DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, June 17-20, 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 June 17 to the afternoon of June 20, 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 moderate to strong odors at various locations south, southwest, and east of the landfill during this time period, depending on wind direction. Winds were predominantly from the south and southwest on June 17 and 20, from the north and northwest on June 18, and from the east and northeast on June 19.

- The DNR contractor detected moderate odors east of the landfill on June 17, moderate odors east and south of the landfill on June 18, and moderate to strong odors east, west, and south of the landfill on June 19 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 10.3 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 one hour on June 18, average concentrations of reduced sulfur compounds detected by the AreaRAE monitor located west of the landfill exceeded a health-based guideline for acute exposure to hydrogen sulfide. However, these compounds 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 June 18, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at the monitoring locations west and south of the landfill. For three hours, average concentrations ranged from 0.04 to 0.09 parts per million (ppm) west of the landfill. For six hours, average concentrations ranged from 0.02-0.03 ppm south of the landfill.
- On June 19, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at the monitoring locations west and south of the landfill. For seven hours, average concentrations ranged from 0.02 to 0.05 ppm west of the landfill. For four hours, the average concentration was 0.02 ppm south of the landfill.
- On June 20, average sulfur dioxide concentrations periodically exceeded a health-based guideline for acute exposure at the monitoring locations west and south of the landfill. For three hours, average concentrations ranged from 0.03 to 0.08 ppm west of the landfill. For three hours, the average concentration was 0.02 ppm south of the landfill.
- While exposure to these concentrations of sulfur dioxide may cause irritation and 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 seven hours on June 19 at one monitor east of the landfill and three hours on June 20 at one monitor west of the landfill, average total VOC concentrations exceeded levels that indicate a need for compound-specific sampling. However, these elevated concentrations were not verified by other AreaRAE monitors stationed at 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.