive changes to clarify existing language.

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PURSUANT TO THE ACTIONS DESCRIBED HEREIN, THE FOLLOWING RULES ARE CONSIDERED FINALLY ADOPTED AS SET FORTH IN 75 O.S., SECTION 308.1(A), WITH AN EFFECTIVE DATE OF JULY 1, 2012:

SUBCHAPTER 1. GENERAL PROVISIONS

252:641-1-2. Definitions

In addition to the definitions contained in the Environmental Quality Code (27A O.S. § 2-1-101 *et seq.*), the following words, terms and acronyms, when used in this Chapter, shall have the following meaning, unless the context clearly indicates otherwise:

"Aerobic treatment unit" means a ~~covered receptacle designed to receive, store, and provide aerobic treatment, which is the digestion of organic matter using forced-air to produce a clarified liquid, to sewage prior to dispersal~~ treatment unit that provides digestion of organic matter through oxidation and has been tested and certified by an ANSI accredited certifier as meeting the most current ANSI/NSF Standard 40, whether or not it includes nitrogen reduction.

"Alternative system" means an on-site sewage treatment system that varies from the requirements of on-site sewage treatment systems described in this Chapter.

"ANSI" means the American National Standards Institute.

"ASTM" means the American Society for Testing and Materials.

"Certified installer" means a person in the business of installing or constructing on-site sewage treatment systems who has been certified by the DEQ to inspect and approve his/her own installations.

"Certified soil profiler" means a person who has been certified by the DEQ to perform soil profile descriptions to be used to design on-site sewage treatment systems.

"Chamber" means a molded rigid plastic, arch shaped, hollow structure with an open bottom area and sidewalls that are designed to allow effluent to flow into the surrounding soil while preventing soil from migrating into the chamber.

"Conventional subsurface absorption field" means a gravity-fed subsurface dispersal field, which may be preceded by a lift station, that provides treatment through soil absorption in media-filled (e.g., gravel, polystyrene, chamber, etc.) trenches. This does not include ET/A or shallow extended dispersal fields.

"CSA" means the Canadian Standards Association.

"DEQ" means the Department of Environmental Quality.

"Designer" means the person who conducts the soil test and/or completes the DEQ Form 641-581P or 641-581SP for submission to the DEQ.

"Dispersal site" means the ten-thousand-square-foot (10,000 ft²) rectangular area that contains the test holes used to design the dispersal field.

"Distribution structure" means a watertight concrete or plastic compartment, box, or solid piping that allows the distribution of sewage at the same elevation throughout the subsurface treatment field.

"Drip irrigation" means the use of pressure to distribute aerobically treated effluent to a subsurface dispersal field using small diameter tubing equipped with pressure compensating emitters.

"Evapotranspiration/absorption (ET/A)" means the subsurface dispersal of sewage for treatment through evaporation, transpiration and absorption.

"Flow equalization tank" means a storage reservoir that contains an automatically controlled pump that is capable of delivering sewage to an on-site sewage treatment system at a specific hourly rate.

"IAPMO" means the International Association of Plumbing and Mechanical Officials.

"Individual on-site sewage treatment system" means an on-site sewage treatment system that

treats sewage from one individual residence or a duplex with one owner.

"Installer" means any person who installs an on-site sewage treatment system or who is in the business of contracting to install or furnishing labor to install on-site sewage treatment systems.

"Level" means within a four-inch range of the same elevation.

"Lift station" means a short-term storage reservoir, containing an automatically controlled pump, that pumps sewage to a higher elevation for treatment.

"Low pressure dosing" means the use of pressure to distribute effluent evenly throughout the dispersal field through small diameter perforated piping.

"Major earth fill area" means any area where soil has been added to change the elevation from the original ground level by more than one (1) foot.

"Modification" means the expansion or relocation of any part of an existing on-site sewage treatment system, which does not fall under the definition of new installation.

"New installation" means the installation of a new on-site sewage treatment system. This includes the replacement of an existing lagoon, aerobic treatment unit and/or dispersal field, even when the existing septic tank is not replaced.

"NSF" means the National Sanitation Foundation.

"On-site sewage treatment system" means an individual or small public on-site sewage treatment system as defined in this Chapter.

"Redoximorphic soil features" means soil that, due to wetness, contains features that exhibit a color of less than or equal to two (2) chroma and greater than or equal to four (4) value in concentrations greater than five percent (5%) in two (2) consecutive intervals.

"Repair" means the repair of any part of an existing on-site sewage treatment system or the replacement of any part of an existing on-site sewage treatment system as long as the replacement part is placed in the exact same location that the original part had been located. Repair does not include excavation and replacement of a subsurface absorption trench.

"Retention structure" is a sealed concrete or plastic structure that retains sewage until it reaches a depth of ten inches (10") and then allows it to flow to another trench.

"Rock fragments" means unattached pieces of rock two millimeters (2 mm) in diameter or larger that are resistant to rupture (strongly cemented or extremely hard).

"Scenic river corridor" means the two-mile wide area surrounding each scenic river as designated in 82 O.S. § 1452, with the center of each scenic river being the center of the corridor.

"Sewage" means wastewater that generally originates as human waste from certain activities including using toilet facilities, washing, bathing, preparing foods and washing laundry, excluding industrial wastewater.

"Small public on-site sewage treatment system" means an on-site sewage treatment system, except one that serves an individual residence or duplex, that has an average daily flow of five thousand (5,000) gallons or less.

"Soil profile description" means the identification and characterization of soil at a specific site.

"Soil texture" means the percent by weight of sand, silt, and clay for particles smaller than two millimeters (2 mm) in diameter.

"Storage media" means a natural or manufactured material that provides void spaces for storage and dispersal of effluent in the trenches of a subsurface treatment system.

"Water body" means any reservoir or stream listed in either the most current "Lakes of Oklahoma" or "Water Quality in Oklahoma Integrated Report."

"Water body protection area" means the land area around a water body comprised of Zone 1 and Zone 2.

"Water saturated soil" means soil characterized by either the presence of groundwater or redoximorphic soil features.

"Zone 1" means the land within six hundred sixty feet (660') of the highest normal pool elevation established for a reservoir or within six hundred sixty feet (660') of a stream bed.

"Zone 2" means the land within one thousand three hundred twenty feet (1320') of the highest normal pool elevation established for a reservoir or within one thousand three hundred twenty feet (1320') of a stream bed.

252:641-1-3. General requirements for on-site sewage treatment systems

- (a) **Inspections.** All new installations of, modifications to and/or repairs to on-site sewage treatment systems shall be inspected and approved by the DEQ, or installed, self-inspected and approved by a certified installer before new installations, modifications or repairs can be backfilled and/or before the system may be placed into operation. The installer shall be responsible for requesting any required DEQ inspections.
- (b) **Treatment.** On-site sewage treatment systems shall only be used for treatment of sewage, as defined in 252:641-1-2. All sewage must be treated and dispersed according to the rules in this Chapter.
- (c) **Ownership.** An on-site sewage treatment system shall be located only where:
 - (1) all components of the on-site sewage treatment system, which includes tanks, pumps, dispersal fields and collection line(s), are or will be located on property that is:
 - (A) owned by the owner of the on-site sewage treatment system; and/or
 - (B) dedicated in a recorded easement for the installation and operation of the on-site sewage system to the owner of the on-site sewage treatment system; or
 - (2) all components of an on-site sewage treatment system, excluding service lines, are or will be located on property that is:
 - (A) owned by a municipality, rural water district, rural sewer district or federally recognized tribe; and/or
 - (B) dedicated to a municipality, rural water district, rural sewer district or federally recognized tribe in a recorded easement for the installation and operation of the on-site sewage system.
- (d) **Minimum lot size.** The designer and installer shall comply with the minimum lot size requirements as set forth in Appendix A, Figure 3. Plats recorded before January 1, 1974, are not subject to minimum lot size requirements but systems built in those platted areas must meet the construction requirements of this Chapter.
- (e) **Requirement for a dispersal field or lagoon.** All on-site sewage treatment systems shall utilize one of the dispersal fields described in Subchapter 12 or a lagoon described in Subchapter 15.
- (f) **Average daily flow.**
 - (1) Individual on-site sewage treatment systems. The average daily flow for an individual on-site sewage treatment system shall be based on an average water usage of two hundred (200) gallons per day for a residence of two (2) bedrooms or less, with an additional sixty-six (66) gallons per day for each additional bedroom.
 - (2) **Small public on-site sewage treatment systems.** The average daily flow for small public on-site sewage treatment systems shall be calculated using the estimated average daily flows listed in Appendix F, unless actual flow data or a more accurate estimation method is available or there is seasonal flow variation. When there is seasonal flow variation, the average daily flow shall be calculated using the highest monthly flow in the previous twelve (12) months divided by the number of days in that month.
- (g) **Sizing.** All dispersal fields and lagoons shall be sized based on average daily flow using the charts in Appendix H. The size of on-site sewage treatment systems should be increased if the actual or anticipated water usage exceeds the above-stated average.
- (h) **Separation distances.** The designer and the installer shall comply with the required vertical separation distances in Appendix A, Figures 1 and 2, and the horizontal separation distances listed in Appendix E.
- (i) **Pipe specifications.** All pipe used in on-site sewage treatment systems shall meet or exceed the minimum specifications listed in Appendix C.
- (j) **Water body restrictions.** No dispersal field may be installed within Zone 1 of a water body protection area unless it is preceded by a nitrogen reduction system that has been tested and certified by an ANSI accredited third party certifier as meeting the most current ANSI/NSF Standard 245.

SUBCHAPTER 3. SOIL TESTS

252:641-3-2. Percolation test method

- (a) **Use of percolation tests.** A percolation test may only be used to identify dispersal sites for conventional subsurface absorption fields. ~~Starting January 1, 2009, percolation~~ Percolation tests, including pre-existing ones, may not be used to identify dispersal sites for on-site sewage systems:
 - (1) in scenic river corridors, unless documentation that the site is not located within the scenic river

watershed is provided to DEQ; and
(2) in Zone 2 of a water body protection area.

- (b) **Test hole requirements.** The following test hole requirements shall be met for percolation tests:
- (1) **Configuration.** Three test holes shall be placed in the proposed dispersal site at the approximate corners of an isosceles triangle having two (2) sides fifty feet (50') long and one side seventy-five feet (75') long. If the dispersal field will cover an area larger than ten thousand square feet (10,000 ft²), then one additional test hole shall be used for each additional five thousand square feet (5,000 ft²). Additional test holes shall not be placed within fifty feet (50') of any other test hole and shall be located between fifty to seventy-five feet (50'-75') from one of the other test holes. The DEQ may approve or require alternative configurations.
 - (2) **Size.** Test holes shall be dug or bored, four to twelve inches (4"-12") in diameter with vertical sides to a depth of at least twenty-four inches (24") and no more than thirty-six inches (36"). All test holes in the proposed dispersal site shall be the same depth. Test holes shallower than twenty-four inches (24") may be used to design conventional subsurface absorption fields under the alternative system approval process.
 - (3) **Soil surfaces.** The bottoms and sides of the test holes shall be scratched with a sharp-pointed instrument to relieve any smeared soil surfaces. Loose material shall be removed from the hole prior to commencing the presoak.
 - (4) **Prohibitions.** Test holes dug through animal burrows, root channels or soil that is cracked due to dry weather conditions shall not be used.
- (c) **Presoak period.** The presoak period shall commence no earlier than twenty-four (24) hours prior to the start of the percolation test procedure. Each test hole shall be presoaked by filling them with water and refilling them as necessary to maintain a water depth of at least twelve inches (12") for at least four (4) hours. When it is impossible to maintain a water depth of at least twelve inches (12") during the entire presoak period due to an excessive percolation rate, then the hole is deemed unacceptable and may not be:
- (1) used to calculate the percolation rate for the dispersal site; and
 - (2) located in the dispersal site for a conventional subsurface absorption field.
- (d) **Calculating the percolation rate for each hole.** At the completion of the presoak, the depth of the water shall be adjusted to ten inches (10") above the bottom of each test hole. A fixed reference point shall be established at or above the initial water level. Using the fixed reference point, the level of the water in each hole shall be measured and recorded. After seventy-five (75) minutes, the number of inches the water level has dropped in each hole shall be measured and recorded. To calculate the percolation rate for each individual hole, divide seventy-five (75) minutes by the number of inches the water level has dropped. Any hole that exhibits a percolation rate of greater than seventy-five (75) minutes per inch is deemed unacceptable and may not be:
- (1) used to calculate the percolation rate for the dispersal site; and
 - (2) located in the dispersal site for a conventional subsurface absorption field.
- (e) **Calculating the percolation rate for the dispersal site.** If the rates of any two (2) test holes in the proposed dispersal site vary by more than fifteen (15) minutes, the percolation rate for the dispersal site shall be considered the rate of the slowest test hole. Otherwise, the percolation rate for the dispersal site shall be determined by averaging the percolation rates for the three (3) test holes and then rounding the result to the nearest whole number. If there are more than three (3) test holes in the proposed dispersal site, then the percolation rate must be calculated using the three (3) slowest percolation rates.
- (f) **Sizing the dispersal field.** The percolation rate for the dispersal site shall be used in conjunction with the charts in Appendix H, Figures 1 and 4 to size the conventional subsurface absorption field. The chart in Appendix H, Figure 2 may be used to size conventional subsurface absorption fields utilizing chambers when designed using a percolation test.
- (g) **Information to be reported.** The following information must be reported to the DEQ on DEQ Form 641-581P, "Report for On-Site Sewage Treatment" or in a format approved by the DEQ:
- (1) Property owner's name(s);
 - (2) Address or finding directions for property;
 - (3) Legal description of property, including lot and block number when available;
 - (4) Lot size in square feet or acres;

- (5) Whether the system will be an individual or small public on-site sewage treatment system;
- (6) The estimated or actual average daily flow for the system as certified on DEQ Form 641-581 Cert "Certification Documentation Form";
- (7) Whether the water supply for the property is public or private;
- (8) The location of each test hole (identified from two fixed reference points);
- (9) The depth and percolation rate, along with the depth to groundwater if encountered, for all test holes in the proposed dispersal field;
- (10) The percolation rate for the dispersal site;
- (11) The size of the septic tank, the minimum length of the conventional subsurface absorption field, and the minimum and maximum depth of the trenches;
- (12) The name and signature of the person performing the pre-soak;
- (13) The name, signature and registration number of the person conducting the percolation test; and
- (14) The date the percolation test was conducted.

252:641-3-4. Soil profile description test method

(a) **Test hole requirements.** Test holes may be augered borings, continuous core borings, or excavated pits.

(1) **Borings.** If borings are used, three test holes shall be placed in the proposed dispersal site at the approximate corners of an isosceles triangle having two (2) sides fifty feet (50') long and one side seventy-five feet (75') long. If the dispersal field will cover an area larger than ten thousand square feet (10,000 ft²), then one additional test hole shall be used for each additional five thousand square feet (5,000 ft²). Additional test holes shall not be placed within fifty feet of any other test hole and shall be located between fifty to seventy-five feet (50'-75') from one of the other test holes. The DEQ may approve or require alternative configurations. Borings shall allow for the classification of the soil in six-inch intervals and shall be bored to a minimum depth of forty-eight inches (48") or until one of the following is encountered first:

- (A) a layer that is impervious to boring;
- (B) a six-inch interval classified as a Group 5 soil; or
- (C) water saturated soil.

(2) **Pits.** If excavated pits are used, three (3) pits shall be placed in the proposed dispersal site at the approximate corners of an isosceles triangle having two (2) sides fifty feet (50') long and one side seventy-five feet (75') long. If the dispersal field will cover an area larger than ten thousand square feet (10,000 ft²), then one additional test hole shall be used for each additional five thousand square feet (5,000 ft²). Additional test holes shall not be placed within fifty feet of any other test hole and shall be located between fifty to seventy-five feet (50'-75') from one of the other test holes. The DEQ may approve or require alternative configurations. Pits shall:

- (A) have a depth of a minimum of forty-eight inches (48"), unless rock or water saturated soil is encountered at a shallower depth;
- (B) be a minimum of thirty-six inches (36") wide and sixty inches (60") long; and
- (C) have one end sloped or stepped to allow for entry.

(b) **Identification of limiting layers.** The shallowest limiting layer encountered in the test holes shall be the limiting layer for the entire dispersal site. The following are considered limiting layers and shall be identified by depth on DEQ Form 641-581SP, "Report for On-Site Sewage Treatment:"

- (1) a layer that is impervious to boring;
- (2) a six-inch interval classified as a Group 5 soil; and
- (3) water saturated soil.

(c) **Verifying limiting layers using pits.** Limiting layers may be verified using an excavated pit. The results of the pit(s) shall override the results of borings completed in the same proposed dispersal site.

(d) **Classifying soil intervals.** For each test hole, the soil group for each six-inch interval between the surface and the bottom of the test hole shall be identified using the guidelines found in the "DEQ/OSU Soil Classification Manual" and classified as one of the soil groups in Appendix B.

(e) **Determining the soil group for the separation range.** The soil group for the separation range establishes the required vertical separation between the dispersed effluent and the limiting layer. The separation range consists of the three (3) six-inch intervals above the interval containing a limiting layer or,

if no limiting layer was identified, the separation range shall be the three (3) six-inch intervals above the bottom of the test hole. To determine the soil group for the separation range:

- (1) Select the test hole in the dispersal site with the lowest clay content in the separation range; and
- (2) Identify and record the most prevalent soil group in the separation range for that test hole.

(f) **Identifying dispersal field options.** Based on the soil group identified in (e) of this Section, use Appendix A, Figure 1 to identify suitable dispersal fields along with their minimum separation distances from the limiting layer.

(g) **Sizing the dispersal field(s).** Each suitable dispersal field shall be sized as follows:

- (1) **Determining sizing range.** Select the test hole in the dispersal site with the highest clay content in the sizing range for the chosen dispersal field. The applicable sizing range for each type of dispersal field is as follows:

(A) **Conventional subsurface absorption fields.** The sizing range for conventional subsurface absorption fields is the three (3) six-inch intervals between twelve inches (12") and thirty inches (30").

(B) **Low pressure dosing fields.** The sizing range for low pressure dosing fields is the three (3) six-inch intervals between twelve inches (12") and thirty inches (30").

(C) **ET/A fields.** The sizing range for ET/A fields is the three (3) six-inch intervals between twelve inches (12") and thirty inches (30").

(D) **Shallow extended subsurface absorption fields.** The sizing range for shallow extended subsurface absorption fields is the three (3) six-inch intervals between six inches (6") and twenty-four inches (24").

(E) **Drip irrigation fields.** The sizing range for drip irrigation fields is the three (3) six-inch intervals between ground level and eighteen inches (18").

(F) **Spray irrigation fields.** The sizing range for spray irrigation fields is the three (3) six-inch intervals between ground level and eighteen inches (18").

- (2) **Identifying soil group in sizing range.** Determine the most prevalent soil group in the sizing range for the test hole selected in (1) of this subsection;

(3) **Sizing dispersal field.** Based on the soil group identified in (2) of this subsection, size the dispersal field using the charts in Appendix H, Figures 3 and 5-22; and

(4) **Sizing additional dispersal field options.** Repeat (1) through (3) of this subsection for each dispersal field option.

(h) **Information to be reported.** The following information must be reported to DEQ on DEQ Form 641-581 SP, "Report for On-Site Sewage Treatment":

- (1) Property owner's name(s);
- (2) Address or finding directions for property;
- (3) Legal description of property including block and lot number when available;
- (4) Lot size in square feet or acres;
- (5) Whether the system will be an individual or small public on-site sewage treatment system;
- (6) The estimated or actual average daily flow for the system as certified on DEQ Form 641-581 Cert "Certification Documentation Form";
- (7) Whether the water supply for the property is public or private;
- (8) The location of each test hole (identified from two fixed reference points);
- (9) The soil group for each six-inch interval between ground level and the bottom of each test hole in the proposed dispersal field;
- (10) The depth and description of any soil impervious to boring or water saturated soil layer in each test hole located in the proposed dispersal field;
- (11) Depth of limiting layer for entire dispersal field;
- (12) The test hole number used to identify the separation range and the soil group of the separation range in the proposed dispersal field;
- (13) For each suitable dispersal fields or system(s) identified provide the following:
 - (A) the test hole number used to determine the sizing range;
 - (B) the soil group of the sizing range; and
 - (C) the minimum sizing and installation criteria for the dispersal field or system;
- (14) The name, signature and registration number of the person conducting the soil profile description;

and

(15) The date the soil profile description was conducted; and

(16) Check box indicating whether or not dispersal field will be located in Zone 1 of a water body protection area.

SUBCHAPTER 9. PUMP TANKS

252:641-9-2. Sizing

Pump tanks shall be sized as follows:

(1) **Lift stations.** The lift station pump tank shall have a minimum liquid storage capacity of one thousand (1,000) gallons.

(A) **Daily flow over 500 gallons.** For systems with average daily flows over five hundred (500) gallons, the liquid capacity of the pump tank shall be at least twice the highest daily flow.

(B) **Daily flow over 2,000 gallons.** For systems with an average daily flow over two thousand (2,000) gallons, the liquid capacity of the pump tank may be reduced to one-half (1/2) of the average daily flow, if a backup pump is available on site.

(2) **Flow equalization tanks.** The flow equalization pump tank shall have a minimum liquid storage capacity of one thousand (1,000) gallons. If the daily flow is greater than five hundred (500) gallons, the liquid capacity of the pump tank shall be at least twice the highest daily flow.

(3) **Low pressure dosing tanks.** The low pressure dosing pump tank shall be sized to have a minimum liquid capacity of at least one and one-half (1-1/2) times the average daily flow.

SUBCHAPTER 10. AEROBIC TREATMENT SYSTEMS

252:641-10-2. Design and installation

(a) **Fluctuating flows.** If the daily flow fluctuates so that the flow on any given day during the week exceeds the aerobic treatment unit's daily capacity, then an aerobic treatment system may not be used unless a flow equalization tank, which meets the requirements of 252:641-9, is installed between the trash tank and the aerobic treatment unit.

(b) **Components of aerobic treatment systems.** Aerobic treatment systems shall be comprised of the following components:

(1) **Trash tank.** There shall be a trash tank that meets the requirements of ANSI/NSF Standard 40 or 252:641-7-2. The trash tank shall:

(A) be constructed to prevent sewage from leaking out of the tank and to prevent the infiltration of water into the tank;

(B) have a minimum liquid capacity of three hundred (300) gallons or the average daily flow, whichever is greater, except that the minimum liquid capacity shall not be less than what was used in the ANSI/NSF certification process;

(C) have a removable lid or a manhole opening of ~~at least twenty inches (20") in diameter or, if rectangular, having no side less than twenty inches (20") in length~~ sufficient size to allow for maintenance. The lid or manhole shall be sealed to prevent leakage and extend a minimum of two inches (2") above ground elevation. The cover for the opening shall have a lock, locking bolt or some type of fastener, or require a tool for removal; and

(D) have baffles installed at its inlet and the outlet. The baffles shall extend to within two inches (2") of the top of the trash tank.

(i) **Inlet.** Inlet baffles shall extend at least six inches (6") below the liquid depth of the trash tank.

(ii) **Outlet.** Outlet baffles shall extend below the liquid level by twenty percent (20%) to forty percent (40%) of the liquid depth.

(2) **Aerobic treatment unit.** There shall be a aerobic treatment unit that:

(A) has been tested and certified by an ANSI accredited third party certifier as meeting the most current ANSI/NSF Standard 40 and when required by waterbody restrictions ANSI/NSF Standard 245;

(B) is constructed to prevent sewage from leaking out of the tank and to prevent the infiltration of

water into the tank

(C) is rated at or above the design daily flow;

(D) produces effluent clear enough that the bottom of the pump tank is visible when it is full; and

(E) has an opening of sufficient size to allow for maintenance that extends a minimum of two inches (2") above ground elevation. The cover for the opening shall have a lock, locking bolt or some type of fastener, or require a tool for removal.

(3) **Method of disinfection.** If spray irrigation is used as the type of dispersal, then there shall be a method to disinfect the effluent, ~~either a liquid chlorinator or a method that is ANSI/NSF Standard 46 approved that has been tested and certified by an ANSI accredited third party certifier as meeting the most current ANSI/NSF Standard 46,~~ between the aerobic treatment unit and the pump tank (or in the pump tank). If chlorination is used as the disinfection method, a free chlorine residual of two tenths of a milligram per liter (0.2 mg/l) must be maintained in the pump tank. All other methods of disinfection shall effectively reduce the fecal coliform count to less than two hundred colonies per one hundred milliliters (200/100 ml).

(4) **Pump tank.** There shall be a pump tank, which shall:

(A) meet the requirements of ANSI/NSF Standard 40 or 252:641-7-2;

(B) have a minimum liquid capacity of seven hundred (700) gallons or, for systems with an average flow over three hundred fifty (350) gallons per day, have a liquid capacity of at least twice the average daily flow;

(C) have a sampling port in the pump tank at the discharge outlet or in the treated effluent line following the pump tank;

(D) have a float in the pump tank set so that the pump tank is never more than one-half (1/2) full;

(E) have a high-water alarm set to activate and alert the owner/operator if the pump tank becomes more than one-half (1/2) full; and

(F) have an opening of sufficient size to allow for maintenance that extends a minimum of two inches (2") above ground elevation. The cover for the opening shall have a lock, locking bolt or some type of fastener, or require a tool for removal.

(5) **Dispersal field.** Effluent treated by an aerobic treatment unit shall be dispersed ~~using either a spray irrigation field or a drip irrigation field~~ as described in Subchapter 12 of this Chapter.

(c) **Level.** Once installed, the top of each tank (i.e., trash tank, aerobic treatment unit and pump tank) shall have no more than one inch (1") variation in elevation from side to side and end to end.

(d) **Depth of aerobic treatment system components.** The top of all components of the aerobic treatment system, excluding the trash tank and dispersal field, shall be covered with no more than twenty-four inches (24") of soil.

(e) **Solid pipe.** The solid pipe used to connect the components of an aerobic treatment system must meet the minimum specifications listed in Appendix C.

(f) **Fall.** Unless a lift pump is utilized, there shall be fall between:

(1) the trash tank and the aerobic treatment unit; and

(2) the aerobic treatment unit and the pump tank.

(g) **Manufacturer's specification.** All aerobic treatment systems shall be installed in accordance with the manufacturer's specifications.

252:641-10-3. Responsibility for maintenance

(a) **Mandatory two year maintenance period.** The installer of any aerobic treatment system including those providing nitrogen reduction shall maintain the aerobic treatment system for a period of two years following the date the system was installed at no additional cost to the owner. During the two-year mandatory maintenance period, the installer shall be responsible for the following:

(1) repairing, adjusting or replacing any broken or malfunctioning parts;

(2) when spray dispersal is used, testing and recording the free chlorine residual of the effluent in the pump tank at least once every six (6) months;

(3) measuring and recording the depth of the sludge in the trash tank at least once every six (6) months;

(4) measuring and recording the volume of the sludge in ~~the~~ forced-air aerobic treatment unit units at least once every six (6) months;

(5) when pump tanks are used, conducting a clarity test and recording the results as passing or failing

once every six (6) months. A passing clarity test is one where an eight-inch disk with alternating black and white quadrants is visible when placed on the bottom of the pump tank when the tank is at least one-third (1/3) full;

(6) notifying the owner of the system in writing of:

(A) the type and date of any repairs, adjustments or replacements performed on the system;

(B) the results of the free chlorine residual test if required and, when applicable, the need to add chlorine and how to do it;

(C) the depth of the accumulation of sludge in the trash tank and the need to have it pumped so that the depth of the sludge is never more than forty percent (40%) of the overall depth;

(D) the volume of the sludge in the aerobic treatment unit and the need to have it pumped so that the volume of the sludge in the aerobic treatment unit is never more than forty percent (40%); and

(E) the results of the clarity test and, if it fails the test, what the installer did or the homeowner has to do to correct it; and

(7) documenting all maintenance and testing performed on the system and maintaining those records at his/her business for a period of three (3) years following the date of service.

(b) **Exclusions from maintenance.** The installer shall not be responsible for repairing aerobic treatment systems when the owner/operator is the sole cause of the damage to the system or the system's malfunction (e.g., sprinkler heads that properly retract into the ground but are nevertheless damaged by careless actions of the homeowner, excessive water usage, introduction of harmful items into septic system, etc.).

(c) **Owner responsible after two year period ends.** After the expiration of the two-year mandatory maintenance period, the owner of the aerobic treatment system shall be solely responsible for maintaining or hiring someone to maintain the system so that it operates as designed.

SUBCHAPTER 15. LAGOONS

252:641-15-3. Bottom construction

The bottom of the lagoon shall meet the following requirements:

(1) **Level bottom.** The bottom of the lagoon shall be level.

(2) **Compacted clay.** The bottom of the lagoon and the interior slope of the dike shall be constructed of homogeneous clay soil and shall be compacted thoroughly.

(3) **Leakage test required.** During the final inspection, a leakage test shall be conducted on the lagoon.

(A) **Leakage test procedure.** The leakage test shall be performed in a manner approved by the DEQ or by:

(i) digging one (1) hole in the bottom of the lagoon and four (4) equally spaced holes on the interior slope of the dike at the four-foot water elevation line of the lagoon. The test holes shall be six inches (6") deep;

(ii) presoaking the holes by filling them with water and refilling them as necessary to maintain a water depth of six inches (6") in each hole for at least four (4) hours. The presoak shall commence no earlier than twenty-four (24) hours prior to the start of the leakage test procedure; and

(iii) after completing the presoak, filling each hole with water and then recording the drop in the water level in sixty (60) minutes or the time it takes until one inch (1") of water has percolated into the soil.

(B) **Failing leakage test.** If the leakage rate in any of the test holes exceeds one inch (1") in sixty (60) minutes, the lagoon shall be lined with ~~bentonite~~, twelve inches (12") of compacted clay (Group 5 soil) or bentonite, or a synthetic liner in accordance with OAC 252:656. The lagoon shall be retested after installation of a clay or bentonite liner and may not be approved until the leakage rate is less than or equal to one inch (1") in sixty (60) minutes.