

DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, July 11-July 15 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 July 11 to the afternoon of July 15, 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 primarily light odors during this time period at locations south, southwest, and west of the landfill.

- Winds were predominantly from the east, northeast, and southeast the afternoon of July 11; from the east and southeast on July 12; from the east, south, and southeast on July 13; from the south and southeast on July 14; and from the south, southeast, and southwest the morning of July 15.
- The DNR contractor detected moderate odors south and southwest of the landfill on July 11, 12, and 14, and only low odors at other locations surrounding the landfill 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

Hydrogen sulfide concentrations were well below levels of public health concern.

- The maximum concentration of hydrogen sulfide detected was 8.3 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 three hours on July 11 and five hours each on July 12, 13, and 14 at the AreaRAE monitoring location west of the landfill, and four hours each on July 11 and 12, and two hours on July 13 at the AreaRAE monitoring location east of the landfill, average concentrations of reduced sulfur compounds exceeded a health-based guideline for acute exposure to hydrogen sulfide. 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 near the landfill.

- For a fifteen hour period on July 11 and 12, average concentrations of sulfur dioxide at the monitoring location west of the landfill were 0.03-0.12 parts per million (ppm) and exceeded a health-based guideline for acute exposure. However, these elevated concentrations were not confirmed by a second measurement of sulfur dioxide concentrations taken by field staff the morning of July 12.
- While exposure to these concentrations of sulfur dioxide may cause irritation or other short-term symptoms, considerable dispersion is expected to reduce potential exposure levels at nearby residential areas.

Benzene and Total VOCs

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

- 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.
- For one hour on July 12 at the monitoring location west of the landfill, the average total VOC concentration slightly exceeded a level that indicates the need for compound-specific sampling. However, this elevated concentration was not verified by the other AreaRAE monitor stationed at 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.