



# Bridgeton Sanitary Landfill

## Frequently Asked Questions

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Solid Waste Management Program fact sheet

6/2013

### **Air Sampling and Monitoring**

**What types of air sampling and air monitoring is being conducted around the Bridgeton Sanitary Landfill? How frequently does this sampling and monitoring occur?**

**Air monitoring** --The Missouri Department of Natural Resources and its contractor are conducting air monitoring activities using the department's AreaRAE system, a hand-held hydrogen-sulfide detector, a benzene detector and an odor detector.

The AreaRAE system has been operating continuously, 24 hours per day, 7 days per week since the first week of February 2013. The system collects information on volatile organic compounds, or VOCs, hydrogen sulfide, carbon monoxide and gamma radiation. The continuous screening equipment is designed to analyze groups of similar compounds and sum them into a single reported value. For example, the reporting of hydrogen sulfide includes other reduced sulfur compounds and the reporting of VOCs combines many hydrocarbons together, including benzene. To ensure the public and the department have complete information, samples are also collected to allow for laboratory analysis and identification of individual compounds.

In addition, twice a day, 7 days per week, the department's contractor conducts air monitoring activities at 11-12 locations in the communities surrounding the landfill. This includes the use of a hand-held hydrogen-sulfide detector, a benzene detector and an odor detector at each location. During periods of heavy construction (Recent examples include removal of the reinforced concrete pipes and installation of 25 perimeter collection sumps.), the contractor also collects field data at additional downwind locations surrounding the landfill. These downwind locations are identified by data at the meteorological station located near the landfill.

Collected data is provided to the Missouri Department of Health and Senior Services, or DHSS, for review. During heavy construction, DHSS provides daily reports, which are posted on both departments' websites. During periods when heavy construction is not occurring, summaries are posted online twice per week; however, the data is monitored by Missouri Department of Natural Resources' staff so immediate analysis and action may be taken, if necessary.

**Air sampling** – The department and its contractor have been conducting weekly air sampling activities. These activities include the collection of samples for VOCs, reduced sulfur compounds and aldehydes, which are then shipped for laboratory analysis. The department's contractor has also performed two comprehensive samplings for 183 compounds and odor analyses using the St. Croix method (ASTM-E679). This laboratory analysis allows for identification of individual compounds (such as benzene) within the sample rather than a total grouping such as volatile organic compounds. If an unexpected event occurs at the landfill, department's contractor will collect immediate samples for analysis.

**When are air monitoring and air sampling data, laboratory analyses and DHSS' reviews made available to the public?**

Air monitoring data and health analyses of that data are posted on the department's website twice per week. Air sampling data, laboratory results and DHSS' analyses are posted online as soon as they are available. For more information about air sampling, air monitoring or health analyses of data from the area around Bridgeton Landfill, visit [www.dnr.mo.gov/bridgeton](http://www.dnr.mo.gov/bridgeton).

**What frequency is the AreaRAE monitoring data logged?**

The AreaRAE data is logged once per minute and transmitted to an on-site computer in the observation trailer. Data is provided to DHSS for review in average hourly increments.

## **Leachate Management and Sampling**

**Is the leachate from Bridgeton Landfill a hazardous waste?**

Samples of untreated leachate, including untreated condensate from the gas collection and control system, were analyzed to determine if they met the definition of hazardous waste criteria. The samples indicated the untreated leachate and condensate did not meet the definition of hazardous waste. The leachate continues to be evaluated as a condition of disposal.

**Is the leachate impacting the groundwater around Bridgeton Landfill?**

Republic Services continues to collect semi-annual groundwater data for the Bridgeton Landfill. That department monitors the data and if impacts are documented, the facility may be required to conduct additional monitoring and take corrective actions. In addition, quarterly groundwater sampling is also being collected under EPA oversight, and data is shared with the department as part of the evaluation process.

**How much leachate is being moved off-site daily?**

On average, the facility is disposing of approximately 320,000 gallons of leachate per day.

**Where is the leachate being disposed?**

Currently, the Metropolitan Sewer District's Missouri River Plant is accepting 20,000 gallons per day through direct discharge. Bridgeton Landfill is trucking an additional 100,000 gallons per day to the Bissell Point facility. In addition, Bridgeton Landfill is trucking on average 200,000 gallons per day to various other contracted disposal facilities in Missouri, Illinois, Iowa and other Midwestern states.

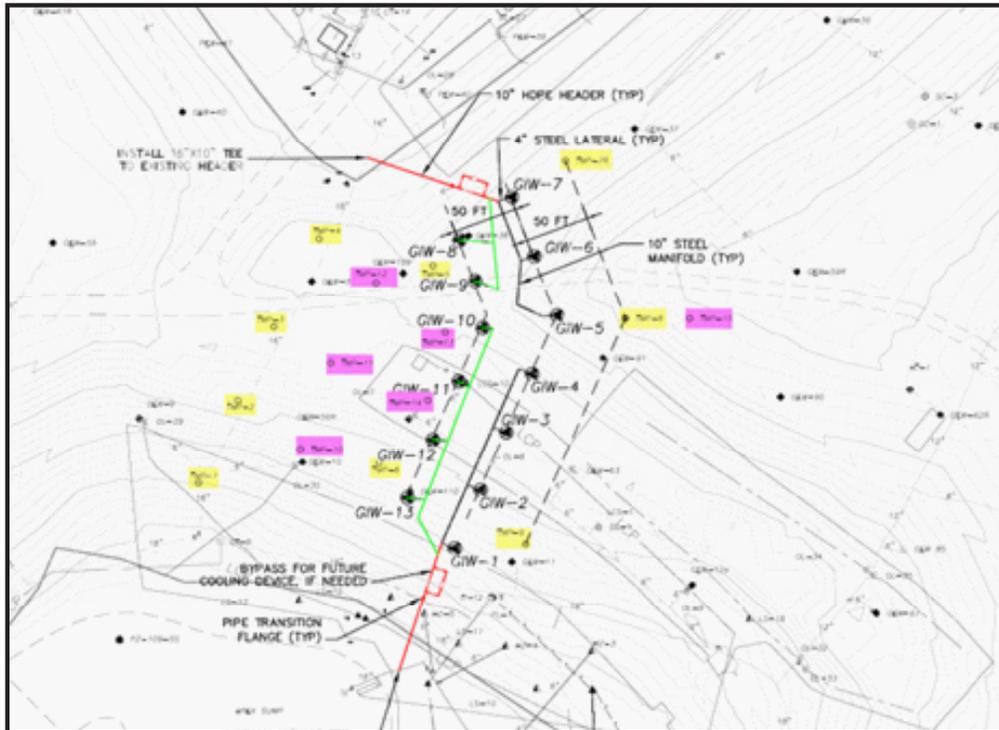
**Is there a permanent plan for disposition of leachate from the facility?**

Bridgeton Landfill is working with the Metropolitan Sewer District to determine necessary pre-treatment standards so that eventually the leachate can again be directly discharged to the sewer system. Republic Services has indicated plans to construct a pre-treatment plant at the site before the end of 2013 and be completely operational by the end of 2014. Because this system will be developed in cooperation with the Metropolitan Sewer District, it is assumed that the Bridgeton system will be suitable to treat leachate to acceptable levels for discharge to the district. In the short term, Republic Services has indicated the majority of the leachate will continue to be transported and disposed of at off-site locations.

## Subsurface Smoldering Event

### Where is the subsurface smoldering event located in the landfill?

As of June 17, 2013, the department's consultants have estimated the smoldering is contained to the south quarry. Additional carbon monoxide data is required to determine the most probable locations of the smoldering event. In an attempt to contain the smoldering event to the south quarry, the Bridgeton Sanitary Landfill operator activated two lines of gas interceptor wells (i.e., GIW-1 to GIW-13) on April 8, 2013. As detailed in the figure below through use of the dashed line, the approximate location of the leading edge of the heat front appears to be in the neck area based on TMP data from May to June 2013. The digital capture below is from SCS Engineers, Well Layout Plan, dated Jan. 10, 2013.



### What data is used to determine the location of the subsurface smoldering event?

A number of parameters are used by the department to determine the approximate location of the smolder and heating events. Republic Services, in compliance with the First Order, has increased the rate of data submittal, providing some additional data weekly rather than monthly. The department reviews and analyzes data provided by the facility, conducts air monitoring and sampling activities, and conducts site visits/ and inspections to take readings and observations of the impacts to the facility. Additionally, an independent review of the data is completed by consultants who also make periodic visits to the facility for first-hand observations.

### How fast is the fire spreading and in what directions?

The department's consultant Tim Stark, PhD., PE, has calculated the rate at which the reaction in the south quarry was expanding toward the north quarry using data from the March 2013 data package. The initial rate in the south quarry next to the narrow portion was measured at 2.8 to 3.0 feet per day. Since the initial rate was measured, additional data has indicated the rate has slowed to 1 to 2 feet per day, except at the neck, where there has been no further movement.

Note: These rates do not account for the possible influence of the GIW system that was activated on April 8, 2013.

**How did the smoldering event begin?**

At this time, a sole source has not been identified for this event. Efforts remain focused on eliminating impacts to the surrounding communities and containing the smoldering event. A forensic examination may occur at a later date to determine the original cause.

**How long will the landfill continue to burn or smolder?**

This is undetermined, as a number of factors are contributing to the event, including waste composition, moisture content, temperature, oxygen, compaction, landfill operations, leachate recirculation, LFG operations, cover properties, barometric pressures, waste cell construction, and other environmental issues.

**Will the new capping system stop the fire?**

The new capping system is expected to limit the smoldering event by limiting the amount of oxygen available to it. The primary purpose of the capping system is to reduce the odors impacting the community.

**How long will the odors continue?**

The odors are expected to be greatly reduced when the new capping system is in place. At the time of this document, Republic Services has initiated capping efforts and may be completed in 6-8 weeks, weather dependent.

**How far is the fire from Operating Unit 1, Area 1?**

The smoldering event is estimated to be at the first row of the gas inceptor wells. The wells are located approximately 1,200 feet from the northern edge of the north quarry (the location closest to operating unit 1, area 1). The heat front is approximately 1,000 feet from the same location.

**Does the department have temperature data available for all the gas extraction wells at Bridgeton including the north quarry?**

Yes. The temperature data being posted to the department's website includes all gas extraction wells, including those wells in the north quarry.

**Contingency Plans**

**What is the trigger for Contingency Plan 1 and 2?**

The First Agreed Order requires Bridgeton Landfill to submit a plan for construction of additional gas interceptor wells by July 27, 2013. As detailed in section 22 of the First Agreed Upon Order, trigger criteria are required to be developed by Republic Services and submitted to the department for approval. The trigger criteria for Phase I of the contingency plan are required to be submitted by June 27 and the Phase 2 criteria are due by July 27.

**What happens if Republic begins to dig the trench discovers radioactive materials?**

As a requirement of the isolation break plan, radiological surveying will be required to ensure no radioactive materials are co-disposed with solid waste. Should radioactive material be encountered, Republic will dispose of it in accordance with state and federal regulations.

## **General**

### **How was the 1-mile radius chosen for the lodging program (hotel vouchers) for the reinforced concrete pipe abandonment?**

The lodging program was part of the First Agreed Order. During discussions that led to the agreement, the Attorney General's Office and Department of Natural Resources staff analyzed the location and frequency of complaints received. At that time, most of the complaints were from residences within the 1-mile area and, ultimately, this radius was chosen for the First Agreed Order as the focus for the lodging program. The lodging program was implemented during the reinforced concrete pipe abandonment work period, due to the concern of sustained increased emissions at that time.

### **Why was the waste from the reinforced concrete pipes and other landfill work hauled to the Roxanne Landfill? Why didn't they just leave it at the site?**

The Bridgeton Landfill is an inactive facility and as such, is not allowed to accept any waste for disposal. Additionally, the Bridgeton Landfill entered into an agreement with St. Louis Lambert Airport at the time of the airport's expansion that prohibits the facility from disposing of any waste at this site. The waste was taken to the Bridgeton Transfer Station for transportation to the Roxanne Landfill.

### **What is the purpose of the newly installed sumps?**

The purpose of the 25 new perimeter collection sumps is to collect condensate from under the cap for disposal through the leachate collection system.

### **Can the state take over the landfill and fix the problem?**

Republic Services owns the landfill and is responsible for bringing the site into compliance with state and federal laws. The department oversees Republic Services' work at the Bridgeton Landfill portion of the site, and EPA oversees Republic Services' work at West Lake Landfill. The Attorney General's Office is also monitoring the situation closely and has taken legal action on behalf of the state which resulted in the First Agreed Order.

### **How much is this costing the taxpayer?**

Republic Services is paying for the activities aimed at reducing odors and containing the fire. In addition, Republic Services is reimbursing the state for expenses incurred as a result of overseeing work at the landfill, including staff time and other related air monitoring costs.

## **For more information**

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