

DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, October 24 – October 28, 2013

The Department of Health and Senior Services (DHSS) has reviewed air quality screening data collected by the Department of Natural Resources (DNR) at Bridgeton Landfill from the afternoon of October 24 to the afternoon of October 28, 2013. On June 7, DHSS began issuing follow-up reviews of the daily air quality screening data on a twice-weekly basis.

On April 23, DNR began routine, twice daily, surveillance of hydrogen sulfide, benzene, and odor levels around the entire periphery of the landfill. In addition, DNR has provided continuous monitoring of reduced sulfur compounds (reported as hydrogen sulfide), sulfur dioxide, carbon monoxide, and total volatile organic compounds (VOCs) at three fixed locations. DHSS has reviewed both sets of data to identify potential public health concerns for short-term health effects. Generally, samples are collected near the property boundary and dispersion is expected to reduce exposure downwind of the sample locations.

Odors

DNR reported light and moderate odors during this time period at locations north, northeast, east, southeast, south, and southwest of the landfill.

- Winds were predominantly from the west and northwest on October 24; south and southwest on October 25; south, west, and northwest on October 26; and south and southwest on October 27.
- DNR detected light odors north, east, and south of the landfill and moderate odors northeast, southeast, and southwest of the landfill on October 24; light odors north and northeast of the landfill and moderate odors east of the landfill on October 25; light odors east, northeast, and southeast of the landfill on October 26; and light odors east and northeast of the landfill on October 27. Odors were monitored using a Nasal Ranger olfactometer.
- DHSS continues to recommend that during periods of objectionable odor, sensitive individuals should stay indoors as much as possible, avoid outdoor exercise, and seek medical advice for any acute symptoms. Symptoms associated with exposure to strong odors include headache, nausea, and fatigue. Symptoms generally associated with strong odors typically disappear once the odors dissipate.

Hydrogen Sulfide and Other Reduced Sulfur Compounds

Average hydrogen sulfide concentrations were well below levels of public health concern.

- The maximum concentration of hydrogen sulfide detected was 7.4 parts per billion (ppb) during routine monitoring. Hydrogen sulfide concentrations were detected by the Jerome meter, which is highly sensitive and specific to hydrogen sulfide.
- For four hours on October 24, ten hours on October 25, and six hours on October 26 at the monitoring location east of the landfill, the average concentration of reduced sulfur compounds exceeded a health-based guideline for acute exposure to hydrogen sulfide. Also, for two hours on October 28 at the

monitoring location west of the landfill, the average concentration of reduced sulfur compounds exceeded a health-based guideline for acute exposure to hydrogen sulfide. However, these compounds detected by AreaRAE monitors are not just hydrogen sulfide but primarily another reduced sulfur compound with lower toxicity.

Sulfur Dioxide

Average sulfur dioxide concentrations were below levels of public health concern, except for a limited time period at one monitoring location.

- For four hours on October 26 at the monitoring location west of the landfill, the average sulfur dioxide concentration exceeded a health-based guideline for acute exposure. However, an unidentified upwind source unrelated to the landfill as well as a diesel compressor observed near the monitor at that location likely contributed to these elevated readings. While exposure to this concentration of sulfur dioxide may cause irritation or other short-term symptoms, considerable dispersion is expected to reduce potential exposure levels in nearby residential areas.

Benzene and Total VOCs

Benzene was not detected in ambient air at any of the surveillance locations around the landfill during this time period.

- Previous sampling has shown that, while several VOCs are present in the landfill source gas, benzene may be a primary VOC of public health concern. However, benzene was not detected during routine monitoring around the perimeter of the landfill.
- For eight hours on October 24, thirteen hours on October 25, and nine hours on October 26 at the monitoring location east of the landfill, average total VOC concentrations exceeded a level that indicates the need for compound-specific sampling
- Average total VOC concentrations periodically exceeded levels that indicate a need for compound-specific sampling at the monitoring location south of the landfill. However, these elevated concentrations were not verified by another AreaRAE monitor stationed in the same location.
- DNR is performing VOC compound-specific sampling in locations upwind and downwind of the landfill on a routine basis. The laboratory results are submitted for DHSS review of public health concerns.

Carbon Monoxide

Average carbon monoxide concentrations were well below levels of public health concern.

Radiation Rates

Gamma radiation rates were well below levels of public health concern.

- Gamma radiation rates continue to be at levels that are at or near natural background levels.