

DHSS Review of Air Monitoring Data from the Bridgeton Landfill Area March 16 - April 23

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 between March 16 and April 23, 2013. DNR has performed continuous air monitoring at three locations near the landfill since mid-February. DHSS reviews the monitoring data to identify potential public health concerns associated with exposure to hydrogen sulfide, sulfur dioxide, total volatile organic compounds (VOCs) and carbon monoxide (CO) in ambient air near the landfill.

Hydrogen Sulfide

In late April, DNR deployed a new piece of equipment, a Jerome meter, which has the capability of detecting hydrogen sulfide levels separate from levels of reduced sulfur compounds. The AreaRAE monitor, which has been in use since February, detects hydrogen sulfide and other reduced sulfur compounds but does not distinguish between the two. The Jerome meter and the AreaRAE monitor were placed together during a period of high odor. The Jerome meter detected hydrogen sulfide at less than ten parts per billion which is below a level of health concern. At the same time, the AreaRAE monitor detected a mixture of hydrogen sulfide and reduced sulfur compounds at several hundred parts per billion. This level exceeds acute health-based guidelines for hydrogen sulfide alone; however, previous lab analysis showed that the primary reduced sulfur compound in the landfill gas is a compound with similar odor to hydrogen sulfide but lower toxicity.

Sulfur Dioxide

Moderate concentrations of sulfur dioxide were observed intermittently at two of the AreaRAE monitoring locations, west and south of the landfill. Hourly average monitor readings exceeded health-based guidelines for short-term exposure on March 16 through April 2 and April 23 at the monitoring location west of the landfill, next to the Metropolitan Sewer District (MSD) lift station. Sewer gas from the lift station may have contributed to the sulfur dioxide readings at this location. Sporadic sulfur dioxide detections occurred on April 7, 8, and 22 at the monitor south of the landfill. Individuals near these locations on those dates may have experienced transient symptoms such as cough and/or irritation of the eyes, nose, or throat. Sensitive individuals, such as asthmatics or those with other chronic respiratory conditions, are more likely to have experienced symptoms; however, sulfur dioxide concentrations did not approach levels that could result in more serious short-term or long-lasting effects.

Volatile Organic Compounds and Carbon Monoxide

The total VOC data from the AreaRAE monitors do not specify different compounds, and the results of total VOC monitoring were inconclusive due to insufficient data quality. Because benzene has been the primary VOC of public health concern, DNR has requested the subcontractor use an UltraRAE benzene

detector going forward for routine monitoring around the landfill to address this issue. DNR is working with DHSS to provide time sensitive data for use in evaluations and future recommendations. In addition, DNR should continue regular air sampling for laboratory analysis of individual VOCs and other compounds. Hourly average CO concentrations were below levels of health concern in all areas.

Recommendations

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. DNR should continue regular air sampling, as recommended by DHSS.