DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, September 30 – October 3, 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 30 to the afternoon of October 3, 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, southeast, and south of the landfill.

- Winds were predominantly from the south and southwest during this time period.
- DNR detected light odors north and northeast of the landfill on September 30; north, northeast, and south of the landfill on October 1; north, northeast, east, southeast, and south of the landfill on October 2; and east of the landfill on October 3. 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 5.2 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 October 1 at the monitoring locations south and west of the landfill and three hours on October 2 at the monitoring location south of the landfill, 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, except for several hours at one monitoring location.

- For six hours on September 30 and one hour on October 3 at the monitoring location west of the landfill, average sulfur dioxide concentrations exceeded a health-based guideline for acute exposure. The detection of elevated concentrations of sulfur dioxide may be due to the recent application of fertilizer in the vicinity of that monitoring location. While exposure to this concentration of sulfur dioxide may cause irritation or other short-term symptoms, considerable dispersion is expected to reduce potential exposure levels in nearby residential areas.

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 seven hours on October 1 at the monitoring location west 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 locations east and south of the landfill and at other times at the monitoring location west of the landfill. However, these elevated concentrations were not verified by other AreaRAE monitors stationed in the same locations.
- 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.