

Onsite Sewage Disposal System Research on the Northern Periphery of Lake Okeechobee (1993)
An Investigation of the Surface Water Contamination Potential from Onsite Sewage Disposal Systems in Turkey Creek Sub-basin of the Indian River Lagoon Basin (1993)

The Capability of Fine Sandy Soil for Septic Tank Effluent Treatment (1993)

An Evaluation of Current OSDS Practices in Florida (1993)

Groundwater and Nutrient Dynamics on a Strip Barrier Island Served by OSTDS (1993)

USF Lysimeter Station Sampling October-December 1994 (1994)

The Determination of Several Effluent Properties from Food Service Establishments that Employ Onsite Sewage Treatment Systems (1996)

Evaluation of the Potential for Restoring Commercially Viable Oyster Harvesting in Suwannee Sound (1998)

Florida Keys Nutrient Reducing Systems Studies, Phase I and II (2000)

Determination of Properties and the Long Term Acceptance Rate of Effluents from Food Service Establishments that Employ Onsite Sewage Treatment (2000)

Long Term Acceptance Rates of Common Floridian Soils (2001)

Determination of an Appropriate Onsite Sewage System Setback to Seasonally Inundated Areas (2001)

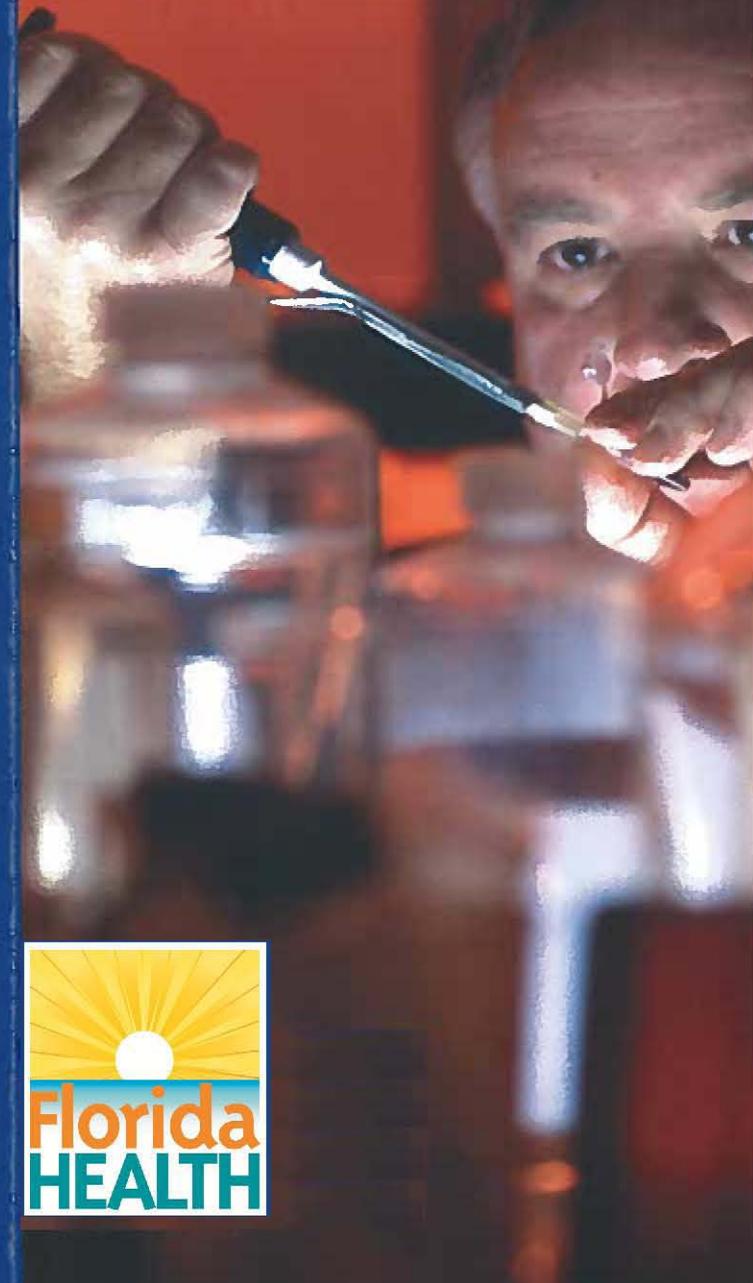
Awards

- Engineering Excellence Grand Award
Florida Institute of Consulting Engineers,
Florida Keys Onsite Wastewater Nutrient
Reduction System Demonstration Project
August 4, 2000
- 2000 Honor Award American Consulting
Engineers Council Florida Keys Onsite
Wastewater Nutrient Reduction System
Demonstration Project May 16, 2000
- Engineering Excellence Honor Award
American Consulting Engineers Council
Florida HRS Onsite Disposal System Study
May 17, 1994
- Engineering Excellence Honor Award
Wisconsin Association of Consulting
Engineers, 1994 Florida HRS Onsite Disposal
Study
- Florida Chapter Unit of Government Award
Soils and Water Conservation Society, 1988



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ONSITE SEWAGE RESEARCH PROGRAM



Onsite Sewage Research Program

Historical Background

Onsite Sewage Treatment and Disposal Systems (OSTDS) are the most common means of domestic waste treatment in unsewered areas. Statistics indicate that in Florida, approximately 31% of the population is served by OSTDS with an estimated 2.3 million systems in use statewide (Department of Health Census, 2002). These families introduce a total of over 426 million gallons of treated effluent per day into the subsurface soil environment, making it one of the largest sources of artificial groundwater recharge in the state. The Department of Health, Bureau of Environmental Health and the county environmental health departments through Chapter 381 of the Florida Statutes and Chapter 64E-6, Florida Administrative Code, regulate the installation and use of OSTDS in Florida.

OSTDS practices have impacts on the water resources of the state, particularly groundwater. Groundwater is the source of 93% of Florida's public drinking water supplies. It is important to protect this vital resource to ensure public health, maintain the tourist industry, and provide a desirable quality of life. To meet these goals, the Florida Legislature authorized the Florida Onsite Sewage Disposal System Research Project under the Water Quality Assurance Act of 1983 to evaluate OSTDS practices in Florida. The research reported in this brochure was supported by the State of Florida-Quality Assurance Act of 1983 that initiated a surcharge on new OSTDS permits to fund OSTDS research in Florida. The ultimate goal is to ensure that OSTDS practices in Florida protect public health and water resources through application of technically sound guidelines for the management of onsite wastewater treatment systems.

University of South Florida Lysimeters



Research Findings:

- Properly designed, installed, and operated onsite wastewater systems provide significant levels of wastewater treatment before final discharge to groundwater. (1993)
- For STE (Septic Tank Effluent) disposed of in OSTDS systems in Florida, the presence of at least two feet of unsaturated fine sandy soil provides a relatively high degree of treatment for most constituents. (1989)
- Results from the USF Lysimeter Facility indicate that two feet of unsaturated (dry), fine sandy soil provides substantial attenuation of organic carbon, surfactants (MBAS), fecal indicator bacteria, and total kjeldahl nitrogen. (1993)
- Volatile Organic Compounds were routinely found in septic tank effluent samples but not present in soil or groundwater two feet below the infiltrative surface. (1993)
- Shallow placement of wastewater infiltration systems enhances performance due to increased soil aeration and evapotranspiration (1993).
- Canals in the Indian River Lagoon Basin indicated that OSTDS were not significantly impacting surface water quality in the canals after eight years of operation. (1993)

- An investigation of OSTDS on the periphery of Lake Okeechobee found that phosphorous from septic tanks is not building up within the sediments of the canals and that organic soil horizons absorbed the highest amount of phosphorus. (1993)
- Several onsite wastewater nutrient reduction systems (OWNRS) were evaluated for longer-term treatment effectiveness and the results indicated advanced wastewater treatment standards can be met consistently with an engineered media subsurface drip irrigation system in combination with other systems and processes evaluated. (2000)
- Hydraulic loading alone does not cause drainfields to fail. Effluent concentrations and hydraulic loading both contribute to clogging and formation of the biomat, resulting in failure. (2000)

Research Projects

Copies of these research reports are available for download on the Bureau's web page at:
<http://doh.state.fl.us/environment/ostds/research/researchreports.htm>

Impact of Onsite Sewage Disposal Systems on Surface and Ground Water Quality (1984)

The Impact of Florida's Growth on the Use of Onsite Sewage Disposal Systems (1987)

Unsaturated Zone Monitoring Below Subsurface Wastewater Systems Serving Individual Homes in Florida (1987)

Performance Monitoring and Ground Water Quality Impacts of OSDs in Subdivision Developments (1989)

Viral Study Summary (1993)