

On December 7<sup>th</sup> 2017, the Perinton Conservation Board received a draft letter from WM responding to the large number of odor complaints. Jeffrey Richardson of WM was requested to prepare a large timeline graphic covering all of 2017, and to provide more information regarding the following:

1. **Overview**
  - a. **Description of Site**
    - i. Site history, acreage, active landfill area, permit capacity
      1. Figure identifying key components of site
  - b. Purpose of Document
    - i. To discuss potential sources of odors and methods to control them
    - ii. To discuss events that led to unusual odor event at High Acres and short term and long term mitigation measures employed
2. **Sources of Odor**
  - a. Discuss potential sources of odor from landfills
  - b. Define Landfill gas
    - i. Landfill gas generation – anaerobic decomposition
    - ii. Major components – methane, CO<sub>2</sub>
    - iii. Odor causing components – trace mercaptans, nmocs
3. **Monitoring of Odor**
  - a. **Operational Monitoring**
    - i. Working Face inspections
    - ii. Perimeter Odor Surveys
    - iii. Visual Cover inspections
  - b. **Compliance Monitoring**
    - i. Surface scans
    - ii. Wellhead monitoring
    - iii. Conveyance system monitoring
    - iv. Control Monitoring – Vacuum, O<sub>2</sub>, Temp
4. **Controlling Odor**
  - a. **Operational Control**
    - i. Management of incoming wastes
    - ii. Daily and intermediate cover
    - iii. Neutralization systems
      1. Working Face
      2. Perimeter
      3. Supplemental
  - b. **Landfill Gas Collection and Control**
    - i. Vertical Collection Wells
      1. Design and Purpose
      2. Figure – typical
    - ii. Horizontal Collection
      1. Design and Purpose
      2. Figure – Typical
    - iii. Conveyance systems
      1. Laterals
      2. Headers
    - iv. Control System
      1. Vacuum blowers
      2. Flares
      3. Power Plant
    - v. Figure – System Schematic showing components
  - c. **Cover Systems**
    - i. Purpose of cover
    - ii. Daily, intermediate cover systems
    - iii. Soil and Geomembrane
    - iv. Figure – Typical cover cross section
5. **Odor Investigation and Timeline**
  - a. Discussion of Odor investigative methods
    - i. Odor Control Plan for Site
    - ii. Operational Monitoring
    - iii. Compliance Monitoring
  - b. Timeline of increased odors
    - i. Roadway excavation and waste removal
      1. Operational Monitoring

- 2. Determined Cause
    - ii. Header blockage – reduced vacuum
      - 1. Investigative methods
      - 2. Isolation of issue
      - 3. Determined Cause
    - iii. Watering out of conveyance pipe
      - 1. Investigative methods
      - 2. Isolation of issue
      - 3. Determined cause
    - iv. Watering out of gas collection wells
      - 1. Investigative methods
      - 2. Isolation of issue
      - 3. Determined cause
  - c. Figure – Location of Odor issues
  - d. Figure – Plot of odor causing items vs complaints
  - e. Figure – Plot of rainfall vs odor causing items
- 6. Phased Solution**
- a. Immediate Remedies
    - i. Waste odors from roadway excavation
      - 1. Plan activities during more favorable weather conditions
      - 2. Implement localized neutralizer
      - 3. Limit size of excavation
    - ii. Header blockage
      - 1. Isolate and remove blockage
      - 2. Install jumper pipe to allow vacuum bypass
    - iii. Watered out conveyance pipe
      - 1. Install replacement pipe with adequate drainage
      - 2. Install trap and drain to remove liquid from system
    - iv. Watered out gas collection wells
      - 1. Remove excess liquid
        - a. Install downhole well pumps
      - 2. Install supplemental gas collection
        - a. Horizontal Collection pipes
      - 3. Place supplemental cover
        - a. Geomembrane cap
    - v. Figure – Depiction of immediate remedial measures
    - vi. Figure – Timeline of immediate remedial measures
  - b. Long Term Solution
    - i. Waste Odors
      - 1. Enhanced daily cover placement
      - 2. Limit Odorous waste streams
      - 3. Incorporation of Portable misting units in waste excavation areas
      - 4. Additional perimeter misting systems
      - 5. Horizontal Collectors
    - ii. Header Blockage
      - 1. Increase frequency of cleaning
      - 2. Install monitoring ports to monitor vacuum drops
      - 3. Header System to loop gas collection
    - iii. Watering out of collection system
      - 1. Slip form wells with drainage system
      - 2. Well pumps
    - iv. Operational gas collection
      - 1. Horizontal Collectors in excess of regulations
      - 2. Slip form wells with drainage system – build as you go well system
      - 3. Gas pressure relief in base liner
    - v. Figures – Horizontal Collector, Slip form well, portable misting system
- 7. Conclusion – Return to Operational Excellence – what that means.**
- a. Commitment and expectations for future operations

It is the Conservation Board’s intention to make recommendations in three general areas:

- (A) **Communication** – provide clear mechanisms that can alert both Town staff and residents to significant operational issues as they relate to landfill operations, gas collection systems, power-generation systems, and flares that may have a potential impact on surrounding residents in a timely manner.
- (B) **Monitoring** – with ever-increasing landfill expansion, potentials for future odor issues are real. The Board intends to recommend that additional monitoring parameters be done to better manage the potential for odor releases and to assure a “return to operational excellence.”
- (C) **Reporting** – with ever-increasing landfill expansion, potentials for future impacts are real. The Board intends to recommend that additional Town-reporting parameters so that Town staff and residents have a clear, cogent, and timely understanding of operational issues, consequences, and mitigation measures.