



OHIO DEPARTMENT OF HEALTH

246 North High Street
Columbus, Ohio 43215

614/466-3543
www.odh.ohio.gov

John R. Kasich / Governor

DIRECTOR'S JOURNAL ENTRY

APPROVAL FOR RESTRICTED AND UNRESTRICTED SURFACE APPLICATION OF TREATED WASTEWATER FOR USE AS A SEWAGE TREATMENT SYSTEM

Under the authority of rule 3701-29-20(C) of the Administrative Code, the Director of Health may approve special devices or systems that differ in design or principle of operation from those set forth in the rules. The standards and criteria for the restricted and unrestricted application of treated wastewater attached to this entry have been reviewed and recommended for approval by the Sewage Treatment Systems Technical Advisory Committee for use as a sewage treatment system in Ohio at its meeting on July 8, 2014. Therefore, the use of restricted and/or unrestricted surface application of treated wastewater as described in the attachment, and designed, installed, and maintained in accordance with the conditions specified are now approved as a sewage treatment system special device for use in Ohio.

7-16-14

Date

Lance D. Himes, Interim Director

I hereby certify this to be a true and correct copy of the Journal Entry of the Director of the Ohio Department of Health.

7-18-14

Date

Custodian of the Director's Journals
Ohio Department of Health

**Ohio Department of Health
Special Device Approval per OAC 3701-29-20(C)
Spray Irrigation**

The Ohio Administrative Code (OAC) Chapter 3701-29 does not specifically address restricted and/or unrestricted surface application of treated wastewater for use as a Sewage Treatment System (STS). However, provisions in paragraph(C) of rule 3701-29-20 authorize the approval of a special device for spray irrigation. The rule states:

Household sewage disposal system components or household sewage disposal systems differing in design or principle of operation from those set forth in rules 3701-29-01 to 3701-29-21, may qualify for approval as a special device or system; provided, comprehensive tests and investigations show any such component or system produces results equivalent to those obtained by sewage disposal components or systems complying with such regulations. Such approval shall be obtained in writing from the director of health.

Additionally, Ohio Revised Code Chapter 3718 creates the Sewage Treatment Systems Technical Advisory Committee (TAC) and defines a process for the review and approval of systems and components that differ in design and function from those in rule. With consideration of TAC recommendations, ODH grants special device approval for the use of spray irrigation as a component of a system permitted under OAC 3701-29.

CONDITIONS:

- (A) A soil evaluation is required to identify the depth to limiting conditions including, but not limited to, the water table and rock strata. The soil evaluation shall include a description of the soil's characteristics, including: texture, consistence, structure (both shape and grade), and color. A description of landscape position, slope, vegetation, drainage features, rock outcrops, erosion and other natural features and documentation of any relevant surface hydrology, geologic and hydrogeological risk factors for the specific site or in the surrounding area that may indicate vulnerability for surface water and ground water contamination, shall also be included.
- (B) The design shall specify that any disturbance or damage in the spray irrigation or replacement areas may result in the invalidation of the design. The design shall indicate the vertical separation distance from the application surface to limiting conditions identified in the soil evaluation. Material and depth specifications including precautions for freeze protection of the entire distribution piping and spray head system shall be included in the design. The provision of a landscape plan that protects the absorption areas and limits spray drift shall be included in the design.

SPECIFICATIONS:

- (A) Siting requirements include, but are not limited to, the following:
 - (1) Spray systems shall be sited where there is a minimum of six inches of unsaturated in-situ soil within the infiltrative distance. Fill material, which has developed texture, consistence, and structure (both shape and grade), may be acceptable to fulfill the in-situ soil requirement. Spray systems shall also be sited to meet all in-situ soil

requirements and vertical separation distances established by local health districts and in the OAC 3701-29.

- (2) Spray irrigation systems shall be sited to avoid natural drainage features and depressions that may hold surface water.
 - (3) The topography of the spray irrigation area shall be suitable for even dispersal of effluent. Where spray irrigation is installed on a slope greater than twenty-five percent, the design shall include any special safety considerations and installation criteria, as needed.
 - (4) Designs shall address surface water diversion, as needed.
 - (5) Spray irrigation and dispersal areas shall be sited at least fifty feet from adjoining parcels, dwelling(s), hardscapes, areas in active production of food for human consumption, areas without vegetation, and twenty-five feet from utility easements. Increased horizontal isolation distances may be required by the board of health.
 - (6) The spray irrigation system shall be designed to minimize overspray beyond the spray irrigation and dispersal area by use of low trajectory type spray heads designed to reduce aerosols unless otherwise justified in the design.
- (B) The spray irrigation system shall comply with the following design criteria:
- (1) Except as provided in this special device approval, Ohio State University Bulletin 912 or other methods approved by the Director shall be used as the basis for all designs. Detailed calculations for sizing the dispersal area shall be included in the STS design. Manufacturer, supplier, and construction specifications shall be included in the design.
 - (2) Dispersal field sizing shall prevent surface runoff and ponding of effluent. The design shall utilize a loading rate of no more than 0.2 inches per day. Lower application rates based on site and soil conditions and depth of in-situ soil may be required by the designer or board of health.
 - (3) All piping above the ground or the frost line shall drain and remain empty between doses. Tanks and pumps shall be placed below the frost line or otherwise protected from freezing.
 - (4) Spray dispersal systems shall be time dosed. The time dosing may be applied simultaneously or alternately to each zone. Spray dosing periods shall minimize contact with humans and pets, with preference for early morning dosing.
 - (5) The combined surge and reserve capacity of the dosing tank shall be a minimum of three times the daily design flow with increased surge capacity as needed to reduce the incidence of high water alarms during peak flows.
 - (6) Spray irrigation systems shall utilize sewage treatment systems approved by the department of health for meeting the following effluent quality standards:
 - (a) Total Suspended Solids (TSS): less than eighteen milligrams per liter

- (b) Carbonaceous biochemical oxygen demand (CBOD₅): less than fifteen milligrams per liter.
- (c) Fecal Coliform:
 - (i) 20 colony-forming units (CFU) /100 milliliters (mL) for surface application in unrestricted access sites
 - (ii) 200 colony-forming units (CFU) /100 milliliters (mL) for surface application in restricted access sites

For the purposes of this special device approval, restricted access site and unrestricted access site shall have the same meaning as defined in OAC 3745-42-13:

"Restricted access site" means a site on which treated sewage may be placed with a limited probability that the public will come into contact with the treated sewage. Such sites include, but are not limited to, agricultural crop fields (i.e., nonhuman food crops), and fenced-off meadows, pastures, woodlands, landscaping areas and other private property.

"Unrestricted access site" means a site on which treated sewage may be placed with a high potential for the public to come into contact with the treated sewage. Such sites include, but are not limited to, golf courses, parks, lawns and playing fields.

- (7) The control panel shall be listed to the appropriate UL standard, with the following internal devices:
 - (a) visual and audible alarms for high water within the dosing chamber;
 - (b) visual and audible alarms and pump shutoff for treatment component malfunction or failure;
 - (c) hand/off/automatic/low level shut off modes;
 - (d) a means to record alarm events, troubleshoot system malfunctions, and monitor flow over time via the use of a flow meter or other methods to monitor system operation;
 - (e) time based dosing with clock that prevents flow to the spray irrigation component in excess of the daily design flow; and
 - (g) electrical supply outlet if heat tape is required for the design.
- (8) Pumps shall be sized to meet all system design requirements.
- (9) Zone valves shall be automatic or hydraulic rotational mechanical systems.
- (10) Rotary spray heads designed for use with reclaimed water shall be selected based on the required spray rate and throw. Spray heads shall be installed at a height of

eighteen inches to three feet. Spray heads may be installed higher when determined necessary by the board of health or system designer due to expected high snowfall. Fittings shall be installed to allow use of a pressure gauge at each spray head.

- (11) All pipes, sprinkler heads, meter boxes, and other irrigation equipment shall be properly marked or color-coded purple and utilize proper signage to distinguish them from potable water supplies.
 - (12) Permanent signage shall be placed at a minimum of one location near the dispersal area and on the front of the control panel. Signage shall state that the system is applying pretreated wastewater; not for drinking water purposes. Signage identifying the dispersal area shall utilize lettering at least two inches in height. Additional signage requirements may be established by the board of health based on design size and number of zones or spray heads.
 - (13) A swing joint shall be included beneath the ground to prevent damage or cracking to the spray head riser where it is connected to a lateral distribution pipe.
 - (14) An easily accessible shutoff mechanism shall be provided for each zone.
- (C) In addition to the specifications included in OAC 3701-29 and this special device approval, the STS design shall meet the following requirements:
- (1) The design shall include a landscape plan that at a minimum shall include:
 - (a) provisions for protection of the dispersal areas and limitation of spray drift;
 - (b) provisions for spray head riser protection which may include use of a bucket or barrel with gravel surrounding spray head extensions;
 - (c) removal and prohibition of vegetation exceeding ten foot in height within a ten foot radius of spray heads; and
 - (d) removal of all woody vegetation within a five foot radius of spray heads.
 - (2) The design shall specify the flow rate of the spray heads and approximate dispersal area per spray head.
 - (3) The design shall specify that disturbance or damage in the spray irrigation or replacement areas may result in the invalidation of the design.
 - (4) The design shall indicate the vertical separation distance from the application surface to limiting conditions.
 - (5) The design shall describe material and depth specifications to ensure freeze protection of the entire distribution piping and spray heads system.

INSTALLATION & OPERATION

- (A) Spray irrigation systems shall be installed in accordance with OAC 3701-29, the STS design and the installation permit issued by the board of health.
- (1) Areas designated for installation and replacement shall be undisturbed and be protected from damage or disturbance. If any disturbance or damage has occurred, installation shall not proceed and the registered installer shall contact the owner, the system designer, and the board of health. Installation of spray irrigation piping and spray heads shall not proceed when there is a risk of compaction to the dispersal area.
 - (2) Following installation and before STS approval by the board of health, the system designer and/or the registered installer shall conduct a start-up procedure and document baseline measurements needed for future O&M and monitoring. Baseline measurements and monitoring information shall include, but is not limited to, dose rates for each zone and calculation of daily flow averages. As-built records including baseline measurements and O&M instructions shall be provided to the system owner and the board of health.
- (B) Spray irrigation systems shall be operated in accordance with OAC 3701-29, the STS design and the installation and operation permits issued by the board of health. In conjunction with O&M management requirements and as a condition of an installation and operation permit for a spray irrigation STS, the board of health shall require the owner of a spray irrigation STS to maintain an O&M service contract. The O&M and monitoring of the entire STS shall be conducted at least semi-annually, or more often as required by the manufacturer of any component of the spray irrigation STS, and shall be conducted by a qualified service provider. Inspection forms shall be provided to the system owner and the local health department.