



December 6, 2018

Mr. Scott Miller
Jackson & Lansing District Supervisor
Jackson District Coordinator
Air Quality Division
Michigan Department of Environmental Quality

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AIR QUALITY DIVISION

Mr. Lawrence Bean
Jackson & Lansing District Supervisor
Waste Management and Radiological Protection Division
Michigan Department of Environmental Quality
301 East Louis Glick Highway
Jackson, MI 49201-1556

**RE: Response to Letter Issued By Michigan Department of Environmental Quality Dated
October 12, 2018 – SRN N2688 Washtenaw County**

Dear Mr. Miller and Mr. Bean,

As requested, Advanced Disposal Services Arbor Hills Landfill, Inc., is providing this response to the following items:

- Did not include an adequate explanation of the causes and duration of the observations made by the DEQ.
- Did not include an adequate summary of the actions proposed to be taken to correct the observations made by the DEQ.
- Did not adequately include the dates that these actions will take place.
- Did not adequately include necessary steps that need to be taken to prevent a reoccurrence.

I. Explanation of the Causes and Duration of the Observations made by the DEQ

Although time and duration cannot be specifically identified it is noted that third party odor surveillance identified fresh garbage odors at one community location in the Northville Ridge Subdivision between the hours 6-8 AM. Fresh garbage odors may occasionally be evident in the early morning hours as the landfill is preparing for the days incoming waste by stripping the daily cover placed the day prior. Additionally, incoming waste filled trucks are more heavily concentrated in the early morning hours and typically are disposing of day old waste.

II. Summary of Actions Proposed to be Taken

To summarize the actions that ADS plans to take, we have attached the Arbor Hills Landfill Odor Control Plan.



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III. Proposed Action Schedule

- Implement the Arbor Hills Landfill Odor Control Plan beginning January 1, 2019.
- Blower building upgrades are anticipated to be completed by the end of the year.
- Mobile odor neutralizing machines are anticipated to be onsite by February 1, 2019.
- Additional compost operator will be trained through the USCC training program during the first quarter of 2019.
- ADS will be proactively placing wells in an area identified as a potential source of odors by the end of the year but no later than the end of January 2019. (Pending drill-rig availability).
- ADS has implemented a daily landfill inspection enhanced daily inspection protocol as part of the operational schedule.
- In the first quarter of 2019, ADS will hire and implement a dedicated "odor champion".

IV. Necessary Steps That Need to be Taken to Prevent a Reoccurrence

ADS believes that the attached documents and management plans will successfully prevent a reoccurrence.

Additionally, ADS will be sending out a correspondence to it's customers regarding composting disposal and protocol. A draft letter is attached to this response.

V. Conclusion

ADS remains committed to minimizing off-site odor impacts and to assuring that it maintains operational practices outlined above that are designed to minimize odor impacts while accommodating the continued management of landfill operations. Please note that we are evaluating other means to objectively detect and measure landfill odors. Construction at the landfill may periodically expose garbage that may potentially cause odors, but ADS will continue to do everything within reason to minimize these effects.

We look forward to discussing this document with you, and will appreciate your feedback as we move forward.

Sincerely,

ADVANCED DISPOSAL SERVICES ARBOR HILLS LANDFILL, INC.

Bob Walls
Arbor Hills Landfill General Manager

Attachment: Arbor Hills Landfill Odor Control Plan
Letter to Composting Customers



Advanced Disposal

cc (via email):

Mr. Steven C. Kohl, Warner Norcross & Judd LLP
Mr. Philip L. Comella, Freeborn
Mr. Jay Warzinski, ADS
Ms. Kelly Rooney, ADS
Mr. Todd Whittle, ADS
Mr. Anthony Testa, ADS



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**ARBOR HILLS LANDFILL
ODOR CONTROL PLAN**

ODOR CONTROL PLAN

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1.0 INTRODUCTION

Advanced Disposal Services Arbor Hills Landfill prepared this plan to provide site personnel a guide for preventing, minimizing and responding to odors that emanate from landfills. Odors that emanate from landfills are not known to pose a health risk. However these odors if not adequately controlled, may be considered unpleasant to neighboring residents.

The objective of this plan is to minimize odors using Best Management Practices. While the elimination of all odors is not achievable, Arbor Hills' goal is to diligently apply this Odor Control Plan to accomplish the following:

- Identify odor sources
- Quantify the level of odors
- Evaluate and implement measures to prevent odor
- Remediate the cause of odors
- Minimize the potential for off-site odors
- Respond to odor complaints

2.0 POTENTIAL ODOR SOURCES

Potential sources and conditions that have the potential to generate odors at the Advanced Disposal Services Arbor Hills Landfill include:

- Daily waste disposal operations:
 - Waste types such as sludge, contaminated soil, and other odiferous waste streams
 - Working face management
 - Daily cover application
- Landfill gas generated by the decomposition of waste
- Leachate management

Site personnel should be aware that there may also be non-landfill sources of odors which may include:

- Utility natural gas compressor station and odorant injection facility
- Construction activity being conducted in the nearby communities
- Weekly residential trash collection
- Compost operations at Arbor Hills as well as other nearby locations
- Agricultural and livestock activities
- Commercial activities
- Naturally occurring odors

3.0 ODOR MONITORING

3.1 General

Early detection and prompt notification of potential odors can ensure that an odor problem is resolved as quickly as possible. Arbor Hills will dedicate a trained employee that will monitor not only the landfill and the landfill perimeter, but the surrounding communities for the presence of odors throughout the day. The odor monitoring will be performed using a Scentometer following the procedures set forth on Attachment A.

If odors are detected during routine monitoring, further inspection of potential on-site and off-site sources will be conducted to locate the source of the odor as discussed in Section 3.3. If the source of the odor is originating from the landfill, measures will be taken to bring the problem under control as discussed in Section 4.0 and Attachment A.

3.2 Record Keeping

If odors are detected during routine monitoring, the location and description of the odor will be recorded. The date, time, temperature, precipitation, humidity, barometric pressure, and wind direction at the time of odor detection will also be recorded. Additional comments regarding characteristics and possible source of the detected odor may also be recorded. This information will be recorded on an "Odor Monitoring Form" (example in Attachment B).

3.3 Monitoring Frequency

Odor monitoring will be conducted Monday through Friday throughout the operating day. On weekends, ADS will have staff available and odor monitoring will be done at random or should the need arise based on conditions at or around the landfill. . . Monitoring will be performed at varying times of day, ranging from early in the morning before the landfill opens through the end of the day after placement of daily cover.

4.0 ODOR COMPLAINT RESPONSE

If Arbor Hills receives an odor complaint during operating hours, site personnel will:

- Conduct odor monitoring as detailed in Section 3.0
- Document the complaint on the "Odor Complaint Response Form" (example in Attachment C).

To determine if a detected off-site odor is originating from the Arbor Hills Landfill, the following screening criteria will be used:

- Is the reported odor detected during follow-up monitoring?
- Is the detected odor downwind of the landfill?
- Are there other sources that could be causing the odor (fresh asphalt, agricultural materials, vehicle exhaust, industrial sources, etc.)?
- Are similar odors detected upwind of the landfill?

If answers to the above questions indicate that the odor is still present and the landfill is the likely source of the odor, Arbor Hills' personnel will inspect the landfill for potential odor sources. If the landfill is identified as the source, appropriate actions to reduce the odor will be taken. Actions implemented to address the odor problem will depend on the source of the odor. Appropriate odor control actions may include:

- Placement of additional cover materials
- Landfill gas system adjustments
- Use of odor neutralizers

Additional descriptions of these control methods are presented in Section 5.0

5.0 ODOR PREVENTION

Odor minimization and control is a high priority at Arbor Hills. The following is a discussion of the efforts that will be made to prevent or minimize odors at the landfill.

5.1 Daily Solid Waste Operations

As part of daily protocol, the ADS management team will conduct a morning tailgate meeting to discuss the scope of work for the day. These topics include:

- Anticipated scope of the days working face
- Whether any problematic waste is anticipated for the day and plans for handling
- Plan to control odors if they arise
- Assure that materials, equipment and personnel are available to address any concerns

5.1.1 Waste Acceptance

Certain types of waste (e.g., certain sludges and contaminated soils) may have stronger odors than other waste. Arbor Hills' personnel are trained to identify waste types that typically have strong odors.

Prior to accepting these wastes, Arbor Hills will arrange for a pre-acceptance evaluation consisting of:

- Sample for H₂S constituents.
- Utilizing a third party consultant to estimate potential emissions generated from the analytical data.
- Based upon this evaluation a decision is made on whether to accept the sampled waste stream.

If an unusual or unacceptable odor is detected, Arbor Hills will not accept the material for disposal unless effective measures are identified (such as oxidants, mixing, or cover materials) to reduce the risk of odors. If such wastes are accepted, they will be placed in the working face and immediately covered with other waste, daily cover soil, or alternate daily cover materials.

Arbor Hills' personnel will regularly evaluate the volume of incoming waste with consideration given to the capacity of the site and its resources to manage materials in keeping with its permit requirements.

5.1.2 Working Face

Odors will be minimized by keeping the working face as small as practical and placing daily cover at the end of each working day.

- Defined boundaries will be utilized to manage the size of the working face throughout the work day.
- Waste from truck clean-out areas, etc., will be removed and placed in the working face before daily cover is applied.
- Arbor Hills' personnel will cover the working face with a minimum of 6 inches of daily cover soil or alternate daily cover materials at the end of each operating day..

It is important to note, Arbor Hills has consistently exceeded the six-inch regulatory requirement and plans to continue doing so in an effort to further mitigate odors.

5.1.3 Leachate Management

Leachate seeps have the potential to cause odors and will be remediated as soon as possible upon identification.

5.1.4 Daily Inspections

Arbor Hills' personnel will conduct comprehensive daily site inspections to assess conditions. Daily inspections will take place two (2) times daily – at the beginning of the day and at day end. A copy of the Landfill Inspection Form can be found as Attachment D. Corrective actions and odor mitigation solutions will be developed as necessary as a result of the inspections.

5.2 Landfill Gas Management

5.2.1 Landfill Gas Extraction

The landfill gas collection system is an important tool necessary to prevent landfill odors. The Arbor Hills gas collection system consists of horizontal and vertical gas wells installed as areas are filled. Landfill gas may also be extracted from leachate cleanouts pipes. Expansion of the system occurs frequently. A current “Landfill Gas & Leachate System Plan” will be maintained. Additional horizontal or vertical gas elements will be proposed if environmental monitoring indicates the installed system is not sufficient to control landfill gas.

5.2.2 Landfill Gas Control System

The primary landfill gas control system is the gas-to-energy plant operated by Fortistar Methane Group (Fortistar) which applies vacuum to the wellfield and supplies electricity to the DTE market. Arbor Hills also has three separate backup flares that supplement or

replace the power plant blower in the event of a partial or complete outage of the system.

Arbor Hills has an established written protocol with Fortistar to receive alerts of any planned or unplanned shutdowns. The protocol is as follows:

- Planned outages are discussed during monthly meetings and are scheduled in advance. Site management (General Manager, Environmental Manager, and Gas Technician) shall be notified if there are any changes to the schedule.
- In the event an unplanned outage occurs, Fortistar management shall notify ADS immediately via text, email, or phone call. Information shall include reason the unplanned outage occurred and estimated duration of down time. Once Fortistar notifies ADS of any unplanned outages, ADS will immediately notify the DEQ but no later than 24-hours.

5.2.3 Gas System Monitoring and Construction

The landfill gas extraction system is monitored monthly for vacuum and gas quality. Gas quality readings include percent methane, percent oxygen, percent carbon dioxide, balance gas, and temperature.

The data is extracted from the wells utilizing an encrypted gas analyzer and downloaded into a database. The data is reviewed weekly by ADS, Fortistar, and ADS's Air Consultant. Data is used to adjust the wellfield through proper well tuning and prepare for future gas collection and control system expansion.

The physical condition of the gas well heads is monitored monthly for preventive maintenance; repair or replacement needs are completed within a reasonable timeframe.

The flare is monitored with thermocouples connected to an automatic dialer. Landfill personnel are automatically notified of potential flame outages, and are instructed to take necessary measures to return flares to operational status.

A scan of the landfill surface is performed quarterly to identify areas where landfill gas may be escaping or have the potential to escape the surface. In addition to quarterly monitoring, ADS staff will perform monthly scans utilizing the laser methane scanner in areas without final and/or enhanced intermediate cover. In the event landfill gas is detected, prompt action will be taken to stop the emission and collect the gas. Actions may include:

- Place additional cover as needed.
- Assess the need for installation of additional gas wells.
- Assess the need for temporary cover.
- Evaluate nearby gas collection wells to assure they are operating properly and under vacuum.

In the event that repair or construction of the system is necessary, Arbor Hills will use isolation valves located along the header line to isolate the area where work is being conducted. This practice allows those areas of the gas collection system where

construction is not being performed to continue to extract gas.

5.3 Compost Operations

Arbor Hills has implemented the following Best Management Practices at the compost operation. Please see Attachment E – Compost Operations Manual and Attachment F - Compost Management Plan

5.4 Landfill Cover Construction and Maintenance

5.4.1 Intermediate and Final Cover Construction

Placement of intermediate cover and construction of the final cover helps minimize landfill odors. Areas of the landfill that have not reached final waste grades but will be inactive for 6 months will receive a minimum of 1 foot of interim cover or temporary geomembrane.

The final cover consists of two feet of clay covered by a geomembrane with three feet of protective cover above the geomembrane.

5.5 Odor Neutralizing Agents

The site uses an odor neutralizing vapor system along portions of the eastern perimeter. The vapor system consists of approximately 1500-feet of piping that carries and vaporizes the neutralizer into the air.

Arbor Hills will utilize multiple mobile odor neutralizer units to further suppress site odors at isolated locations before they can migrate off landfill property.

6.0 PROVISIONS FOR PLAN AMENDMENT

This odor control plan has been developed as a guide to address potential odor issues at the Advanced Disposal Services, Inc. - Arbor Hills Landfill. This plan will be amended as needed.

ATTACHMENT A

ARBOR HILLS ODOR MONITORING PROTOCOL

1. Goal – The goal of the Odor Monitoring Protocol is to proactively employ odor monitoring and best management practices in the operation of the landfill and associated composting to minimize the degree of odors to a level below 7 dilutions on the Scentometer scale.
2. Objectives
 - a. Monitor for and objectively quantify the intensity and duration of offsite odors;
 - b. Establish a process to investigate the source of the odors and identify any corrective actions necessary to mitigate the odor;
 - c. Assess the effectiveness of the corrective action;
3. Odor Standard and Response measures
 - i. <2 dilutions
 1. Response: None: below regulatory concern and indicative of normal landfilling operations.
 - ii. >2 < 7 dilutions, detected in 2 out of 3 measurements in one hour period, spaced no more than 15 minutes apart
 1. Response: Investigate source of odor; note circumstances and any corrective action taken within 24 hours. Retest within 24 hours. If same level of odor persists, repeat until odors fall below 2 dilutions.
 - iii. >7 dilutions, detected in 2 out of 3 measurements in one hour period.
 1. Response: Immediately investigate source of odor, note circumstances and any corrective action taken with 24-hours. Retest within 24 hours.
- b. *Monitoring Frequency* –
 - i. Daily: Timeframes would be determined based on feedback from interested parties.

- ii. Episodic: In the event complaints are received the Odor Monitor would immediately respond in order to perform the assessment and notify landfill management of the location and type of odor so that the odor source can be investigated and potentially identified.