

US EPA ARCHIVE DOCUMENT



# Project XL: Virginia Landfills



## 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 reassessing 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. Each project tests new ideas with the potential for wide application and broad environmental benefits. As of September 2000, over forty pilot experiments are being implemented and several additional projects are in various stages of development.

## SUMMARY OF THE VIRGINIA LANDFILLS PROJECT

The Virginia Landfills XL project includes two solid waste municipal landfills (SWMLF) operated by subsidiaries of Waste Management Inc. (WMI): Maplewood Recycling and Waste Disposal Facility is located in Amelia County, Virginia, approximately 30 miles southwest of Richmond, and King George County Landfill and Recycling Center is located approximately 50 miles north-northeast of Richmond. Both landfills accept municipal solid waste and a small percentage of biodegradable products (e.g., construction debris). Through this XL project, the Maplewood and King George landfills will implement two variations of bioreactor landfill systems and compare the relative improvement in landfill performance at the two different bioreactor project sites. 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. The Maplewood bioreactor will recirculate liquids (primarily leachate) generated at the facility. The King George bioreactor will recirculate facility-generated leachate plus other liquids, such as non-hazardous liquid waste or stormwater. These activities collectively should decrease emissions of landfill gas, accelerate waste decomposition, improve leachate quality, and increase the waste capacity of the existing landfills. The project sponsors -- EPA, Virginia Department of Environmental Quality, and WMI, expect that the results from this project will help EPA as it considers whether to revise existing Resource Conservation and Recovery Act (RCRA) regulations and allow the use of alternative liner systems in SWMFs using leachate recirculation. The Virginia Landfills Project, EPA's 44<sup>th</sup> XL project, was signed on September 29, 2000.

## SUPERIOR ENVIRONMENTAL PERFORMANCE

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

- Acceleration of waste decomposition, thus enhancing post-closure conditions and enhancing groundwater protection;
- Early compliance with Clean Air Act requirements for municipal solid waste landfills through installation of a gas collection and control system (King George);
- Potential reduction in fugitive emissions of methane and non-methane organic compounds over the life of the landfill;
- Reduction of potential risk to workers and the community from transport of collected leachate to the publically owned treatment works via tanker trucks;
- Additional waste capacity and longer life of existing landfills, reducing the need for new landfill sites; and
- Identification and quantification of performance advantages or limitations of

bioreactor techniques

**FLEXIBILITY**

EPA's RCRA Subtitle D regulations currently allow municipal solid waste landfill leachate to be placed back into the landfill only if the landfill is designed with a standard composite liner. Maplewood and King George Landfills seek flexibility from these RCRA regulations to allow them to recirculate leachate over municipal solid waste landfills constructed with alternative liner systems (both landfills use multiple synthetic liners).

**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 were held to inform the general public about the project and to invite their comments and participation. Stakeholders directly involved with this project include: WMI; the Virginia Department of Environmental Quality, who will be responsible for permitting the project; the host community landfill advisory boards of Amelia County and King George County; and a group of citizens that reside in the landfills' surrounding neighborhoods. Additional public meetings may be held during implementation of the agreement based on public interest or as decided by the participants. Stakeholder input and community goals have been and will continue to be considered throughout project implementation.

**APPROACHES TO BE TESTED**

- Will alternate landfill liners provide a superior level of environmental protection compared to the standard composite landfill liner currently required in regulations?
- What improvements can be derived from comparing the performance of alternative bioreactor systems proposed by Maplewood and King George?

**CONTACTS**

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**FOR ELECTRONIC INFORMATION**

More information about the Virginia Landfills 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.