

DHSS Review of Air Sample Data from the Bridgeton Landfill Area, July 11, 2013

The Department of Health and Senior Services (DHSS) has reviewed air sample data collected for the Department of Natural Resources (DNR) near Bridgeton Landfill on July 11, 2013. Samples were collected at one location upwind of the landfill and three locations downwind of the landfill for laboratory determination of concentrations of volatile organic compounds (VOCs), aldehydes, reduced sulfur compounds, and sulfur dioxide. DHSS has reviewed this data for evaluation of potential public health concerns of short-term health effects.

VOCs

Downwind of the landfill, 27 VOCs were detected in ambient air in concentrations that generally exceeded concentrations detected upwind of the landfill. VOC concentrations ranged from 0.11 parts per billion (ppb) to 32.5 ppb and did not exceed health-based screening levels for acute exposure, except for one benzene concentration of 32.5 ppb. This one 4-hour sample exceeded a health-based screening level for acute exposures lasting up to two weeks (9 ppb). Concentrations that exceed this screening level may cause eye/nose/throat irritation or immunological effects. However, it should be noted that concentrations above a screening level do not necessarily identify a public health risk is present but that further investigation is warranted. While this concentration of benzene was above the acute screening level for exposures lasting up to two weeks, it did not exceed the acute screening level for benzene protective for exposures lasting up to six hours (400 ppb). Additionally, the sample was collected near the landfill property line and dispersion is expected to reduce exposure downwind of the sample location. It should also be noted that this sample was collected near an automotive shop which may have contributed to the detection of benzene and the other two downwind air samples collected did not show a concentration of benzene above an acute screening level. Benzene was also not detected in nearby locations during routine surveillance with a meter that is highly sensitive and specific to benzene.

Aldehydes

Concentrations of aldehydes were well below levels of public health concern. Downwind of the landfill, 7 aldehydes were detected which ranged in concentration from 0.095 ppb to 1.63 ppb and did not exceed health-based screening levels for acute exposure.

Reduced Sulfur Compounds

Reduced sulfur compounds were not detected in any of the samples. While low concentrations of hydrogen sulfide were detected by the Jerome meter in downwind locations on the same day, those concentrations were less than the detection limits of the laboratory analysis. During the 4-hour sample collection period, reduced sulfur compounds were detected by one AreaRAE monitor located in a nearby downwind location. However, AreaRAE concentrations are total reduced sulfur compound concentrations. Concentrations of individual compounds were apparently less than the detection limit of the laboratory analysis.

Sulfur Dioxide

Sulfur dioxide was not detected in any of the samples. During the 4-hour sample collection period, sulfur dioxide was also not detected by AreaRAE monitors in nearby downwind locations.

