

DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, July 18-July 22, 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 18 to the afternoon of July 22, 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 to strong odors during this time period at locations east, northeast, and south of the landfill.

- Winds were predominantly from the south and southwest.
- During this time period, the DNR contractor detected light to moderate odors east and northeast of the landfill on July 19, moderate to strong odors east, northeast, and south of the landfill on July 20, and light odors east and northeast of the landfill on July 21 and July 22 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 9.3 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.
- Average concentrations of reduced sulfur compounds did not exceed health-based guidelines 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 several hours at two monitoring locations near the landfill.

- On July 19, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at monitoring locations east and west of the landfill. For five hours, average concentrations ranged from 0.02 to 0.03 parts per million (ppm) west of the landfill. For twelve hours, average concentrations ranged from 0.02 to 0.04 ppm east of the landfill.
- On July 20, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at monitoring locations east and west of the landfill. For four hours, the average concentration was 0.02 ppm west of the landfill. For seven hours, the average concentration was 0.02 ppm east of the landfill.
- On July 21, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at monitoring locations east and west of the landfill. For twelve hours, the average concentration was 0.02 ppm west of the landfill. For four hours, the average concentration was 0.02 ppm east of the landfill.
- On July 22, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at monitoring locations east and west of the landfill. For nine hours, average concentrations ranged from 0.02 to 0.05 ppm west of the landfill. For two hours, the average concentration was 0.02 ppm east of the landfill.
- 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.
- At monitoring locations west and south of the landfill, average total VOC concentrations periodically exceeded a level that indicates a need for compound-specific sampling. However, these elevated concentrations were not verified by other AreaRAE monitors stationed in the same locations.

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.