

Research, Development, and Demonstration Project (RDDP)

Overview

Background: “Dry-Tomb” Landfills – A Liability for Generations -----

The conventional “dry tomb” approach to landfills – sealing away garbage from all air and water – takes decades, if not centuries to decompose waste to the point where it no longer threatens safe drinking water with dangerous pollution. Therefore, conventional landfills require extensive monitoring and maintenance long after the last truck unloads its trash to make sure that no pollution escapes. This liability is a concern to today’s landfill operators and an unnecessary burden to future generations. Fortunately, there is a modern-day solution to this age-old problem – bioreactor landfills. Engineers, scientists, and landfill owners have begun full-scale development of bioreactor technologies throughout the U.S. However, the technology is far from mature.

RDDP: Road to the Future -----

St. Clair County, recognizing the need for leadership to realize the full potential of bioreactor landfill technology, seized the initiative. Together with legislative, regulatory, and industry partners, St. Clair County launched a full-scale bioreactor landfill Research, Development, and Demonstration Project (RDDP). Leveraging the environmental engineering expertise of the County’s consultant CTI and Associates, Inc., the County launched the RDDP to become the first septage bioreactor landfill in the United States. This specific version of bioreactor technology innovatively combines residential septic waste and household garbage (municipal solid waste) within the landfill to accelerate green, biological decomposition of the waste – simultaneously addressing two serious community waste streams with one technology.

As a first-of-its kind project, the RDDP has specific scientific objectives to explore and mature this technology. The main objectives of the RDDP include

- Evaluate the effectiveness of bioreactor landfill operations at full scale
- Evaluate the impact of select liquids addition (including septic waste) on the waste decomposition processes
- Develop operational guidelines for select liquids addition to bioreactor landfills
- Develop operational guidelines to optimize temperature for accelerated waste decomposition

The findings and conclusions of the County’s first-of-its-kind RDDP will allow the County and regulatory agencies to explore the feasibility of applying this technology in future landfill development.

Bottom Line: Benefits to the Community-----

- Saves the community land and money by optimizing use of the existing landfill through maximizing the reduction in waste volume during operations
- Protects the community’s health and environment through accelerated waste stabilization
- Saves the community money by reducing landfill leachate and septic waste treatment cost
- Creates a valuable green energy resource by accelerating biogas generation
- Proactively reduces the environmental and liability burden to future generations

