

***PREPARED FOR:***

HAMPTON ROADS RECOVERY CENTER, LLC  
1631 CENTERVILLE TURNPIKE  
VIRGINIA BEACH, VIRGINIA 23464



**CENTERVILLE TURNPIKE CDD LANDFILL  
PERMIT NUMBER 603**

**ODOR MANAGEMENT PLAN**

**REVISED JANUARY 2019**

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**ODOR MANAGEMENT PLAN**  
**Centerville Turnpike CDD Landfill**  
**Permit Number 603**

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# **CENTERVILLE TURNPIKE CDD LANDFILL ODOR MANAGEMENT PLAN**

## **1.0 Background**

As a result of citizen complaints on October 24, 2011, and the Department of Environmental Quality (DEQ) investigations, DEQ directed the Centerville Turnpike CDD Landfill (facility) to submit an Odor Management Plan in a letter dated October 24, 2011. In accordance with 9 VAC 20-81-200.D, the facility hereby submits to the DEQ an Odor Management Plan (OMP). The OMP is maintained in the landfill's Operating Record.

The October 2011 complaints were the result of hydrogen sulfide (H<sub>2</sub>S) odors, which were traced primarily to the landfill leachate and holding tank.

## **2.0 Facility Contact**

Citizens can notify the facility of odor concerns at the following address and telephone number:

Name:	Centerville Landfill
Address:	1613 Centerville Turnpike Virginia Beach, Virginia 23464
Phone:	(757) 420-0128 ext 103
Attention:	Mr. Charles Plott

## **3.0 Procedures to Identify and Correct Odor**

### **3.1 Procedures for Citizen Odor Complaints**

Evaluating odor is subjective and intensity may vary from individual to individual and over the period of the event. The Centerville Landfill, Director of Operations (contact information provided in Section 2.0) will serve as the primary contact to whom complaints will be directed. When a complaint is received, the complainant will be asked to describe the odor, its intensity, and duration. Call information shall be logged using the Odor Complaint/Odor Source Log provided in the Odor Monitoring Plan included as Appendix I of this OMP.

Once a complaint is received, the facility shall monitor for odors using the procedures specified in the Odor Monitoring Plan. The monitoring locations shall be generally based upon, but not limited to, the following: the proximity to the operations, receptors, topography, meteorology, predominate wind direction, accessibility and other potential sources of odors and emissions. At a minimum, the facility shall monitor the odor complaint location, the facility boundary point closest to the complaint location taking into account weather conditions, the working face, and any open filling areas. The Odor Complaint/Odor Source Log will be used to maintain a record of odor complaints (name of the person filing the complaint, their physical address, location of

the odor, date, time, weather conditions, and odor characteristics), resolution of odor issues, and corrective action employed to abate the odor. A record copy of the log will be kept in the operating file of the landfill, which can be reviewed by DEQ personnel during routine inspections. Once a complaint has been received, the facility will notify the DEQ within 24 hours of the complaint.

Once the source of odors has been identified, facility personnel shall implement remedial actions described in Section 3.3 of this Plan.

If an odor source is not identified, facility personnel shall note this on the Odor Complaint/Odor source Log.

### 3.2 Determining the Location of the Odor

In addition to the perimeter monitoring described in the Odor Monitoring Plan, facility personnel will check for odors at various locations. At a minimum these locations will include: the active working face, areas where weekly cover has not yet been applied, and leachate management components. This determination will be conducted by using his/her sense of smell during their routine inspections of the landfill. If an odor is detected during these routine inspections, facility personnel will look for and identify the source of the odor, such as:

1. Cracks or openings in the weekly or intermediate cover material
2. Leachate seeps
3. Exposure of leachate management components (i.e. uncapped cleanout pipes)
4. Leachate tank and containment area.

### 3.3 Odors Detected During Routine Inspections

1. Determine the source, and
2. Cover cracks or openings in the weekly or intermediate cover material with a minimum of 6 inches of soil or an approved alternate cover material.
3. Repair leachate seeps.
4. Make necessary repairs to landfill gas and leachate management system components.
5. Add Hydrogen Peroxide to the leachate tank.

## 4.0 Relationship with Weather

The facility realizes the unique relationship between the weather and the generation and transport of odors in the ambient air. Meteorological information will be collected at the landfill via the internet or from local sources. Correlations between weather conditions and odor generation will be analyzed, and if deemed useful, may be used to modify landfill practices to enhance odor control at the facility.

Adverse weather conditions may limit the effectiveness of the odor controlling products. Higher than normal wind and precipitation may require reapplications of the odor controlling products,

adjustments to the application concentrations or suspension of the applications until the adverse conditions subside. Per the manufacturer, there are no set or defined application limitations.

## **5.0 Daily Operations to Prevent Odor**

The purpose of this plan is to manage (prevent or eliminate) odor generated by the landfill. The following activities are used by the facility to monitor and control odors from open areas and areas with intermediate cover.

### **(a) Handling of Materials**

1. Recyclable materials will be salvaged when practical, such as (but not limited to) cardboard, wood, metals, concrete, brick, plastics, stumps and brush.
2. The facility will not dispose of known odor-causing material in the landfill.

### **(b) Working Face**

1. The working face is kept as small as practical.
2. During landfill operations, the working face will be approximately 100 feet by 100 feet. Dimensions of the working face may vary depending on operating conditions.

### **(c) Maximize Compaction**

1. Waste will be spread on the working face in approximately 2-3 foot thick layers and compacted by multiple passes.
2. Waste will be compacted uphill whenever possible.
3. Working face built at 4:1 and 3:1 slopes.

### **(d) Odor Controlling Products**

1. In order to control odors, the facility follows the procedures discussed in Sections 3.0 and 5.0 of this Plan. The same method (chemical and biological treatments) used to control odors in the landfill will be employed when waste is being placed.
2. In addition, indicate that odor-controlling products may be applied to incoming or outgoing waste trucks if the load is found to be odorous.

### **(e) Applying Cover**

1. On a weekly basis, the facility will cover the waste material with six inches of soil or an approved alternate weekly cover material as described in the facility's Operations Manual. Refer to the facility's approved Operations Plan and the facility's permit for any site-specific conditions on the application and suitability of an alternate weekly cover material.
2. Grade to prevent standing water and improve storm water runoff.
3. Seed to stabilize exterior slopes.

### **(f) Monitoring**

1. Odor monitoring at the perimeter of the site will follow the Odor Monitoring plan. A copy of the monitoring plan is attached as Appendix I of this OMP.

## **6.0 Odor Controlling Products**

### **(a) Perimeter Misting System**

A misting system is an odor control product that functions by first capturing and then enhancing the biological destruction of offending organic agents. Almost all offending odors are organic in nature. The odor neutralizing compounds used in the misting system utilize a combination of chemical and biological agents that are specifically designed to absorb and break down the odors. The odor neutralizing product is sprayed around the perimeter of the facility property by a pole mounted, high pressure misting system.

Biological treatment of odor laden air has been successfully accomplished from point source locations for several years. The facility intends to utilize the essential elements of this concept to treat fugitive gases escaping from non-point sources by installing a misting system around the perimeter of the property in 2019.

### **(b) Hydrogen Peroxide**

Hydrogen Peroxide will be added to the leachate at the holding tank as need when any odors are detected during routine inspections of the landfill. The tank will then be aerated to mix the hydrogen peroxide with the leachate to facilitate the breaking down of the odor.

### **(c) Solar Spark Vent Flare**

Due to an odor complaint in January 2017, Joyce Engineering conducted an odor investigation targeting hydrogen sulfide on February 1, 2017. Hydrogen sulfide was detected in the clean-out at Cell 3. Methane, although odorless, was also detected in the clean-out at Cell 3. A CF-5 Solar Spark vent flare was connected to the clean-out on March 1, 2017 to passively burn the methane and hydrogen sulfide.

### **(d) Alternative Technologies**

Centerville will research and evaluate new alternative odor control technologies that are in addition to those discussed in this OMP. If utilized, applicable Material Safety Data Sheets (MSDS) and manufacturer's information will be maintained in the facility's operating record and available for DEQ's review.

## **7.0 Plan Update**

The facility shall perform and document an annual review and update this OMP, as necessary, to address odor management issues as they arise.

## **8.0 Records**

Records associated with the OMP will be kept at the facility. These documents will include the Odor Monitoring and Complaint Log, training records, and other documents associated with the

OMP. Documents will be maintained in accordance with Virginia Waste Management Regulations.

Centerville Turnpike CDD Landfill  
Facility Permit Number 603  
Virginia Beach, Virginia

*Odor Monitoring Plan*

**Odor Monitoring Plan  
Centerville Turnpike CDD Landfill  
Permit Number 603**

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Appendix I Odor Monitoring Log

Appendix II Odor Complaint / Odor Source Log

## **1.0 Background**

The primary source of odors at a solid waste management facility is the gas generated by the decomposition of waste materials. Methane and carbon dioxide are both odorless gases. The trace compounds in landfill gas, especially sulfides, cause the odors associated with the landfill gas. By monitoring for decomposition gases, Centerville Landfill proposes to monitor for odors.

## **2.0 General Requirements**

At a minimum, the Odor Monitoring Plan will include the following:

- Facility personnel will check for odors at various locations. At a minimum these locations will include: the active working face, areas where weekly cover has not yet been applied, and leachate management components. This determination will be conducted by using his/her sense of smell during their routine inspections of the landfill. If an odor is detected during these routine inspections, facility personnel will look for and identify the source of the odor.

The odor-monitoring program outlined herein shall continue throughout the active life of the facility and waste removal activities. The monitoring program may be modified, during the active life of the facility, to reflect changing on-site and adjacent land uses. Centerville Landfill may request a reduction of monitoring activities based upon the results of monitoring data collected. The request for reduction of monitoring activities will be based upon the results of the monitoring data collected. The request for reduction of monitoring activities shall be submitted in writing to the Director.

## **3.0 Odor Monitoring Program**

The facility will conduct daily monitoring for landfill generated odors. This monitoring will be conducted by using his/her sense of smell during their routine operations of the landfill.

The standard operating procedure for the daily monitoring is as follows:

1. Facility personnel will check for odors at various locations. At a minimum these locations will include: the active working face, perimeter access road, areas where weekly cover has not yet been applied, and leachate management components. This determination will be conducted by using his/her sense of smell during their routine inspections of the landfill.
2. If an odor is detected during routine operations, facility personnel will look for and identify the source of the odor.
3. Meteorological information will be collected at the landfill via the Internet, from local sources, on-site measurement device(s), and/or as noted by field personnel while

monitoring activities are being performed. All noted weather conditions shall be recorded on the Odor Monitoring Log.

Monitoring should include visual observations of the site conditions listed below:

- Distressed vegetation such as stunted growth, wilting, color changes, death during growing season and bare spots indicate potential presence of landfill gas.
- Heavy irrigation or rainfall that saturates the soil may provide an impermeable barrier to landfill gas causing lateral migration of the landfill gas.
- Surface cracks or settlement can cause uncontrolled venting of landfill gas or air intrusion into the landfill, which could reduce landfill gas quality (decrease methane concentration) or increase the potential for a landfill fire.
- Barometric pressure, wind and temperature can affect the net pressure of landfill gas present. At a lower barometric pressure, more landfill gas will tend to escape through the cover or the surrounding surface.
- Snow or frozen ground cover, as with saturated soil, can reduce surface permeability and increase lateral migration of landfill gas.

Appendix I  
Odor Monitoring Log

# Odor Monitoring Log

Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Facility: Hampton Roads Recovery Center

General Weather

Conditions: \_\_\_\_\_

\_\_\_\_\_

Sampling Equipment Used: Sense of smell

Temperature: \_\_\_\_\_ Barometric Pressure: \_\_\_\_\_ Wind Speed: \_\_\_\_\_ Wind

Direction: \_\_\_\_\_

Monitoring Point	Time	Odor Concentration	Comments
1			
2			
3			
4			
5			
6			

Temperature: \_\_\_\_\_ Barometric Pressure: \_\_\_\_\_ Wind Speed: \_\_\_\_\_ Wind

Direction: \_\_\_\_\_

Monitoring Point	Time	Odor Concentration	Comments
1			
2			
3			
4			
5			
6			

Temperature: \_\_\_\_\_ Barometric Pressure: \_\_\_\_\_ Wind Speed: \_\_\_\_\_ Wind

Direction: \_\_\_\_\_

Monitoring Point	Time	Odor Concentration	Comments
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1			
2			
3			
4			
5			
6			

**ODOR COMPLAINT/ODOR SOURCE LOG**

Facility: Hampton Roads Recovery Center

Date: \_\_\_\_\_

Person Making Complaint: \_\_\_\_\_ Date/time of Complaint:

\_\_\_\_\_

Physical Address of

Complaint: \_\_\_\_\_

\_\_\_\_\_

Reported odor

characteristics/description/intensity/duration: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Notify the DEQ within 24 hours of complaint: \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ (circle one)

Wind Speed: \_\_\_\_\_ Wind Direction:

\_\_\_\_\_

Weather Conditions:

\_\_\_\_\_

\_\_\_\_\_

Sampling Equipment Used:

\_\_\_\_\_

Source/Location of the Odor:

\_\_\_\_\_

Resolution of Odor Issues:

\_\_\_\_\_

Corrective Action Employed to Abate the Odor:

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<b>Location</b>	<b>Time</b>	<b>Odor detected</b>	<b>Comments</b>

Facility Personnel Investigating Complaint/Odor Source:

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## Appendix II

### Odor Complaint / Odor Source Log