



ODOR MANAGEMENT PLAN
PEOPLE'S LANDFILL

April 2018

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1 Purpose.....	1-1
2 Site Assessment and Preparation	2-1
General Odor Assessment	2-1
Notification Program.....	2-1
Notification List.....	2-1
Notification Letter.....	2-2
Weather Data Collection	2-2
Site Vicinity Map	2-2
Complaint Call Procedure	2-3
3 Odor Survey Program	3-1
Training	3-1
Odor Survey Points	3-1
Odor Survey Plan	3-1
4 Complaint Handling Procedures	4-1
Notification Letter	4-1
Odor Complaint Handling.....	4-1
Follow-Up	4-1
Site Response	4-2
5 Record Keeping And Reporting.....	5-1

Attachments

1	Notification List
2	Sample Notification Letter
3	Weather Station Specifications and Vendor Information
4	Discussion Points and Questions for Complaint Calls
5	Field Odor Survey Form
6	Odor Complaint Form
7	Odor Complaint Tracking Chart
8	Common On-site Odor Sources

SECTION 1 – PURPOSE

The release of odors from solid waste operations can result in short and long term problems in areas such as: regulatory compliance, site expansions, community relations, and legal liability. Odors are an inherent part of the operations of solid waste management facilities and must be properly and proactively managed. It is important to understand that it is our host community that is affected by odors from our operations. The management and control of off-site nuisance odors is not always an easy task. In some instances other control systems at the facility, such as landfill gas systems, may help in controlling off-site odors but these systems may not always completely control the odors. In these cases other control methods may be necessary.

The purpose of this Odor Management Plan is to establish mandatory standard procedures to be followed in actively handling and managing odor issues and complaints. The plan establishes resources and procedures for collecting data pertinent to odor control and defines methods for responding to odor generation and complaints. The plan is divided into 4 main sections. Section 2 deals with procedures and resources that are to be developed and implemented at all facilities to prepare for dealing with off-site odors. Section 3 describes the components of an effective odor surveying program designed to detect off-site odors and enable the facility to proactively manage odors. Section 4 outlines procedures for handling and responding to odor complaints. Section 5 includes record keeping and reporting procedures for documentation regarding odor management and complaints.

The implementation of this plan will improve odor management at People's Landfill (the facility) while also improving the perception of our operations by our host communities. This will result in lower costs now and in the future.

SECTION 2 – SITE ASSESSMENT AND PREPARATION

The facility should take the following steps to prepare for handling odor complaints.

GENERAL ODOR ASSESSMENT

Common odor sources at the site and the need for any current or future odor control activities or devices should be assessed. This assessment should include items such as:

- Proximity of operations and/or any other potential odor sources to the property boundary and receptors.
- Short-term activities such as gas well installation, waste excavation, or other activities that may generate odors.
- New waste streams with different odor characteristics.
- The need for gas system upgrades (e.g. new wells, placing leachate risers or manholes under vacuum, etc.) or repairs.
- New on or off-site operations such as solidification or composting that may generate odors.

The results of this assessment should be updated as operations change but no less than annually. The annual assessment will be kept in Attachment 9 of this binder.

NOTIFICATION PROGRAM

The facility should develop and implement a program for notifying pertinent individuals and/or groups that may be impacted by off-site odors.

Notification List

The Site Manager should develop a list of pertinent and potentially affected people and/or groups that may be impacted by off-site odors to be notified when an off-site odor may be detected due to specific operations or activities. This list may include neighbors living close to the facility, government officials or agencies, community groups, homeowners associations, etc. Whenever possible, written or telephone notification should be provided prior to any operations or activities that may generate off-site odors. The Notification List in Attachment 1 should be completed with the information discussed above.

Notification Letter

The Site Manager for the facility should generate a standard notification letter that should be used to notify pertinent people and/or groups prior to activities that may generate off-site odors. The standard notification letter should include the following:

- Dates and/or times when odors may be expected.
- Reason for odors (i.e. LFG well drilling, receipt of odorous loads, etc.) and an estimated duration.
- How Waste Management (or the appropriate site/company name) will attempt to minimize the odors.
- Landfill contact information if there are any questions.

A sample notification letter format is included as Attachment 2.

WEATHER DATA COLLECTION

The facility has installed an on-site weather station to record meteorological data. The weather station records data at minimum 15-minute intervals which is documented using electronic downloads. Devices measuring the following minimum data have been included in the weather station operation.

- Wind Direction and Speed
- Rainfall/Precipitation Amounts
- Temperature
- Barometric Pressure
- Humidity

Attachment 3 includes equipment and vendor information for the weather station.

SITE VICINITY MAP

The facility should develop a site vicinity map. The map should be a 24" X 36" minimum size aerial photo less than five years old and should be prominently displayed within the facility office. The map should contain property boundaries and encompass an area of **one mile outside the perimeter of the site. The one-mile radius may be extended if a known off-site odor source**

is outside the one-mile radius. The site vicinity map should show the following features, which will be labeled on the map:

- Landfill facility location, property boundary, permitted boundary, and surrounding areas.
- Location of all possible on-site odor producing areas.
- Location of all off-site odor producing sources, such as wastewater treatment plants, paper mills, composting facilities, yard waste handling/burning, land application of sludges, farms, etc. These locations should include potential off-site sources within at least one mile of the perimeter of the facility.
- Location of potential receptors to odors, such as churches, neighborhoods, schools, business parks, highway toll booths, etc.
- Location of the odor observation points included in the Odor Survey.
- Key streets and other landmarks.

This map can be requested from the respective site's aerial photographer (or other source if desired) to be made during the annual flyover for volume calculations. For expense reasons, the photo does not have to be orthogonal.

COMPLAINT CALL PROCEDURE

The facility should develop a procedure for handling odor complaint calls, which may include the following:

- The Site Manager should determine a primary manager and an alternate to receive all complaint calls. This information should be posted at each facility telephone for quick reference and updated as necessary.
- The Site Manager should ensure that the automated answering system includes a selection for odor complaints that will immediately forward the call to the primary or alternate odor complaint manager.
- The Site Manager should develop a site-specific list of discussion points and questions to be followed during complaint calls and have this list on hand when taking an odor complaint. An example is provided in Attachment 4.
- Copies of all completed odor complaint logs should be filed in the site's odor management binder.

SECTION 3 – ODOR SURVEY PROGRAM

The facility should develop and implement an odor survey program that may include the following:

TRAINING

The facility should send the Site Manager and another designated odor surveyor to odor determination training. The training may be provided by St. Croix Sensory, or equivalent, resulting in certification as “Odor Inspector”. After completion of the initial training classes, odor determination training will become the responsibility of the Site Manager. The designated odor surveyors should be employees that do not normally work in or around the active waste disposal areas. Administrative personnel or others who would not be desensitized to odors are best suited for this function.

ODOR SURVEY POINTS

There should be at least six site-specific daily odor survey points that should be monitored Monday through Friday. The survey points should be located at or beyond the landfill property and should be selected considering factors such as: predominant wind direction, location of receptors, proximity of operations to property boundary, etc. Once selected, these points should be clearly identified and recorded in a file as well as located on the site vicinity map.

ODOR SURVEY PLAN

Monday through Friday, an odor-trained facility employee should conduct at least one odor survey at each odor survey point. Optional equipment, such as a Nasal Ranger may be used. Information about the Nasal Ranger has been included as a separate section of this binder. Initially, the odor surveys should be conducted at the beginning of every working day. If, after reassessment, the odor complaints are received more often in the afternoon or evening, odor surveys should be conducted during those periods within normal working hours when the most complaints are received. The following items should be addressed when conducting the odor survey.

- Only properly trained personnel should conduct the daily odor surveys.
- **The surveyor should visit all of the predetermined survey points.** At each point, the surveyor should exit the transportation vehicle, smell the surrounding undisturbed air for one minute, and record the observations on the Field Odor Survey Form found in Attachment 5. Repeat this procedure for each survey point.

- The surveyor should note any odors detected from other nearby sources or observations of any activities at nearby sources that may generate nuisance odors.
- Upon return to the office, the surveyor should complete the form by recording the time of survey, weather conditions at time of survey, intensity and description of odor, etc. on the Field Odor Survey Form found in Attachment 5. The Field Odor Survey Form should be kept in a binder in the office for easy reference.

SECTION 4 – COMPLAINT HANDLING PROCEDURES

The facility should follow the procedures given below when responding to odor issues.

NOTIFICATION LETTER

Whenever it is anticipated that off-site odors may be present due to a specific activity or operation, the Notification Letter described in the Site Assessment section above should be distributed to potentially affected parties on the Notification List. If time does not permit mailing the letters prior to the activities that may result in off-site odors, letters must be hand delivered and/or notification may be made by telephone.

ODOR COMPLAINT PROCESSING

- When an odor complaint is received, it should be routed to the Site Manager or designee. These people are the only site personnel authorized to receive the complaint **except in the event both are gone and unable to be reached**.
- The Site Manager or designee should then discuss the odor issue with the complainant. The site-specific list of discussion points referenced earlier should be used as a guide during this conversation.
- At the time the complaint is received, the Site Manager or designee should complete the Odor Complaint Form found in Attachment 7, paying special attention to recording the specific time and location of the detected odors. The location of the complaint should be recorded as both an address (if available) and as an **alphanumeric grid** location as referenced on the site vicinity map.

FOLLOW-UP

Once an odor complaint has been received, the Site Manager or designee should:

- Check weather station data for the specific time and date of the odor complaint. Record data on Odor Complaint Form.
- Identify the location of odor complaint using the **grid system** established on the site vicinity map.
- Record complaint in the Odor Complaint Tracking Chart. See Attachment 8 for the monthly charts.

- Visit the location of the complaint immediately to confirm odor. Under no circumstances should the visit occur more than one hour after the complaint is received (applies only to current complaints).
- Make follow-up call(s) to the complainant. The follow-up call should include, at a minimum:
 - The manager’s findings concerning the complaint.
 - The source of the odors, if determined.
 - The duration of the odor, if known.
 - Any corrective measures if odors are from the facility.
- File the Field Odor Survey Forms and Odor Complaint Forms in a dedicated binder. Files should be stored on site. Data must be entered into the electronic files at least once a month and backed-up on disk periodically.

SITE RESPONSE

To prevent further complaints, the facility should:

- Compare present odor complaint received to past odor complaints. Determine any correlation between the complaints. For example, do the complaints come at a specific time of day or when a specific operation is taking place on the site?
- Review list of common on-site sources for the cause of the odor complaint. See Attachment 9 for a list of common on-site sources.
- Identify corrective measures for all potential odor sources. Some examples are:
 - Revamp housekeeping and operational controls of landfill waste.
 - Regularly inspect condition of the landfill cap system in closed portions of the landfill. Repair any cracks.
 - Use an alternate working face location for days with unfavorable wind conditions.
 - For one-time events that involve disposing of odorous waste, dispose of in a dedicated trench or pit, cover frequently, and utilize an odor control agent misted around the perimeter of the disposal area.

- Add an odor control agent to the water truck and water perimeter roads.
- Install, expand, or optimize the existing landfill gas extraction system.
- Connect sideslope risers, leachate cleanouts, and leachate manholes to the existing landfill gas extraction system.
- Add liquid odor control chemicals directly to leachate or sludge tanker truck.
- When using tarps as daily cover, place a granular odor control material under the tarp.
- Evaluate potential pre-treatment of odorous waste streams with customer
- Increase flare capacity and/or residence time
- Replace open flare with enclosed flare
- Cover open topped leachate tank
- Consider performing third-party odor surveys to resolve disputes
- Implement and document corrective measures.

SECTION 5 – RECORDKEEPING AND REPORTING

The facility should maintain complete files of all odor complaint logs and forms and any other documentation required by this Plan in an on-site binder. The odor binder should include information for the past 12 months. Information greater than 12 months old may be transferred to a file also maintained at the site. All records should be kept on-site for at least 3 years.

ATTACHMENT 1
NOTIFICATION LIST

NOTIFICATION LIST

The following people and/or groups should be notified when an off-site odor may be detected due to a specific operation or unusual activity:

Governmental Entities:

Taymonth Township

Saginaw County

Michigan Department of Environmental Quality

Commercial Owners:

Residential Property Owners

ATTACHMENT 2

SAMPLE NOTIFICATION LETTER

January 1, 2002

«First_Name»«Last_Name»
«Address»
«City», «State» «Zip_Code»

RE: Potential Off-Site Odors
People's Landfill

In order to better collect and control landfill gas generated by landfill, the Landfill will be installing 10 new landfill gas wells during the week of January 7, 2002. This project is expected to take between 3 and 5 days to complete.

The installation of at least some of these wells is required by USEPA and/or state regulation to properly collect gases generated within the landfill. The installation of the additional wells will assist us in preventing off-site odors due to the emission of landfill gas. However, during the installation of these wells, some odors may be detected due to the need to drill into existing waste.

Waste Management will make every effort to complete this project as quickly as possible and to minimize and odors associated with the project. If needed, odor control agents will be utilized to control any temporary odors.

If you have any questions, please contact me at 989/777/1145.

Sincerely,

Terry Nichols
Site Manager, People's Landfill

ATTACHMENT 3
WEATHER STATION SPECIFICATIONS
AND VENDOR INFORMATION

WEATHER STATION SPECIFICATIONS AND VENDOR INFORMATION

People's Landfill weather station provided by:

Commercial Weather Services, Inc.
P.O. Box 616
Flint, MI 48501
(810) 234-4303

Weather data is emailed to the District Engineer monthly. The contact for this provider is John McMurray (cwsweather@sbcglobal.net).

ATTACHMENT 4

**DISCUSSION POINTS AND QUESTIONS
FOR COMPLAINT CALLS**

DISCUSSION POINTS AND QUESTIONS FOR COMPLAINT CALLS

When answering a complaint call:

- Get caller's name address and telephone number.
- Do not argue with the complainant.
- Be sympathetic to the person's situation; tell them you are sorry for their inconvenience.
- Let them vent all their frustrations.
- Ask questions pertaining to the odor complaint form such as:
 - What type of odor do you smell?
 - How strong is the odor?
 - When did you first begin smelling the odor?
 - Has the same odor been noticed before?
 - What direction is the odor coming from?
 - Was/Is the weather unusual in any way when you smelled the odor?
- Tell the complainant what your course of action is to help with the problem.
- Tell the complainant that you will follow-up to make sure the problem has been resolved.

ATTACHMENT 5
FIELD ODOR SURVEY FORM

FIELD ODOR SURVEY FORM

The forms on the following pages will be used Monday through Friday to help document the odor conditions at various locations around the landfill. The **seven** survey locations are shown as **red dots** on the attached map.

When completing the survey the following questions should be kept in mind and appropriate comments made on the bottom of the form:

- 1) Are there any reasons for odor, such as a significantly large amount of trash being dumped, uncovering trash that was covered the night before, odor producing leachate storage methods, new gas well installations or waste excavation?
- 2) If odors exist are they due to landfill gas or to landfill operations?
- 3) Are there odors detected from other nearby sources or activities going on that may generate nuisance odors?

For tracking purposes the Field Odor Survey Form and the weather data forms will be completed separately. The information from those two data sources will then be combined to track the odors and the associated complaints.

**PEOPLE'S LANDFILL
FIELD ODOR SURVEY FORM
MONTH OF:**

Date	Start Time	Location 1		Location 2		Location 3		Location 4	
		Odor Intensity	Odor Desc	Odor Intensity	Odor Desc	Odor Intensity	Odor Desc	Odor Intensity	Odor Desc
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

Odor Intensity: S=Strong, M=Medium, SL=Slight, N=None

Odor Description: EG=Rotten Egg, LFG=Landfill Gas, NW=New Waste, O=Other

Comments-

**PEOPLE'S LANDFILL
FIELD ODOR SURVEY FORM
MONTH OF:**

Date	Start Time	Location 5		Location 6		Location 7			
		Odor Intensity	Odor Desc	Odor Intensity	Odor Desc	Odor Intensity	Odor Desc		
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

Odor Intensity: S=Strong, M=Medium, SL=Slight, N=None

Odor Description: EG=Rotten Egg, LFG=Landfill Gas, NW=New Waste, O=Other

Comments-

ATTACHMENT 6
ODOR COMPLAINT FORM

ODOR COMPLAINT FORM

FACILITY NAME: _____
FACILITY ADDRESS: _____

RECEIVED BY: _____

DATE: _____

TIME: _____

Contact Information of the Complainant

Name: _____
Address: _____
Address2: _____
Phone: _____

Odor Information

Date Detected: _____
Time Detected: _____
Location Detected: _____
Grid Coordinates: _____

Description of Complaint

Type of Odor: _____

Intensity of Odor: _____

Weather Conditions when odor was detected: _____

Were odors noticed at this location in past: _____

Weather Conditions (At the time odors were detected)

Wind Direction and Speed: _____ Rainfall: _____ Temperature: _____
Barometric Pressure: _____ Humidity: _____

Remarks

(Include information such as special waste being received, wash down of transfer station floor occurring, new gas well installation, location of current working face, etc.) _____

Follow-up Contact with Complainant

Was follow-up contact made with the complainant? _____

If so, answer the following questions:

When was contact made? Date: _____ Time: _____

By whom and how was contact made? _____

How was the contact made? (Letter, Phone Call, etc.) _____

What issues were discussed with the complainant? _____

ATTACHMENT 7

ODOR

COMPLAINT TRACKING CHART

ATTACHMENT 8

ODOR ASSESSMENT

2018 ODOR ASSESSMENT

Common On-Site Landfill Odor Sources

- Gas Well or Horizontal Collector Installation
- Waste Excavation
- Cracks in Landfill Cap System in Closed Portions of the Landfill
- Torn Geomembrane Boots at Extraction Wells
- Gas Wells in Disrepair (i.e. torn flexhoses, faulty or cracked valves or wellheads)
- Condensate or Leachate Riser Lids not Securely Fastened or not under vacuum
- Receipt of Odorous Loads
 - Pungent special waste loads
 - Sludges
 - Autoclave waste
- Using Tarps as Daily Cover
- Unusually large rates of loading
- Leachate Storage Methods
- Insufficient Cover Thickness at Active Area or Areas at Intermediate Grade
- Yard Waste Storage or Compost Areas

Operations Evaluation – People’s Landfill

The potential sources of odors emanating from People’s Landfill are:

- The active cell (Cell 6).
- Cells that are under intermediate cover but do not have enough gas recovery wells (Cells 7-10).
- The working face. This would include odors from various waste streams such as the City of Flint WWTP sludge as well as odors from areas where the daily/intermediate cover is not adequate.
- The Landfill Gas to Energy facility.

The potential sources of off-site odors are:

- Surrounding farm fields during fertilization operations.

Work Items

The following work items related to People’s landfill gas recovery system should take place:

- Install submersible pumps in wells that have more than 50% of the perforations blocked due to water.

- Re-drill existing vertical gas wells when new waste is placed approximately 40-feet above the elevation when the wells were originally installed.
- Install new vertical gas wells when initial waste placement in a new cell is approximately 60-feet thick.
- Install horizontal collectors in areas of recent fill placement where thickness of the new waste is in excess of 20-feet.
- Ensure adequate vacuum is supplied to each collector, and monitor system vacuum for signs of surging and blockage. Replace sections of the header when necessary.

Other Notes/Comments

- There are no new operations such as solidification or composting planned.