DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, September 5 – September 9, 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 September 5 to the afternoon of September 9, 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 during this time period at locations north, northeast, east, south, and southwest of the landfill.

- Winds were predominantly from the south, southeast, and southwest.
- The DNR contractor detected light odors south and southwest of the landfill on September 5, north, northeast, and south of the landfill on September 6, east and northeast of the landfill on September 7, south of the landfill on September 8, and east and northeast of the landfill on September 9 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 10.7 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 seven hours on September 5 and nine hours on September 6, average concentrations 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 west 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.

- 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.
- Average total VOC concentrations periodically exceeded levels that indicate a need for compound-specific sampling at the monitoring location west 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.