

## **DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, October 31 – November 4, 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 31 to the afternoon of November 4, 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 odors at locations north and northeast of the landfill and light, moderate, and strong odors at locations east, southeast, and south of the landfill during this time period.

- Winds were predominantly from the southwest on October 31, west on November 1, west and northwest on November 2, and south and southeast on November 3 and November 4.
- DNR detected light odors north and northeast of the landfill on October 31; light, moderate, and strong odors east, southeast, and south of the landfill on November 1; light odors north and southeast of the landfill on November 2; and light odors north of the landfill on November 3 and November 4. 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 3.7 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 two hours on November 2 and seven hours on November 3 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. 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.

- Sulfur dioxide was briefly detected at the monitoring locations south and east of the landfill. However, the average concentrations of sulfur dioxide were less than 0.01 parts per million (ppm) and did not exceed health-based guidelines for acute exposure.

### 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 nine hours on October 31, twelve hours on November 1, and nine hours on November 2 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 other AreaRAE monitors 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.