



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

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Director

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November 1, 2017

The Honorable Daniel W. Marshall III, Chairman  
House Committee on Agriculture, Chesapeake and Natural Resources  
P.O. Box 439  
Danville, Virginia 24543

Re: Odor Reduction Efforts at Region 2000 Services Authority Sanitary Landfill

Dear Delegate Marshall:

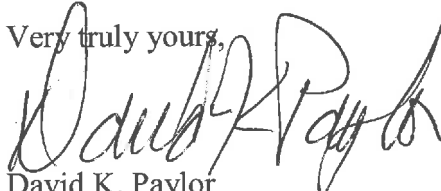
This report is being submitted pursuant to Chapter 341 of the 2017 Acts of Assembly which requires the Department of Environmental Quality (DEQ) and the Region 2000 Services Authority (Authority) to report on efforts to “reduce odor issues at the landfill operated by the Authority in Campbell County.” Those efforts are described in detail in the attached report.

It is important to note that since November 2016, the Authority has designed and constructed a number of odor control strategies, and DEQ has worked closely with the Authority to evaluate their effectiveness. As part of this evaluation, DEQ maintains an odor complaint log for the landfill. As a result of the Authority’s odor mitigation efforts, DEQ has documented an 85% reduction in odor complaints in 2017 when compared to 2016.

DEQ also has convened a Landfill Odor Workgroup comprised of DEQ staff and external stakeholders. The purpose of the workgroup is to identify available odor control and mitigation strategies and to develop guidance on the selection, use and evaluation of these strategies. The workgroup met twice in 2017 and continues to work on guidance development.

The Honorable Daniel W. Marshall III, Chairman  
November 1, 2017  
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I hope this information is helpful. If you have questions about this report, please do not hesitate to call.

Very truly yours,  
  
David K. Paylor  
Director

Attachment



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October 30, 2017

The Honorable Daniel W. Marshall III, Chairman  
House Committee on Agriculture, Chesapeake and Natural Resources  
Pocahontas Building  
900 E. Main Street  
Richmond, Virginia 23219

Re: Report on Odor Reduction Efforts at Region 2000 Services Authority Sanitary Landfill

Dear Delegate Marshall:

This report is being submitted pursuant to chapter 341 of the 2017 Acts of Assembly which requires by the Virginia Department of Environmental Quality (DEQ) and the Region 2000 Services Authority (Authority) to report on efforts to “reduce odor issues at the landfill operated by the Authority in Campbell County.” The following describes the Authority’s efforts.

### **Flare Station**

During November 2016, the Authority completed construction of the full-scale landfill gas extraction and treatment system for Phase III of the Region 2000 Regional Landfill – Livestock Road Facility. (See Figure 1.) The purpose of system is to control odors and fugitive landfill gas emissions.



Figure 1. a) Flare station; and b) installation of additional gas extraction wells.

The initial landfill gas extraction and treatment system included 13 strategically placed vertical landfill gas extraction wells, gas collection pipes, a compressor station and a flare unit. The system is currently extracting and treating nearly 1000 cubic feet per minute of landfill gas. In October 2017, the Authority installed an additional eight landfill gas extraction wells in Phase III to improve gas recovery.

The new system is also designed and constructed with adequate capacity to provide gas extraction and treatment for Phase IV and future Phase V of the currently permitted landfill area.

### **Use of Posi-Shell on Immediate Cover**

In 2016, the Authority submitted a request to DEQ to conduct a pilot project using posi-shell on top of the 12 inches of intermediate soil (i.e., enhanced intermediate cover). The posi-shell is the grey area on the landfill slopes shown in Figure 2. The material is a cement-fiber cover/sealant that partially covers the side slopes.



Figure 2. – Posi-shell

The purpose of the pilot project was to assess whether the enhanced intermediate cover would improve the efficiency of the landfill gas extraction system and help prevent landfill slope erosion. As part of the pilot project, DEQ requested the Authority conduct a study to evaluate the effectiveness of the enhanced intermediate cover. The Authority submitted a report in June 2017, and the study shows that the enhanced intermediate cover provides some additional odor controls. DEQ approved the continued use of the posi-shell, and the enhanced intermediate cover will be used until the final landfill cap is constructed.

### **Partial cap construction**

The Authority is working with its consultant to prepare construction plans for the partial cap construction for the western end of Phase III. The partial cap construction will enhance the performance of the landfill gas extraction and treatment system by further controlling fugitive

emissions. The Authority currently plans to advertise the construction project in the spring of 2018 and complete construction by the end of calendar year 2018.

### Vapor-Phase Odor Neutralization System

In March 2016 the Authority placed in service the vapor-phase odor neutralization distribution system manufactured by Byers Scientific and Manufacturing.

The system currently includes 2600 feet of six-inch diameter pipe installed along northwest, western and southern perimeter of currently active Phase III. This system evenly distributes a safe, odor neutralizing vapor solution on a continuous basis. (See Figures 3. and 4.) The vaporized solution mixes with the landfill gas odors in the air and neutralizes the odors.



Figure 3. – Vapor-Phase Odor Neutralization System

In October 2017, the Authority ordered an additional mobile vapor distribution unit with 1000 feet of vapor distribution pipe. This unit will be used in close proximity to the working face in Phase IV. The new unit and piping is scheduled to be delivered by the end of November 2017.



Figure 4. – Byer's Scientific and Manufacturing featured in MSW Management (as an advertisement)

## **Misting System**

In March 2016, the Authority placed in service a “mobile working-face” odor neutralization misting system that distributes a safe odor neutralizer in areas where odors are most prevalent during operating hours.



Figure 5. – Misting System

## **Diversion of Lynchburg Wastewater Treatment Plant Sludge**

The Lynchburg wastewater treatment plant (WWTP) has found alternative management strategies for the wastewater treatment sludge with only one-third of the sludge continuing to be landfilled at Region 2000. One-third of the WWTP sludge now is being land applied in conformance with DEQ’s land application requirements, and the final third is being transported for disposal at a private waste management facility in the Piedmont region.

## **Other Efforts**

The Authority has implemented other control strategies including:

- The application of an odor neutralizer on particularly odiferous incoming waste using a truck-mounted tank and spray system.
- Covering the working face with soil on weekends versus using Posi-shell to provide additional odor controls.
- Limiting the landfill operating hours on Saturdays.

The Region 2000 Services Authority is taking the landfill gas and odor issue very seriously as demonstrated by the \$1,500,000 investment in odor mitigation equipment over the past year. As a result of these odor mitigation strategies, the Authority has recorded a significant decrease in odor complaints comparing 2016-2017 timeframe to the same period in 2015-2016.

The Authority believes the latest technology in odor mitigation is being utilized and it is demonstrating the commitment to improving this situation for our neighbors and the surrounding community.

Sincerely,



Clarke W. Gibson, P.E.

Director

Region 2000 Services Authority



Operated by Virginia's Region 2000 Local Government Council.