

DHSS Follow-Up Review of Air Monitoring Data from the Bridgeton Landfill Area, March 13 – March 17, 2014

The Department of Health and Senior Services (DHSS) has reviewed air quality monitoring data collected by the Department of Natural Resources (DNR) at Bridgeton Landfill from the afternoon of **March 13** to the afternoon of **March 17, 2014**.

DNR provides continuous monitoring data for reduced sulfur compounds (reported as hydrogen sulfide), sulfur dioxide, carbon monoxide, and total volatile organic compounds (VOCs) at three fixed locations as well as routine, twice daily, surveillance of hydrogen sulfide, benzene, and odor levels around the entire periphery of the landfill. 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 occasional light and moderate odors at various locations during this time period. 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 below levels of public health concern. Hydrogen sulfide levels are measured by the highly sensitive Jerome meter, which detects hydrogen sulfide specifically. Reduced sulfur compounds were periodically detected by AreaRAE monitors, but previous sampling has shown that these detections are primarily due to a reduced sulfur compound with strong odor but lower toxicity.

Sulfur Dioxide

Average sulfur dioxide concentrations were below levels of public health concern, except in one monitoring location in a residential area southeast of the landfill. Exposure to the elevated levels of sulfur dioxide shown on that one sensor may cause respiratory irritation or other short-term symptoms, particularly in asthmatics or other sensitive individuals. However, DHSS and DNR question the validity of this data for at least three primary reasons. First, the readings did not change with the wind direction, and winds were predominantly from directions other than from the landfill (northwest). Second, other monitors with similar sulfur dioxide sensors in the area did not detect sulfur dioxide or any other chemicals at levels of public health concern, even when winds were blowing from the landfill toward those monitors. Third, after the sulfur dioxide sensor on the monitor at that location was recalibrated on March 18, sulfur dioxide was no longer detected. Therefore, it appears this one sulfur dioxide sensor was malfunctioning throughout this time period, and it may have been occasionally malfunctioning going back as far as March 1, even with repeated maintenance by DNR field staff. The sensor has

now been replaced and appears to be functioning properly. All other monitors equipped with sulfur dioxide sensors continued to function properly during this time period.

Benzene and Total VOCs

Benzene was not detected in ambient air at any of the surveillance locations around the landfill during this time period. There are no health-based screening values for total VOCs. However, total VOC data are used to identify the need for compound-specific sampling. To be proactive, DNR is performing weekly VOC compound-specific sampling in locations upwind and downwind of the landfill. The laboratory results are submitted for DHSS review of public health concerns and that analysis is regularly posted online.

Carbon Monoxide

Average carbon monoxide concentrations were below levels of public health concern.

Radiation Rates

Gamma radiation rates continue to be indistinguishable from natural background levels and were below levels of public health concern.