OHIO DEPARTMENT OF HEALTH

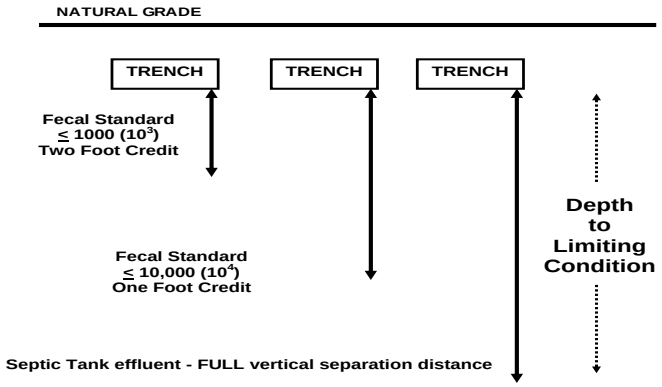
Pretreatment Component Approvals

and
Operation & Maintenance (O&M) Information

The Ohio Revised Code (ORC) authorizes the Ohio Department of Health and the Sewage Treatment Technical Advisory Committee (TAC) to approve Sewage Treatment Systems (STS) and components that achieve different levels of sewage treatment. The ODH and TAC approval process is intended to ensure that pretreatment component reliability and effluent quality is achieved and maintained. Effluent quality standards from an STS or a pretreatment component are established through various means. These include the National Pollutant Discharge Elimination System (NPDES) permit requirements as required by the Clean Water Act for discharging systems, any local health district requirements for nutrient reduction (nitrogen and phosphorous), rule provisions related to high strength waste reduction (small flow or commercial systems), and the **following standards applied in advance of effluent distribution to a soil absorption component**:

- **BOD_5/TSS Standard** – Compliance with this standard requires that effluent from a pretreatment component meet an average of less than thirty milligrams per liter (mg/L) for five-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) for the purpose of permitting a sizing reduction of the soil absorption area.

- **Fecal Coliform Standards** – Compliance with the pathogen reduction standards listed below requires that effluent meet a geometric mean of the standard to utilize soil depth credits (a & b) or spray irrigation (c & d) as provided in accordance with soil absorption provisions in rule or as conditions of approval by the director of health. Alternate E.coli standards may also be used to determine compliance if approved by the director of health. Local health districts establish a vertical separation distance (VSD) between the bottom of the infiltrative surface (point where sewage is applied) and seasonal ground water. Statewide interim rules establish a VSD of four feet to bedrock. Pretreatment components that achieve different levels of fecal reduction can be used to reduce the depth of soil needed for treatment of sewage effluent.
    a) less than or equal to ten thousand colonies/one hundred mL allows for a one foot soil depth credit
    b) less than or equal to one thousand colonies/one hundred mL allows for a two foot soil depth credit



c) less than or equal to two hundred colonies/100 mL required for restricted surface application
d) less than or equal to twenty colonies/one hundred mL required for unrestricted surface application

Nutrient Reduction may be required by local health districts for pretreatment components when there is a significant risk of nutrient (nitrogen and phosphorous) contamination from sewage treatment systems to surface or ground water. This may be due to risk factors identified in the site evaluation (such as shallow ground water or fractured bedrock) or risk due to proximity to local, state, or federally recognized nutrient sensitive environments (i.e. protected watersheds).

High Strength Waste Reduction may be required for a small flow on-site sewage treatment system (SFOSTS) in compliance with Ohio Administrative Code Rule 3701-29-21. SFOSTS treat less than 1,000 gallons per day such as small business and commercial facilities. These facilities may produce levels of organic materials (BOD_5) and solids higher than that of household systems. While household systems are assumed to be receiving normal domestic strength wastewater, there may be occasions where a household system would require pretreatment for reduction of BOD_5/TSS.

NPDES Effluent Limitations are subject to permit requirements established by the Director of the Ohio Environmental Protection Agency (OEPA). Link to the household sewage treatment system (HSTS) General NPDES Permit and the related OEPA web site at http://www.odh.ohio.gov/odhprograms/eh/sewage/STSpages/npdes.aspx.

SOIL ABSORPTION SYSTEMS

Traditional septic tank leach line soil absorption systems are not suitable for all sites in Ohio. At times, a pretreatment component may be used to reduce the area needed for a system (BOD_5/TSS standard) or to address shallow depth to a limiting condition (fecal or e-coli coliform standards). In such cases a pretreatment component may replace the septic tank or it may be added following the septic tank before the soil absorption component. Local health districts and other ODH approvals may have additional requirements for soil absorption components following pretreatment.

OPERATION & MAINTENANCE

The owner of a pretreatment component is required to maintain an operation and maintenance (O&M) service contract. The O&M and monitoring of the entire system shall be conducted at least annually, or more often as required by the manufacturer of any component. Local health districts shall require a service contract as a condition of an operation permit issued for a system utilizing a pretreatment component approved by the director of health.

Owners and designers should consider the following for pretreatment component selection and STS design:

- O&M requirements and availability of qualified service providers
- Manufacturer requirements for use of related components or replacement parts
- Effects of seasonal use, wastewater quality and quantity, or other factors that may impact performance
- Benefits of additional treatment or flow control in advance of the pretreatment component based on manufacturer recommendations or waste characteristics (i.e. trash trap, septic tank, dosing tank)
- Any added design features for required sampling capacity after pretreatment component and before and after any disinfection unit.

Owners and designers are encouraged to contact manufacturers or suppliers to obtain detailed product information especially when pretreatment components are listed for nutrient reduction or high strength waste reduction.

APPROVAL & COMPLIANCE

The following pretreatment components were approved in accordance with provisions of Ohio Revised Code 3718.04 and/or the provisions of Ohio Administrative Code Chapter 3701-29 in effect at the time of the ODH approval. Each company and their approved components and systems are listed on the left column of the table. The level of treatment that each component or system listed is approved for is marked with an "**X**" in the corresponding treatment level column. Listed pretreatment components may only be used as designated in compliance with the terms and conditions of approval. These pretreatment components are subject to ODH review for compliance with the conditions of approval and compliance with law and rules. A review may be conducted when there is evidence of noncompliance with approval conditions or for other reasons deemed necessary to assure compliance. Upon review, if there is a determination of noncompliance, a pretreatment component may be removed from the approved list in accordance with Chapter 119 of the Ohio Revised Code.

Please note that systems approved for use as a discharging system meeting the General NPDES permit effluent limits are designated as either meeting the limits for discharge to all waters in Ohio **except Lake Erie (1**), designated as meeting the limits for discharge to all waters **including Lake Erie (2)**, or designated as previously meeting the limits for discharge to all waters in Ohio **except Lake Erie under General NPDES Permit OHK000001 and OHL000001 *only* (3).** Effective 2/1/2012, discharging systems designated as X(3) are *not* approved for coverage under General NPDES Permit OHK000002.

Systems approved for meeting the General NPDES permit effluent limits require a failsafe mechanism that either shuts down the system in the event of system malfunction, or communicates system malfunctions by remote telemetry to a service provider. The companies and systems listed below provided operation and maintenance instructions that indicate the requirements and functionality of the failsafe mechanism and can be obtained through the direct links below. System designers, installers and owners must be aware of and comply with the failsafe installation requirements, and related operation and maintenance.