The draft New York State Department of Environmental Conservation (NYSDEC) Design Standards for Intermediate-Sized Wastewater Treatment Systems (Design Standards) has been prepared to provide wastewater treatment system design guidance for design professionals, treatment system owners and operators. It also provides regulators with guidance on the design, operation and maintenance of intermediate-sized wastewater treatment facilities. These intermediate-sized systems serve medium-sized facilities discharging wastewater to surface and ground waters, multi-home developments, and Publicly Owned (sewage) Treatment Works (POTWs) that discharge treated wastewater effluent to groundwater. Excluded are individual home septic systems and large POTWs that discharge to bodies of water.

The principal goal of the Design Standards is to provide design criteria for building wastewater treatment systems that protect water quality of groundwater and surface water, along with the ecosystems associated with them. The Design Standards are also intended to aid designers in the preparation of complete project submissions and improve the efficiency of project review by regulatory agencies. The updated Design Standards consider energy efficiency and the life cycle costs of the facilities.

The need to update the Design Standards has been heightened by the recent development of many new technologies for the onsite treatment of wastewater. These developments have arisen from special needs, including the replacement of failing systems on small lots; lighter weight construction materials and lower cost sewage collection and treatment for remote or isolated locations; and special considerations for environmentally sensitive areas.

Key Updates in the Draft Design Standards

The more significant revisions in the draft Design Standards address the following topics:
1. New technologies for onsite or near site wastewater treatment
2. Advanced treatment processes that either remove unique pollutants from wastewater streams, or process the wastewater stream to a higher level due to the environmental sensitivity of certain areas
3. Approval processes by New York regulatory agencies for new technologies
4. Determination of hydraulic loading rates and design flows
5. Nitrate management and groundwater protection

New Technologies: The draft Design Standards include generic product descriptions and design guidance for newer technologies (such as gravel-less technologies, drip dispersal technology and raised systems). A section was added to the Design Standards concerning the approval process for technologies new to New York State. Site-specific approval is still required, but the review process is described to promote statewide consistency for handling new technologies.

Advanced Treatment: For advanced treatment processes, references were added to the draft Design Standards under three major technology categories. References on phosphorus and nitrogen removal were added in the physical-chemical category. Additions were also made for filtration technologies in the membrane processes category. Additional references have been provided on nitrification, de-nitrification and biological phosphorus removal in the biological nutrient removal category. The use of many of these technologies for advanced treatment systems will continue to need individual project review by NYSDEC Regions.

Groundwater Protection: To improve groundwater protection from nitrates, modeling techniques to determine nitrate dilution were added. Groundwater monitoring has been added for treatment systems whose discharges exceed 30,000 gallons per day and discharge to groundwater.

Design Flow Calculation: Updated guidance on the determination of application rates of sewage effluent to ground and design sewer flows for various facilities were added to bring more uniformity to project plans and designs submitted to NYSDEC. The updated guidance provides more specific requirements for determining the design flow. Requirements for flow measurement were added based on the size of the system.
Miscellaneous Changes: The draft Design Standards will also address a variety of special topics. Flood plain requirements were updated, along with a section on grease traps to reflect national standards and plumbing codes. The sections on recreational vehicle dump stations were revised to address additional safety and environmental concerns.

Status of the Design Standard Updates
A draft revision of the Design Standards is undergoing interagency review. Following completion of this review, the draft will be released later this year for public comment. The NYSDEC will announce the public comment period through the Environmental Notice Bulletin (ENB). The ENB is an official publication of NYSDEC and is published weekly on Wednesdays. The ENB may be accessed at enb@gw.dec.state.ny.us or by calling 518-402-9167.

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