



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

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September 15, 2000

James S. Gilmore, III  
Governor

John Paul Woodley, Jr.  
Secretary of Natural Resources

Dennis H. Treacy  
Director

(804) 698-4000  
1-800-592-5482

RE: EPA Project XL  
Public Response Document  
King George County Landfill and Recycling Facility and Maplewood Recycling and Waste Disposal Facility  
August 1<sup>st</sup> and 2<sup>nd</sup>, 2000 Meetings

To all who commented:

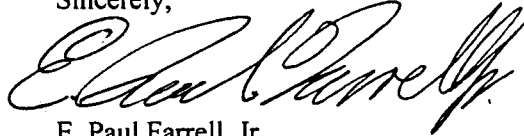
The Virginia Department of Environmental Quality (VADEQ) and Waste Management (WM) held informational public meetings for the above-referenced project on August 1<sup>st</sup> and 2<sup>nd</sup>, 2000, respectively. At the meetings, representatives from USEPA, VADEQ, and WM discussed the concept of EPA Project XL and the contents of the proposal for this project.

Thank you for taking an active role in the public participation process regarding the subject landfills. No additional comments were received during the public comment period which ended August 11<sup>th</sup> and 12<sup>th</sup>, respectively. You ought to be commended for expressing your concerns regarding this experimental project. At the public meeting, you raised many relevant and well thought-out questions and concerns. Every statement made at the public meeting has been reviewed by our staff of scientists and engineers to ensure that the project will meet the expectations of the citizens while remaining in full compliance with the Final Project Agreement and with the Virginia laws and regulations regarding the siting, design, operation, closure and post-closure of solid waste management facilities.

Attached are the project abstract, copies of the meeting advertisements and a response document resulting from the review and evaluation of the input received during the public participation period. The abstract provides an overview of the project and the advertisements provide information on the location of project documents within your locality. Many of the comments have been paraphrased to incorporate similar concerns into the public response document. Although many of the questions were answered at the meeting, for the benefit of those not in attendance or who may have similar questions in the future, they are reiterated below. Please understand that the Department may not be able to provide a satisfactory answer to all of the difficult questions asked during the public comment period, particularly those issues over which the Department has no regulatory authority. The Department does have the ability to ensure that facilities located in Virginia abide by the regulations, which are written in an effort to protect human health and the environment. The operation of any sanitary landfill, even in full compliance with the strictest regulations, entails some degree of uncertainty or risk. This is true of many activities in our society today.

Thank you for your involvement in the development of the EPA Project XL FPA. It is hoped that you will continue to be a participant in the process. If the Department may be of any assistance in understanding the design and operation of this project, or of the state and federal regulations pertaining to it, please contact me at (804) 698-4214.

Sincerely,

A handwritten signature in cursive script, appearing to read "E. Paul Farrell, Jr.", written in black ink.

E. Paul Farrell, Jr.  
Environmental Engineer Consultant

Attachment

Project Abstract  
Advertisements  
Public Response Document

## ABSTRACT: XL PROGRAM APPLICATION

### LANDFILL LEACHATE RECIRCULATION AND BIOREACTOR TEST PROGRAMS

Waste Management of Virginia, Inc. (WM) proposes to implement leachate recirculation and bioreactor operations at two of its Virginia Landfills, Maplewood Recycling and Waste Disposal Facility (Maplewood Landfill) and King George County Landfill and Recycling Facility (King George County Landfill), respectively, in order to attain a number of environmental and cost saving benefits. The sponsors of the proposed XL project include WM, Virginia Department of Environmental Quality (VADEQ), Amelia County, and King George County. Under the XL program, WM is requesting that the United States Environmental Protection Agency (USEPA) grant regulatory flexibility from the requirement of the Resource Conservation and Recovery Act (RCRA) that prohibits application of bulk liquids in municipal solid waste landfills, as presented in Title 40 of the Code of Federal Regulations (40CFR) Section 258.28. In addition, WM requests VADEQ's regulatory flexibility under Part V of Virginia Solid Waste Management Regulations for the same reason.

This abstract proposes two operational practices in landfills: leachate recirculation at Maplewood and landfill bioreactor at King George. Current experience shows that leachate recirculation system alone may achieve the following benefits:

- accelerated biodegradation of waste in the landfill;
- increased production of landfill gas generation in the short-term and a shorter overall duration of landfill gas generation;
- increased leachate quality in the long term;
- accelerated biodegradation of potential contaminants in the landfill;
- potential for earlier re-use of landfill for beneficial end-uses;
- decreased settlement of the cover system after closure of the landfill.

However, leachate alone may not be sufficient to provide liquid for a landfill to operate as a bioreactor at King George. Additional liquid streams such as surface water, food-processing wastes, wastewater treatment plant sludges, and other biota-rich sludges are proposed to be introduced in the King George bioreactor landfill to enhance the benefits described above.

The proposed program will evaluate the cost-effectiveness of the leachate recirculation and bioreactor operational practices in the Maplewood Landfill and King George County Landfill, respectively. The Maplewood Landfill is located in Amelia County, approximately 50 miles southeast of Richmond, Virginia. The landfill was constructed having a geomembrane double-liner system and leak detection system under all areas that have received waste. WM proposes to operate a leachate recirculation system at the landfill for the purposes of managing leachate and promoting biodegradation of waste in the landfill. The King George County Landfill is located in King George County, approximately 50 miles north of Richmond, Virginia. The landfill was constructed having a geocomposite triple-liner system and leak detection system under all areas that have received waste. WM proposes to operate a landfill bioreactor at the landfill for the purposes of evaluating the relative improvement in landfill performance between bioreactor landfills and leachate-recirculation landfills.

Throughout the program, the performance of the Maplewood Landfill leachate recirculation system and the King George County Landfill bioreactor system will be documented. The results will be used to evaluate the biodegradation potentials of the wastes and the extent of the benefits and cost-effectiveness of the leachate recirculation system versus a landfill bioreactor. Because both landfills are located in a humid subtropical area, receive similar amounts of rainfall, and receive very similar waste streams, the difference in the performance of the landfills should be attributable to only the different leachate recirculation and bioreactor practices employed at the sites.

**NEWSPAPER ADVERTISEMENT**  
**VIRGINIA DEQ AND WASTE MANAGEMENT, INC.**  
**NOTICE OF UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA) PROJECT XL**  
**FOR A BIOREACTOR LANDFILL PROJECT**  
**AT THE KING GEORGE COUNTY LANDFILL AND RECYCLING FACILITY,**  
**PERMIT NUMBER 586,**  
**LOCATED IN KING GEORGE COUNTY, VIRGINIA**

The USEPA has demonstration projects under a program that allows regulatory relief and flexibility from certain environmental regulations. The program is called Project XL and general information on current projects, project requirements and implementation procedures can be found at <http://www.epa.gov/projectxl/>. Virginia DEQ and Waste Management (the Sponsors) propose a demonstration project to include both the Maplewood Recycling and Waste Disposal Facility and the King George County Landfill and Recycling Facility. The project would compare the benefits of leachate recirculation (limited bioreactor) and bioreactor to traditional landfilling practices without leachate recirculation to determine any benefits. The King George County Landfill would have the full bioreactor landfill project. Specific information on the King George County Landfill is provided below. The Virginia Department of Environmental Quality is a co-sponsor by ensuring Waste Management meets appropriate federal and state requirements and by providing technical support.

Waste Management, Inc. will hold an informational public meeting on the proposed EPA Project XL for a bioreactor landfill in a 10-acre test area in King George County Landfill and Recycling facility located on State Route 665 approximately 1.1 miles north of Route 3 and approximately 9 miles east of Fredericksburg. The site is bounded by State Routes 605 and 603 on the east and west sides, respectively. The south end of the facility is adjacent to the Dahlgren Branch of the CSX Railroad Line. King George County Landfill is constructed having a geocomposite triple-liner system and leak detection system under all areas that receives waste. The project proposes to implement leachate recirculation and introduce additional liquid streams in the test area to achieve enhanced biodegradation of wastes in the landfill and other associated benefits. Under the EPA Project XL, the Sponsors request that EPA grant regulatory flexibility from the requirement of the Resource Conservation and Recovery Act (RCRA) that prohibits application of bulk liquids in municipal solid waste landfills, as presented in Title 40 of the Code of Federal Regulations (40CFR) Section 258.28. In addition, WM requests VADEQ's regulatory flexibility under Part V of Virginia Solid Waste Management Regulations for the same reason.

The meeting is scheduled for August 1, 2000, at 7:00 p.m., in the Auditorium in King George High School, Dahlgren Road, King George, Virginia 22485. The purpose of the public meeting will be to inform the public of the proposal, to identify potential stakeholders, to provide a forum for discussion, to solicit comments concerning the project and to allow the public an opportunity to review the project documents. A copy of the project documents will be maintained at the L.F. Smoot Lewis Memorial Library for references as they become available. The comment period for the first meeting will expire at 5:00 PM, 10 days from the date of the meeting. A second meeting is scheduled for the week of August 14<sup>th</sup> to discuss the draft Final Project Agreement (FPA). An FPA is an agreement between the USEPA and the Sponsors stating the purpose and requirement of the project and how the project is to be implemented and evaluated. The public is strongly encouraged to review the draft FPA and to provide comments. The final FPA will be a collaboration between the Sponsors, USEPA and the Stakeholders. It should be noted that as part of the State's permitting process, Waste Management must obtain a permit amendment to construct and operate the project. A formal public hearing will be held by VADEQ at which time the public may comment on the draft permit amendment. The public hearing is planned for mid-October but that is a tentative date.

If the public wishes to mail in written comments, please address them to: Jason Pauley, King George County Landfill and Recycling Facility, 10376 Bullock Road, King George, VA 22485, or Paul Farrell, VA-DEQ, 629 E. Main St., Richmond, Va. 23219, [epfarrell@deq.state.va.us](mailto:epfarrell@deq.state.va.us). Verbal comments will be recorded at the time of the meeting.

**NEWSPAPER ADVERTISEMENT**  
**VIRGINIA DEQ AND WASTE MANAGEMENT, INC.**  
**NOTICE OF UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA) PROJECT XL**  
**FOR A BIOREACTOR LANDFILL PROJECT**  
**AT THE MAPLEWOOD RECYCLING AND WASTE DISPOSAL FACILITY,**  
**PERMIT NUMBER 540,**  
**LOCATED IN AMELIA COUNTY, VIRGINIA**

The USEPA has demonstration projects under a program that allows regulatory relief and flexibility from certain environmental regulations. The program is called Project XL and general information on current projects, project requirements and implementation procedures can be found at <http://www.epa.gov/projectxl/>. Virginia DEQ and Waste Management (the Sponsors) propose a demonstration project to include both the Maplewood Recycling and Waste Disposal Facility and the King George County Landfill and Recycling Facility. The project would compare the benefits of leachate recirculation (limited bioreactor) and bioreactor to traditional landfilling practices without leachate recirculation to determine any benefits. The Maplewood site would have the leachate recirculation (limited bioreactor) project. Specific information on the Maplewood site is provided below. The Virginia Department of Environmental Quality is a co-sponsor by ensuring Waste Management meets appropriate federal and state requirements and by providing technical support.

Waste Management, Inc. will hold an informational public meeting on the proposed EPA Project XL for a limited bioreactor landfill in a 10-acre test area in Maplewood Recycling and Waste Disposal Facility located on Route 640, approximately 37 miles west of Richmond and 5 miles west of the Township of Amelia adjacent to State Route 360. The facility is constructed having a geomembrane double-liner system and leak detection system under all areas that receives waste. The project proposes to implement leachate recirculation in the test area to achieve enhanced biodegradation of wastes in the landfill and other associated benefits. Under the EPA Project XL, the Sponsors request that EPA grant regulatory flexibility from the requirement of the Resource Conservation and Recovery Act (RCRA) that prohibits application of bulk liquids in municipal solid waste landfills, as presented in Title 40 of the Code of Federal Regulations (40CFR) Section 258.28. In addition, WM requests VADEQ's regulatory flexibility under Part V of Virginia Solid Waste Management Regulations for the same reason.

The meeting is scheduled for August 2, 2000, at 7:00 p.m., in the James Hamner Memorial Library 16351 Dunn Street, Amelia, Virginia 23002. The purpose of the public meeting will be to inform the public of the proposal, to identify potential stakeholders, to provide a forum for discussion, to solicit comments concerning the project and to allow the public an opportunity to review the project documents. A copy of the project documents will be maintained at the James Hamner Memorial Library for references as they become available. The comment period for the first meeting will expire at 5:00 PM, 10 days from the date of the meeting. A second meeting is scheduled for the week of August 14<sup>th</sup> to discuss the draft Final Project Agreement (FPA). An FPA is an agreement between the USEPA and the Sponsors stating the purpose and requirement of the project and how the project is to be implemented and evaluated. The public is strongly encouraged to review the draft FPA and to provide comments. The final FPA will be a collaboration between the Sponsors, USEPA and the Stakeholders. It should be noted that as part of the State's permitting process, Waste Management must obtain a permit amendment to construct and operate the project. A formal public hearing will be held by VADEQ at which time the public may comment on the draft permit amendment. The public hearing is planned for mid-October but that is a tentative date.

If the public wishes to mail in written comments, please address them to: Waste Management, c/o James Stenborg, Maplewood Recycling and Waste Disposal Facility, 20221 Maplewood Road, Jetersville, VA 23083 or Paul Farrell, VA-DEQ, 629 E. Main St., Richmond, Va. 23219, [epfarrell@deq.state.va.us](mailto:epfarrell@deq.state.va.us). Verbal comments will be recorded at the time of the meeting.

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY  
WASTE MANAGEMENT, INC.**

**Public Response Document**

**King George County Landfill and Recycling Facility  
EPA Project XL**

Comment 1. The sponsors did not do a good enough job of getting the word out about this meeting.

Response. The notice for this meeting was advertised in the King George Journal, a local newspaper, on July 19, 2000. In the future, we will endeavor to use other means to get the word out, such as posting notices in the public library.

Comment 2. Are there any other programs similar to this project and where are they? Where can we get relevant information?

Response. There are other EPA XL projects, a total of 15 across the country. There are three bioreactor XL projects that have signed Final Project Agreement (FPA). Those projects are located in Yolo County, California, Buncombe County, North Carolina, and Anne Arundel County, Maryland. You can log on EPA homepage (URL: <http://www.epa.gov/projectxl/>) for details on the various bioreactor projects currently under Project XL. For detailed information on the King George project, go to <http://www.epa.gov/projectxl/virginialandfills>.

Comment 3. Do XL projects receive funding?

Response. No. The specific project comes from the sponsors. The only costs to the EPA or Virginia Department of Environment Quality (VDEQ) are man-hours and travel expenses.

Comment 4. What is the phone number for the landfill?

Response. The phone number for the landfill is 540-775-3123. You are welcome to request any public document on this project.

Comment 5. What is the duration of this project?

Response. This project will be operated under an experimental permit. VDEQ will amend the existing permit for the bioreactor site. In accordance with 9 VAC 20-80-480.G, an experimental permit shall provide for operation of the facility for no longer than one calendar year unless renewed as provided in 9 VAC 20-80-480.G.3 which stipulates that the permit may be renewed no more than three times with each renewal for a period of not more than one calendar year. Thus, the maximum time allowed for the experimental permit is 4 years. A public hearing will be held for this permit amendment after EPA selects this project. The starting date of the four-year term will be the date of issuance of the experimental permit. The facility will have four years to demonstrate whether this project is successful. If the project is not proven to be successful, the experimental permit will be revoked. On the other hand, if EPA amends the regulations to allow leachate recirculation on an alternate liner with the addition of bulk liquids, then the existing permit will be amended to allow full time bioreactor operations.

**END OF KING GEORGE PRD**

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY  
WASTE MANAGEMENT, INC.**

**Public Response Document**

**Maplewood Recycling and Waste Disposal Facility**

**Amelia County, Virginia  
EPA Project XL**

COMMENT 1. What is the duration of the project?

RESPONSE: This project will be operated under an experimental permit. VDEQ will amend the existing permit for the bioreactor site. In accordance with 9 VAC 20-80-480.G, an experimental permit shall provide for operation of the facility for no longer than one calendar year unless renewed as provided in 9 VAC 20-80-480.G.3 which stipulates that the permit may be renewed no more than three times with each renewal for a period of not more than one calendar year. Thus, the maximum time allowed for the experimental permit is 4 years. A public hearing will be held for this permit amendment after EPA selects this project. The starting date of the four-year term will be the date of issuance of the experimental permit. The facility will have four years to demonstrate whether this project is successful. If the project is not proven to be successful, the experimental permit will be revoked. On the other hand, if EPA amends the regulations to allow leachate recirculation on an alternate liner with the addition of bulk liquids, then the existing permit will be amended to allow full time bioreactor operations.

COMMENT 2. How does rainfall affect leachate production and all that monitoring that's going on?

RESPONSE. Rainwater is the initial source for leachate. In a landfill design, engineers analyze how much leachate is generated which is based upon rainfall. In recirculation, the leachate that is generated is put back into the landfill. This volume is in addition to that which would be generated during the next rainfall event. In the leachate models, the rainfall amount is increased artificially to account for recirculation. It is intended to monitor the amount of rainfall to aid in estimating leachate volumes. More gas is expected as a result of recirculation and there are gas controls in place. The actual monitoring of gas can be done in inclement weather.

COMMENT 3. Are you going to use open trenches for recirculation? Are the trenches like a drainfield?

RESPONSE: Open trenches are not going to be used. The trenches are similar to a drainfield trench with perforated pipe within the trench that is filled with a drainage material. A protective fabric to prevent migration of fines is put around the trench and the trench is then covered with waste as the lift progresses.

COMMENT 4. How much influence / power does the local Board of Supervisors have over the proposal?

RESPONSE: The Amelia County Board of Supervisors has agreed to be a participating stakeholder. Your viewpoints and concerns are generally represented through the Board but if you chose to be a stakeholder, you have a direct role the process. The FPA will have provisions to shut down the project if its not going according to plan. The actual permit amendment has legal power over the project and if the Board so chooses, it may shut it down through the regulatory process. But the key point is that if there is a problem, regardless of whether the Board speaks out, it will be fixed

COMMENT 5. How are you going to handle complaints from the surrounding landowners?

RESPONSE: The FPA will have guidelines that must be followed and milestones that must be met. There is a mechanism built in to shut down the project if it is not going according to plan. However, since the operating permits will be amended and are enforceable under the VSWMR, complaints will be handled through DEQ compliance and enforcement. You may contact the regional office or the permitting staff here in the central office if you have a concern. Contact information will be provided at the end of the document.

COMMENT 6. What are the controls? (i.e., in reference to gas)

RESPONSE: An active landfill gas collection system will be operated at all times, including during liquid application events. The Maplewood Landfill currently has an active landfill gas collection system that is in operation; if odor problems or air quality problems occur, then the system will be expanded as needed (e.g., using additional extraction wells or trenches or by placing less permeable cover and affected areas). The system performance will be documented through routine monitoring of the landfill gas for the presence of methane and other constituents.

COMMENT 7. What about controlling odors?

RESPONSE: The landfill has an active gas system as described in response above. Furthermore the daily cover will help reduce odors. A tarp or alternate daily cover by itself may not be enough to reduce the odor without using additional soil or soil-like material. The permit will provide odor-reduction procedures.

COMMENT 8. Are you going to use sludge and food processing wastes?

RESPONSE: Only leachate that is generated within the Maplewood site and small quantities of other liquids will be recirculated within this landfill. The small quantities of other liquids won't be added unless there is a deficit in the amount of leachate that is minimally required to maintain biological activity. The minor liquids will not include sludges. The King George Landfill will recirculate leachate supplemented with additional liquids. There may have been some confusion on the scope of the project at each landfill but Maplewood will only recirculate leachate.

COMMENT 9. Who initiated the proposal?

RESPONSE: Waste Management initiated the proposal by contacting EPA and VADEQ. They learned of Project XL through various meetings and professional contacts. A proposal was drafted and reviewed by VADEQ before being submitted to the EPA.

COMMENT 10. How much settlement do you anticipate?

RESPONSE: About 10 feet of settlement is anticipated as the waste biodegrades. This will add airspace and extend the life for the landfill. The 10 feet is an average over the test cell but local variations will occur.

COMMENT 11. What kind of monitoring will you do and who will do it?

RESPONSE: To verify that the goals of the program and the Final Project Agreement are met, the landfill will be monitored. The specific goals of the monitoring program will be:

- to measure leachate quality in areas with and without liquid addition over time;
- measure the total quantity of leachate collected in areas with and without liquid application and the quantity of leachate or other liquids applied in the test areas;
- monitor the rate that leachate can be applied to the trenches without causing seeps or other potential operational problems;
- monitor the ground surface of the entire site, including the liquid application area, for the presence of landfill gases (i.e. methane, Non Methane Organic Compounds, etc.) in excess of permit limits, and evaluate the need for additional landfill gas collection components (i.e., wells and header pipe) during liquid application events to improve the effectiveness of the landfill gas collection system; and
- measure the settlement of the waste over the entire landfill area, including the liquid application area; this will include semi-annual or more frequent topographic surveys.

The monitoring will be performed by Waste Management. The results of the monitoring will be submitted to DEQ for review and verification with a copy being sent to EPA. EPA will also review and verify the result of the monitoring.

COMMENT 12. How much money and resources from the federal government, and state will be allocated to Amelia County for this project in order to carry out environmental monitoring?

RESPONSE: Waste Management is doing the monitoring. No federal or state money will be used for this project. VADEQ will devote man-hours and staff travel expenses to the project but will not provide monetary support.

**END OF MAPLEWOOD PRD**