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Municipal Environmental Research  
Laboratory  
Cincinnati OH 45268

Technology Transfer



# Design Manual

## Onsite Wastewater Treatment and Disposal Systems

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DESIGN MANUAL

ONSITE WASTEWATER TREATMENT  
AND DISPOSAL **SYSTEMS**

U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Water Program Operations

Office of Research and Development  
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## FOREWORD

Rural and suburban communities are confronted with problems that are unique to their size and population density, and are often unable to superimpose solutions typically applicable to larger urban areas. A good example of such problems is the provision of wastewater services.


In the past, priorities for water pollution control focused on the cities, since waste generation from these areas was most evident. In such **high-density** development, the traditional sanitary **engineering** approach was to construct a network of sewers to convey wastewater to a central location for treatment and disposal to surface waters. Since a large number of users existed per unit length of sewer line, the costs of construction and operation could be divided among many people, thus **keeping** the **financial** burden on each user **relatively low**.

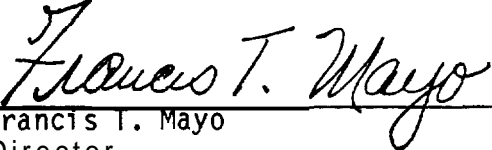
Within the past several decades, migration of the population from cities to suburban and rural areas has been significant. With this shift came the problems of providing utility services to the residents. Unfortunately, in **many** cases, solutions to wastewater problems in urban areas have been applied to rural communities. With the advent of federal programs that **provide** grants for construction of wastewater facilities, sewers and centralized treatment plants were constructed in these low-density rural settings. In many cases the cost of operating and maintaining such facilities impose severe economic burdens on the communities.

Although wastewater treatment and **disposal** systems **servi**ng single homes have been used for many years, they have often been considered an **inadequate** or temporary solution **until** sewers **could** be constructed. However, research has demonstrated that such systems, **if** constructed and **maintained** properly, can provide a reliable and efficient means of wastewater treatment and **disposal** at **relatively low** cost.

**This** document **provides** technical **information** on **onsite** wastewater treatment and disposal systems. **It** does not contain standards for those systems, nor does **it** contain rules or regulations pertaining to **onsite** systems.

The intended audience for this manual includes those involved in the design, construction, operation, maintenance, and regulation of **onsite** wastewater systems.

  
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