

US EPA ARCHIVE DOCUMENT



Project XL: Buncombe County Landfill



WHAT IS PROJECT XL?



Project XL, which stands for “eXcellence and Leadership,” is a national initiative that tests innovative ways of achieving better and more cost-effective public health and environmental protection. The information and lessons learned from Project XL are being used to assist the U.S. Environmental Protection Agency (EPA) in redesigning its current regulatory and policy-setting approaches. Project XL encourages testing of cleaner, cheaper, and smarter ways to attain environmental results superior to those achieved under current regulations and policies, in conjunction with greater accountability to stakeholders. It is vital that each project tests new ideas with the potential for wide application and broad environmental benefits. As of September 2000, over thirty pilot experiments are being implemented and several additional projects are in various stages of development.

SUMMARY OF THE BUNCOMBE COUNTY LANDFILL PROJECT

The Buncombe County Solid Waste Management Facility (BCSWMF), located in the western part of North Carolina, is one of the ten largest publicly-owned municipal solid waste landfills in the state. It accepts approximately 250,000 tons of municipal solid waste per year, including construction and demolition wastes. Through this XL project, Buncombe County proposes to implement a new bioreactor landfill system that involves constructing an alternative liner system and recirculating landfill leachate. In a bioreactor landfill, controlled quantities of liquids are added and circulated through waste to accelerate the natural biodegradation rate of waste and therefore decrease the waste stabilization and composting time compared to a conventional landfill. Implementing this innovative system will decrease emissions of landfill gas, accelerate waste decomposition, improve leachate quality, and increase the waste capacity of the existing landfill. Buncombe County believes that the results of this project could lead EPA to revise existing Resource Conservation and Recovery Act (RCRA) regulations and allow or promote the use of alternative liner systems in municipal solid waste landfills using leachate recirculation. This XL project, EPA’s 34th, was signed on September 18, 2000.

When implemented, the leachate recirculation/gas recovery system will provide superior environmental performance in a number of ways:

SUPERIOR ENVIRONMENTAL PERFORMANCE

- Acceleration of waste decomposition, which should enhance groundwater protection;
- Early compliance with Clean Air Act requirements for municipal solid waste landfills through installation of a gas collection and control system;
- Reduction of potential risk to workers and the community from transport of collected leachate to publicly owned treatment facilities via tanker trucks;
- Improved leachate quality and, ultimately, improved quality of water discharged to the receiving streams;
- Reinvestment of cost savings in pilot projects to enhance integrated solid waste management practices;
- Additional waste capacity and longer life for the existing landfill, reducing the need for new landfill sites;
- Generation of large-scale operational data to evaluate the horizontal trench design for leachate re-circulation/gas recovery landfills; and
- Identification and quantification of performance advantages or limitations of the process.

FLEXIBILITY

EPA’s RCRA Subtitle D regulations currently allow municipal solid waste landfill

leachate to be recirculated back into the landfill if: 1) the landfill is designed with the standard composite liner; and 2) the leachate collection system is made to regulatory specifications. Buncombe County seeks flexibility from these RCRA regulations to allow them to recirculate leachate through municipal solid waste landfills constructed with an alternative liner system. Modeling shows that when different portions of the landfill are compared, the alternative liner offers 50 percent more protection to the underlying aquifer than the standard composite liner.

STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential for the success of this innovative environmental program. Stakeholder input will help to further develop the project specifics and evaluate performance. Public meetings have been held to inform the general public and national environmental groups about the project and to invite their comments and participation. Stakeholders likely to be directly involved with this project include: the State of North Carolina Department of Environment and Natural Resources, who will be responsible for permitting the project; Buncombe County's Environmental Affairs Board, which is comprised of county citizens; and a group of citizens that reside in the landfill's surrounding neighborhood, including the Blue Ridge Environmental Defense League. Additional public meetings may be held during implementation of the agreement based on public interest or as decided by the direct participants. Stakeholder input and community goals have been and will continue to be considered throughout project implementation.

APPROACHES TO BE TESTED

- Will an alternate landfill liner provide a superior level of protection as compared to the standard composite landfill liner required in current regulations?
- Will the leachate recirculation approach result in fewer fugitive air emissions?
- Will the alternative approach and its safeguards, as proposed by Buncombe County, provide superior performance in preventing leachate contamination?

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FOR ELECTRONIC INFORMATION

More information about this XL project, or the Project XL Program, is available on the Internet at <http://www.epa.gov/projectxl> under "Information on Specific XL Projects." or via Project XL's Information Line at (202) 260-5754.