

# Odors - Bridgeton Sanitary Landfill

Last Updated Aug. 5, 2014



## Bridgeton Landfill Odor Concern Form



The process for handling concerns about odors from the area surrounding the Bridgeton Landfill, which is experiencing an ongoing subsurface smoldering event (SSE), has changed. The new electronic form results in a "real-time" notification going to Bridgeton Landfill staff, so they may quickly identify the odor source and act to address it. Filing a concern form as soon as an odor in the area of the landfill is identified will enable the process to work as intended.

Submit an online Bridgeton Odor Concern Form available on the Bridgeton Home webpage.

Additionally, you may notify the department's St. Louis Regional Office or the Solid Waste Management Program in any of the following ways to file a Bridgeton Landfill odor concern:

- St. Louis Regional Office: Phone - 314-416-2960, and state you need to file a Bridgeton Landfill odor concern. This phone number is available Monday-Friday from 8 a.m. to 5 p.m.
- Solid Waste Management Program: Phone - 800-361-4827 or 573-751-5401 and state you need to file a Bridgeton Landfill odor concern. These phone numbers are available Monday-Friday from 8 a.m. to 5 p.m.
- Fax - 573-526-3902 Attn. Bridgeton Landfill odor concern.
- Email - [swmp@dnr.mo.gov](mailto:swmp@dnr.mo.gov).



Note: In case of an emergency, you should contact your local fire protection district using the 911 system.

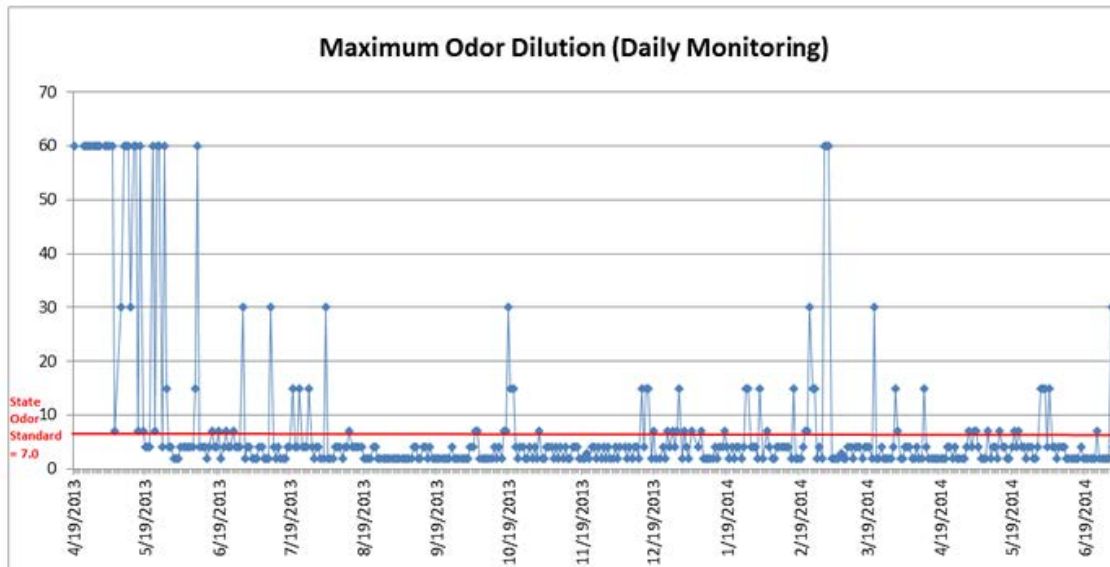
## Odors

Odors surrounding the Bridgeton Landfill have been attributable to the subsurface smoldering event or corrective actions to address the subsurface smoldering event. Some of the odor causing events have included:

- An overall increase in the volume of landfill gas generated by the facility as a result of the subsurface smoldering event.
- In mid-January 2013, a break in a leachate line resulted in a 1 1/2 week period with heightened odors.
- Drilling of gas extraction wells in mid-Feb. through mid-March 2013, resulting in odors intensifying during several hours on days when pockets of pressurized landfill gas were encountered and venting occurred.
- During June and July, 2013, abandonment of 6 reinforced concrete pipes part of the previous leachate management system and installation of 25 perimeter collection sumps, changes in leachate management with tank storage and loading of trucks and maintenance issues with gas extraction wells.

- During Aug. 2013, Bridgeton Landfill determined they would cover an additional 7.5 acres of the existing black HDPE liner material with the green EVOH liner material to further reduce odors.
- Beginning in Sept. 2013, Bridgeton Landfill began installation of the additional 7.5 acres of EVOH liner material by covering existing black HDPE liner.
- During Oct. 2013, maintenance at Bridgeton Landfill as well as equipment enhancements/malfunctions/replacements have resulted in periodic increases in odors generated by the permitted facility that left or had the potential to leave the facility.
- During Nov. 2013, Bridgeton Landfill continued work to enhance the landfill gas collection and control system and installation of additional EVOH liner material. Episodes of increased odors occurred at the landfill as these improvements were made to the landfill infrastructure or as maintenance/repairs/replacements of landfill infrastructure was completed.
- During Dec. 2013 and through mid-January, 2014, Bridgeton Landfill continued work to enhance the leachate conveyance and management system. Episodes of increased odors occurred at the landfill as these improvements were made, during a leachate spill and clean-up in mid-Dec. and beginning in Jan. as extreme weather conditions impacted the landfill's flare system and above ground leachate lines.

### Maximum Odor Dilution Graph



This graph provides odor trends from April 19, 2013 through July 3, 2014 based on the highest odor dilution point as recorded by a portable olfactometer and/or laboratory results. The department relies on American Society for Testing and Materials (ASTM) approved standards for odor measurement. The Dilution-to-Threshold (D/T) ratio is a measure of the number of dilutions needed to render the air neutral. The D/T ratio reflected in the daily air monitoring reports is determined by the amount of carbon-filtered air required to make the odors non-detectable divided by the amount of odorous air. The formula used is  $D/T = \text{Volume of Carbon-Filtered Air} / \text{Volume of Odorous Air}$ .

### Odor Monitoring

**Daily monitoring events continued through completion of the interim cap on the South Quarry and are continuing.** The department's staff is conducting air monitoring at a minimum of 12 locations using an odor detector or field olfactometer, which is a portable odor detecting and measuring device. The

device is used to measure and quantify odor strength in the ambient air. Sampling occurs around the perimeter of Bridgeton Sanitary Landfill at least two times per day and as needed, based upon community complaints received between the two daily cycles.

Additionally, during comprehensive sampling events, the department's contractor collected eight samples for odor analysis by the St. Croix olfactory method (ASTM-E679). ASTM E679 is an ASTM International standard method for determination of odor thresholds. The comprehensive sampling event results along with daily air monitoring reports are available on the Archived Reports webpage.

### **Corrective Actions taken by Republic Services to Manage Odors**

**July 14, 2014** -- Bridgeton Landfill advised the department that maintenance work on the southwest corner of the landfill property having the potential to result in off-site odor detection will begin on Tuesday, July 15. Landfill staff indicated the odor control methods used successfully during recent construction activities plus some new control measures developed using vacuum technology are planned for use in mitigating any off-site odors.

**June 28, 2014** -- Bridgeton Landfill advised the department that all frac tanks at the facility have been cleaned and 13 of 24 buffer tanks were removed during the week. Construction and installation of equipment continued in the facility's new pretreatment plant during the week.



*Photo of repair being made to flare at Bridgeton Landfill, Jan. 23, 2014.*

**Jan. 23, 2014** -- Early in the day, Bridgeton Landfill staff notified the department the facility's flares were down in their main flare yard. Shortly thereafter, Bridgeton Landfill staff advised the department two of the three flares were back on-line. Facility staff advised the potential for short-term odors from the flare downtime did exist. By afternoon, all the flares had been returned to full operational status.

**Jan. 18, 2014** -- The Pattonville Fire Protection District notified the department of elevated odors near Bridgeton Landfill. The department contacted Bridgeton Landfill to determine the source of the odors. Bridgeton staff advised mechanical difficulties were being experienced with the flare system, technicians were at the facility working on the flares, one of the flares was brought back on line quickly and the other two were also returned to full operational status.

**Jan. 6-8, 2014** -- Bridgeton Landfill continued work on the gas extraction system including the flares as a result of the extreme temperatures experienced over the past few days. The department received reports of odors outside the boundary of the landfill on these days.

**Jan. 3, 2014** -- Bridgeton Landfill advised the department that maintenance on the landfill's flare system was being completed in preparation for extreme weather conditions forecasted for the coming weekend. This maintenance was in response to the anticipated very low temperatures which can cause freezing in various components associated with the landfill's infrastructure. The maintenance repairs were expected to be conducted in a timely fashion. The potential some off-site odor detection existed while the work was being completed.

**Dec. 12, 2013** -- Bridgeton Landfill advised the department a pump malfunction due to recent freezing temperatures resulted in a leachate release. Bridgeton Landfill staff identified and is in the process of cleaning-up the leachate release. During the clean-up process, there exists a potential for off-site odors.

**Dec. 10 - 11, 2013** -- Bridgeton Landfill notified the department routine maintenance work being completed on a gas extraction well on the southwest corner of the landfill may result in odors outside the property boundary of the landfill.

**Dec. 6, 2013** -- Bridgeton Landfill advised the department that 23 of 30 additional North Quarry gas extraction wells have been drilled. As drilling work in the North Quarry and pump installations in the South Quarry continued, some odors were being anticipated as the work is completed. Work to install liner in a stormwater pond and around North Quarry sumps is planned to continue over the weekend, weather permitting.

**Nov. 22, 2013** - While inclement weather prevented drilling on Thursday, Nov. 21, Bridgeton Landfill reported 21 of 30 gas extraction wells and all of the toe drain collection sumps for the North Quarry area have been completed. Bridgeton staff advised the heavy construction work has been suspended until after the Thanksgiving holiday. No construction activity is planned on the four 1-million gallon tanks next week while concrete work is completed on the containment area. Gas extraction well drilling activities are scheduled to resume on Dec. 2, weather permitting. Bridgeton Landfill staff noted that routine facility monitoring and related operational maintenance activities will continue without interruption.

**Nov. 18, 2013** - Bridgeton Landfill notified the department that 15 of the 30 planned gas extraction wells and all 12 of the toe drain collection sumps have been completed. Work will continue this week on the remaining 15 gas extraction wells, installing toe drain connections and various projects related to the leachate pre-treatment plant and the 4 1-million gallon tanks.

**Nov. 15, 2013** - Bridgeton Landfill updated the department on construction activities completed during the current week and planned work for this weekend. This week, Bridgeton Landfill has completed 13 of 30 planned gas extraction wells and 9 of 12 new toe drain collection sumps. Bridgeton Landfill plans to continue working on installation of additional wells and toe drain sumps on Saturday, weather permitting.

The potential for odors to periodically be generated during these drilling activities continues through the first week of December when this phase of the project should be completed, weather permitting.

**Nov. 12, 2013** - Bridgeton Landfill informed the department they have completed a total of 10 new gas extraction wells (GEWs) and 6 toe drain collection sumps. During the upcoming week weather permitting, Bridgeton Landfill plans to complete 6 additional toe drain collection sumps and continues work installing the remaining 20 new GEWs bringing the total of new GEWs in the North Quarry to 30.

**Nov. 8, 2013** - Bridgeton Landfill informed the department during the past week 6 new gas extraction wells and 2 new toe drain collection sumps had been installed in the North Quarry. Enhancement of the gas collection and control system in the North Quarry is a major component of the North Quarry Action Plan. Bridgeton Landfill plans to continue working on installation of additional wells and toe drain collection sumps on Saturday and will also be working this coming Monday, weather permitting.

**Nov. 7, 2013** - Bridgeton Landfill advised the department of plans to pull back a portion of the ethylene vinyl alcohol (EVOH) liner to access an existing collection point. This work is being done to improve the seal and enhance the collection point's collection capability. While Bridgeton staff will work to minimize odors, the potential for some off-site odor detection due to the movement of the liner is possible.

**Nov. 4, 2013** - Republic Services began installation of 30 new landfill gas extraction wells in the North Quarry of Bridgeton Landfill on Friday, Nov. 1, 2013. As of Monday, Nov. 4, 2013, Republic Services advised approximately 2.5 of the 30 wells have been installed. Republic Services notified the department the potential for some odor releases during drilling operations for the remaining wells exists over the next 30 days, weather dependent. To assist in controlling odors released during these construction activities, Republic Services uses a vacuum box on drilling equipment along with odor neutralizers.

**Oct. 28, 2013** - Republic Services advised the department today they are completing maintenance work on a leachate collection line that may result in short-term odors outside the facility's property boundary. Republic Services indicated the work should be completed later today.

**Oct. 17, 2013** - Republic Services notified the department that later in the afternoon, the Bridgeton Landfill took the east side candlestick flare offline during installation of electrical and mechanical upgrades. The upgrade was expected to take approximately one hour at which time the flare was brought back on-line. As a result of this work, there was the potential for off-site detection of odors.

**Oct. 5, 2013** - Republic Services advised the department that approximately five acres of the additional EVOH liner planned for installation in the South Quarry has been completed. In the coming week, Republic Services indicated work will continue on the EVOH liner installation. Continuation of these construction activities is weather dependent.

**Oct. 4, 2013** - Republic Services notified the department that a perimeter sump in the southwest corner of the South Quarry required some maintenance. The repair required the opening of a small portion of the EVOH cap material and resulted in some local excavation. The work required several hours and had the potential to result in off-site detection of odor.

**Sept. 30, 2013** - Republic Services informed the department that 4.65 acres of the additional 7.5 acres of EVOH liner have been installed on the north and east sides of the South Quarry. The work crew will continue installing EVOH material on the west side of the landfill. Additionally, two new candlestick flares are now operational and have taken the place of two older enclosed flares. The new flares, combined with a new blower that was also installed, will improve the efficiency of the landfill's gas collection system.

**Sept. 14, 2013** - Republic Services informed the department they received and have begun installing an additional 7.5 acres of EVOH liner over existing HDPE liner at Bridgeton Landfill for more effective odor control. As the new EVOH material is being placed over existing material, odors are not anticipated.

However, some short-term odors may be generated as gas extraction wells in the placement area are prepared for installation of the new material. On Thursday and Friday, residents downwind from the landfill reported some slight to moderate odors during work hours.

**Aug. 31, 2013** - Republic Services provided a work plan update to the department on activities for the coming weeks at Bridgeton Landfill. Republic Services' plans include continuing site preparations for installation of new candlestick flares, for a new leachate management system and for installation of an additional 7 acres of EVOH cap material to cover the remaining black High Density Polyethylene (HDPE) liner material for more effective odor control.

**Aug. 19, 2013** - Bridgeton/Republic notified the department from ongoing review of landfill operations that some areas of the previously installed HDPE liner were not as effective at capturing odors as the EVOH material in the new South Quarry cap. As a result of the review, the facility will be covering the remaining 7.5-acre HDPE liner with the new EVOH material as well as extending its use into other strategic areas to target smaller sources of odor.

**Aug. 9, 2013** - Bridgeton/Republic notified the department that as of Aug. 7, 2013 the interim capping system was complete. The new EVOH interim cap is installed over approximately 32 acres in the South Quarry. Upon completion of the interim cap construction, the total area covered by flexible membrane liner will be approximately 42 acres. Additional details and a copy of the capping plan are available on the Archived Reports webpage.

**June 3, 2013** - Bridgeton/Republic completed abandonment of 6 reinforced concrete pipes (RCP) and installation of 25 perimeter collection sumps, a part of the new interim capping system. This information can be found on the Archived Reports webpage.

**Mid-March, 2013** - Bridgeton/Republic completed expansion of the facility's gas collection and control system, in part, to assist with managing odors generated by the subsurface smoldering event.

**Jan. 2012 - Aug. 2013** - Bridgeton/Republic added approximately 11 acres of HDPE flexible membrane liner and significant volumes of soil to the landfill cap to assist in controlling odors generated by the subsurface smoldering event.