

# Construction Schedule at Bridgeton Sanitary Landfill

Last Updated July 20, 2014

Bridgeton Sanitary Landfill sits in a uniquely urban environment adjacent to an international airport and surrounded by the interstate highway system and includes both residential subdivisions and commercial properties. The department has been working with Republic Services to implement alternatives that take into consideration what is less disruptive to residences and businesses surrounding the landfill. As Republic Services implements these alternatives, they have provided the following information about construction activities.

## Upcoming Construction and Installation



On July 15, 2014, Bridgeton Landfill began installation of three (3) new temperature monitoring probes in the North Quarry.



From June through July, 2014, Bridgeton Landfill continued work on the facility's new leachate pretreatment facility and started work on a new underground sewer line extension that will allow for the treated leachate to be direct discharged to the Metropolitan Sewer District which is expected to remove more than 200 trips on local roads by transport trucks each week.



From Apr. 24 through May 20, 2014, Bridgeton Landfill continued work on the facility's new leachate pretreatment facility and performing maintenance and repairs on landfill infrastructure including work necessary due to impacts from the ongoing subsurface smoldering event.



Bridgeton Landfill advised the department during a meeting on Apr. 24, 2014 that further North Quarry drilling and capping will be delayed until a decision on location of the isolation barrier is made. Construction continues on the landfill's new leachate pretreatment facility and maintenance and monitoring of the landfill's infrastructure. Installation of three additional temperature monitoring probes in the North Quarry is expected to proceed within the next 60 days.



Bridgeton Landfill's North Quarry drilling and capping project is scheduled to resume at the end of the month (Mar. 2014).



**On Mar. 11, 2014,** Bridgeton Landfill advised the department they will be conducting routine maintenance on gas extraction wells. Bridgeton Landfill staff indicated they will be installing knife gate assemblies on a number of gas extraction wells. The maintenance is expected to be completed by end of the day Wednesday Mar.12, 2014. The knife gate assembly reduces potential paths for odors and will help control odor during future maintenance.





**On Feb. 14, 2014,** Bridgeton Landfill staff informed the department they continue working to enhance the leachate conveyance system to accommodate the future pre-treatment plant operations. Bridgeton Landfill staff also noted they have nearly completed construction of the last of the four 1 million gallon tanks (Tank 1). With below normal temperatures again this week, Bridgeton Landfill technicians continued work to maintain weather sensitive landfill infrastructure components moved above ground due to the subsurface smoldering event in the South Quarry.



**On Jan. 24, 2014,** Bridgeton Landfill reported on activities at the landfill during the week. On Thursday, Jan. 23, 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 this flare downtime did exist. During the remainder of the week, Bridgeton Landfill staff reported progress on the new leachate pretreatment facility including: continued setting tank panels for Tank #1, installation of stainless steel piping and pumps at the tank farm, continued construction on the pretreatment plant, installation of the lift station and valves started and enhancements to the leachate conveyance system was nearly 95% complete. Bridgeton staff reported that construction on the North Quarry capping and enhancement of the gas collection and control system is scheduled to recommence on February 16, 2014, weather dependent.

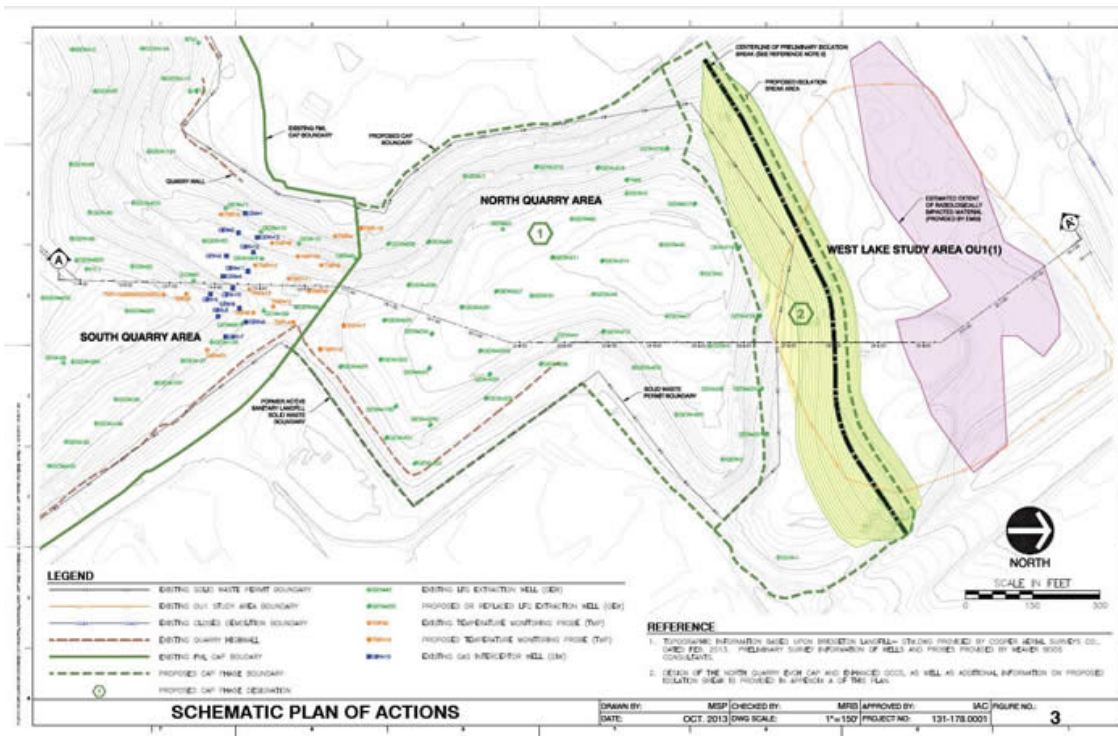


**On Jan. 17, 2014,** Bridgeton Landfill staff reported to the department on activities at the landfill during the week. Bridgeton staff and contractors finished setting the panels and began setting steel for the pretreatment building, started erecting Tank #1, running stainless steel piping in the tank farm and had concrete pads poured for various components of the project.

**On Dec. 23, 2013,** Bridgeton Landfill reported that work continued this weekend, as weather permitted, on cleaning up the leachate spill that occurred on Dec. 12. Bridgeton Landfill staff anticipate that the clean-up will be completed on Dec. 26, weather dependent. A sump was repaired on Saturday when it was noticed to be causing odors. Work on the leachate pre-treatment facility is planned to continue on Dec. 26th with other work resuming after the first of the year.



**Expansion of North Quarry Gas Collection and Control System and Interim Capping to Begin**



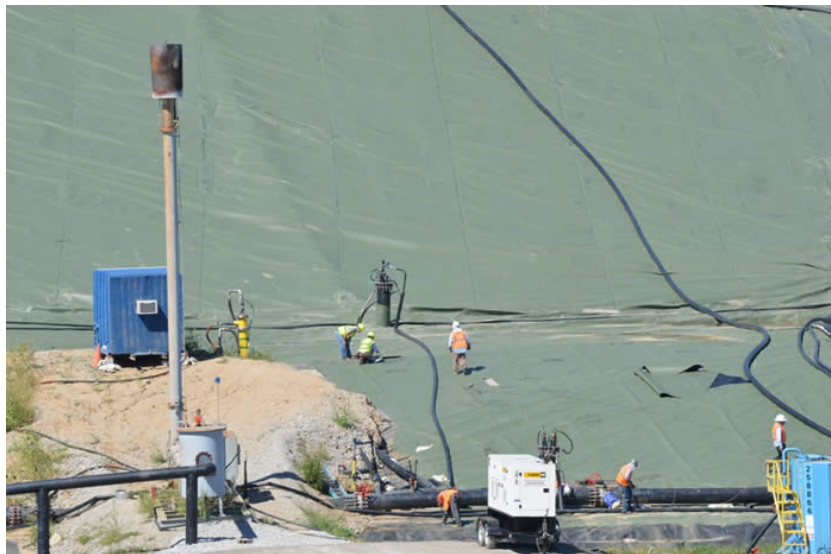
**On Oct. 25, 2013**, Republic Services notified the department that in the past week it had completed the detail work on the advanced interim EVOH capping system expansion project in the South Quarry. The EVOH system covers approximately 42 acres, including the entire South Quarry waste mass and surrounding land on each side. Additionally, Republic Services advised that work under the Bridgeton Sanitary Landfill - North Quarry Action Plan to enhance the North Quarry portion of the gas collection and control system is scheduled to begin on Nov. 1, 2013, weather permitting.

**On Oct. 23, 2013**, the department issued a comment letter with conditional approval of Republic Services' Bridgeton Landfill North Quarry Action Plan. The letter is available for review on the Archived Reports webpage.

**On Oct. 8, 2013**, Republic Services submitted a response to the department's Sept. 17 comments on the North Quarry Contingency Plan. The response and a copy of the North Quarry Action Plan is available on the Archived Reports webpage.



**Note:** Republic Services also advised the department the Gamma Cone Penetration Test, hereafter GCPT, will begin with training on Oct. 28, 2013 and with field work scheduled to begin on Oct. 29, 2013. Removal of vegetation and completion of road installation is expected to take between 10 and 15 days. The GCPT is estimated to take between 12 and 15 days. Clearing and vegetation removal work is planned for Monday through Friday, while the GCPT work is scheduled for 7 days per week. All work is weather dependent. As the GCPT work is within the boundaries of Operable Unit 1, Area 1, US EPA will be overseeing the work and the department's Federal Facilities' staff will be monitoring those activities. The GCPT work plan submitted by Bridgeton/Republic is available for review on the Archived Reports webpage.



#### **Additional EVOH Capping Material to be Placed**

**On Aug. 19, 2013**, Bridgeton Landfill 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 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. Bridgeton Landfill also continues preparation work for the facility's planned construction of an enhanced leachate-treatment system and installation of a candlestick flare system that will improve efficiency of the landfill's existing gas collection and control system. When



completed, Bridgeton Landfill's EVOH capping system will cover a total of approximately 42 acres, including the entire south quarry waste mass and surrounding area on each side.



### Leachate Management System

Bridgeton Landfill's current leachate collection and management system includes a 96,000 gallon tank and a recently constructed 316,000 gallon tank. The current phase of improvements to the facility's leachate treatment system will provide additional permanent storage capacity. Four new 1 million gallon tanks are proposed for the central part of the landfill near the 316,000 gallon tank to facilitate the current and future needs of the landfill. On Aug. 31, 2013, Republic Services submitted a Leachate Pre-Treatment System Plan for review by the department as the next phase of improvements to the facility's leachate management system. The Leachate Pre-Treatment System Plan is available on the Archived Reports webpage.



*Photo of new temperature monitoring probe controllers installed in Nov. 2013 at Bridgeton Landfill.*

### Additional Temperature Monitoring Probes

**On August 27, 2013**, the department provided notice to Republic Services that three (3) additional temperature monitoring probes (TMPs) need to be installed and a map of the locations for those TMPs was provided. The First Agreed Order of Preliminary Injunction signed on May 13, 2013 provides that the department may require the installation of additional temperature monitoring probes or alternative monitoring equipment, along with expanded settlement monitoring. Republic Services had agreed to

install the three TMPs as a part of the overall Contingency Plan, but will proceed with installation prior to that approval. As of Dec. 1, 2013, the additional TMPs have not been installed.

### **Republic's Completed Construction**



### **Interim Cap and Cap Integrity System**

On Aug. 9, 2013, Bridgeton/Republic notified the department that as of Aug. 7, 2013 the interim capping system was complete.

On March 25, 2013, Bridgeton/Republic submitted to the department a plan to install a synthetic cap system over the entire South Quarry to address odors. As of May 17, the synthetic cap and cap integrity system have been approved by the Department of Natural Resources. Construction of the cap and related system began as the RCPs were abandoned and perimeter collection sumps were put into place. The planned construction project for the interim capping system is expected to take approximately 3 months to complete.

Final plans, narrative and approval letters related to the interim capping system are available on the Archived Reports webpage.

### **Storm Water Management Design Report**

Final plans, narrative and approval letters related to the storm water management design report are available on the Archived Reports webpage.

### **Leachate Management System - 316,000 Gallon Tank**

The Department of Natural Resources approved the construction of a 316,000 gallon leachate tank on March 20, 2013 and on April 23, approved the Bridgeton Landfill Leachate Tank and Transport Disposal plan to assist the landfill with proper management and disposal of leachate generated at their facility. The documents related to approval of the 316,000 gallon tank are available on the Archived Reports webpage.

### **Reinforced Concrete Pipes.**

On June 3, Republic Services completed abandonment of 6 reinforced concrete pipes (RCP) and installation of 25 perimeter collection sumps, a part of the new interim capping system. Additional information about the RCP plan is available on the Archived Reports webpage.





*Photos of two areas where RCPs (SC-4 and SC-2) were abandoned at Bridgeton Sanitary Landfill.*

## **Gas Extraction Wells**

On June 20, 2012, Bridgeton Sanitary Landfill submitted a request to the department for modifications to their gas collection and control system. On July 11, 2012, the Department of Natural Resources issued a letter to Bridgeton Sanitary Landfill providing comments on the landfill's June 20 submittal and providing comments based upon a visit to the landfill on June 14 where observations were made as to the physical changes at the landfill, the status of the subsurface smoldering event, and the need for gas system expansion, gas migration and odor control.

SCS Engineers submitted for Bridgeton Landfill on Aug. 3, 2012 responses to the comments from the department regarding the proposed expansion to the landfill gas collection and control system. On Aug. 14, Bridgeton Landfill submitted a request for a change to a submitted letter modification requesting expansion of the gas monitoring probe network. On Aug. 22, department staff once again visited the landfill observing continued physical conditions, changes to infrastructure and met with landfill staff to move forward on corrective actions to control the subsurface smoldering event including odors. On Aug. 30, 2012, the department approved the Bridgeton revised request for modification to the gas monitoring probe permit. After Bridgeton provided responses to the department's other comments by way of an Oct. 3, 2012 letter, the modification to the gas extraction system at the Bridgeton Sanitary Landfill with certain conditions was approved. Documents related to the gas collection and control system expansion are available on the Archived Reports webpage.

## Leachate Line, Leachate Collection Wells and Leachate Management System

**May 7, 2013** - The department received calls from the public concerning increased odors south of the landfill property. Weather conditions, low winds and high barometric pressure, resulted in little air movement in the area. Republic Services indicated they completed some work being on a leachate collection well.

**Jan. 14, 2013** - Bridgeton/Republic reported a leachate line had broken resulting in an immediate increase in odors and associated complaints. Parts to repair the broken section of line took nearly one and one half weeks to obtain and for the complete repair to occur. This broken line resulted in an immediate increase in odors and associated complaints. The line has been repaired.

**Feb. 2, 2013** - A leachate release was discovered resulting from a pipe becoming disconnected from the landfill's leachate collection system. Leachate samples were collected by department staff and by Republic's contractor for analysis to determine if further action is necessary.

**Ongoing** - Bridgeton/Republic began shipping a portion of the leachate generated at the facility to an off-site service provider for management due to a compliance order from the Metropolitan Sewer District. On Jan. 24, 2013, their off-site service provider notified Bridgeton/Republic the leachate shipments had been determined to exceed the limit for benzene. Bridgeton/Republic is enhancing pretreatment of the leachate to eventually meet Metropolitan Sewer District discharge standards. Until such time, off-site disposal of leachate has resulted in an increase in heavy truck traffic around the landfill property. Bridgeton/Republic began a limited discharge to the Metropolitan Sewer District during the last week in April.

Bridgeton/Republic continues working with the Department of Natural Resources, the Metropolitan Sewer District and various contractors to resolve outstanding issues with disposal of leachate from the facility.

## Interceptor Plan

Bridgeton/Republic began construction on the interceptor plan the week of Jan. 21, 2013 and completed the plan the first week in March to minimize movement of subsurface heat and to further address odors. Operation of enhanced gas interceptor wells began on April 8, 2013. The interceptor plan creates a low pressure area vacuum curtain or "wall" that will allow landfill gas to be controlled, so it can be safely destructed in the current landfill gas collection and control system to reduce heat from the subsurface smoldering event. (See map detailing locations of interceptor wells and TMPs.) View the department's Solid Waste Management Program's approval letter for the interceptor plan on the Archived Reports webpage. In response to the department's request, Bridgeton/Republic has expanded the interceptor and temperature monitoring probe plan which is also available on the Archived Reports webpage.



## Operation, Maintenance and Monitoring Plan

**On Sept. 19, 2013 and ongoing** - Bridgeton/Republic is has submitted an updated operation, monitoring and maintenance plan for Bridgeton to ensure all engineering controls such as gas extraction wells, leachate drains, pumps, temporary liner, flares and the interim landfill cap will continue to control leachate, gas and odors generated by the reaction/fire. Bridgeton/Republic is responsible for providing an addendum to the plan for modifications recently approved for the North Quarry. The plan and addendum will remain in place until the reaction/fire has run its course and the entire impacted area has a final cap put into place.



**Note:** The operation, maintenance and monitoring plan submitted by Bridgeton/Republic is available for review on the Archived Reports webpage.

## Construction Activity Observations

**On Dec. 18, 2013**, Bridgeton Landfill work crews continued to work on a clean-up of a leachate spill that occurred last week. Heavy construction work related to installation of additional gas extraction wells (8 remaining to be drilled) and EVOH capping material on the North Quarry has stopped as a result of the inclement weather and is planned to restart in mid-Feb. 2014, weather dependent. Work continued on the new leachate conveyance line and on the leachate pre-treatment facility including the four 1-million gallon leachate tanks.

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

**On 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 continue, some odors may be noticeable while work is being completed. Work to install liner in a stormwater pond and around North Quarry sumps will continue over the weekend, weather permitting.



**Nov. 27, 2013** - Bridgeton Landfill advised the department gas extraction well drilling activities will resume on Dec. 2, weather permitting. Bridgeton Landfill staff noted that routine facility monitoring and related operational maintenance activities will continue without interruption.



**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 now 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. 15, 2013** - Bridgeton Landfill updated the department on construction activities completed during the current week and planned work for the coming weekend. Bridgeton Landfill has now completed 13 of 30 planned new 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. 7, 2013** - Bridgeton Landfill notified 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 as work is completed.

**Nov. 4, 2013** - Republic Services advised the department that Bridgeton Landfill staff and contractors began installation of 30 new landfill gas extraction wells in the North Quarry on Friday, Nov. 1, 2013. As of Monday, Nov. 4, 2013, Republic Services stated that 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. 27, 2013** - Republic Services notified the department work under the North Quarry Action Plan to enhance the North Quarry portion of the gas collection and control system and interim capping of the North Quarry portion of the landfill with ethylene vinyl alcohol (EVOH) material will begin on Nov. 1, 2013.

**Oct. 20, 2013** - Republic Services advised the department crews continue finish work on the additional 7.5 acres of EVOH capping on the South Quarry to further reduce odors. Bridgeton Landfill also continues making improvements to the leachate conveyance lines as part of the facility's enhancement of their leachate pre-treatment system. The work is expected to continue on a 7 day per week schedule as weather permits.

**Oct. 17, 2013** - Republic Services notified the department that later this afternoon, the Bridgeton Landfill will be taking the east side candlestick flare offline to install electrical and mechanical upgrades. The upgrade is expected to take approximately one hour at which time the flare will be brought back on-line. As a result of this work, there potentially may be an off-site detection of odors.

**Oct. 11, 2013** - Republic Services notified the department they continue work on the four 1-million gallon leachate tanks for the pre-treatment system. Demolition of existing structures necessary for work to continue on the balance of the new leachate pre-treatment facility is planned to continue and geopiers are being installed for the sub-base of the new facility's structures.

**Oct. 5, 2013** - Republic Services advised the department that approximately five acres of the additional EVOH liner planned for installation in the South Quarry and construction of the four leachate tank floors for the leachate pre-treatment system have been completed. In the coming week, Republic Services indicated work would continue on the EVOH liner, as well as installation of bases and tanks for the four

one-million gallon tanks which are a part of the leachate pre-treatment system being constructed at the landfill. These construction activities will continue as weather permits.

**Oct. 4, 2013** - Republic Services notified the department that a perimeter sump in the southwest corner of the South Quarry requires some maintenance. The repair requires opening a small portion of the EVOH cap material and could result in some local excavation. The work will likely require several hours and may result in off-site detection of odor during this time.

**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.

**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. 21, 2013** - Republic Services notified the department over the next few weeks sections of the landfill with black liner material in-place will be covered with the new EVOH capping material.

**Aug. 9, 2013** - Republic Services advised the department that as of Wednesday, Aug. 7, 2013 the Ethylene Vinyl Alcohol (EVOH) cap over the landfill's South Quarry has been successfully placed. No additional landfill construction work is planned for this weekend.

**Aug. 2, 2013** - Republic Services informed the department that finish work continues on the capping system at the landfill. Work that might result in increased odors is not planned for this weekend.

**June 10 - 16, 2013** - Republic Services worked on the toe drains needed for the interim capping system. In addition, crews on the site continued work grooming, shaping and preparing the subgrade for laying down the flexible membrane liner for the new cap which was expected to begin late in the week or early the following week.

**June 15, 2013** - Odors were reported by department staff as mild near the landfill today. Slight odors were noticed near the observation trailer around 4:00 p.m.

**June 12, 2013** - Late in the day yesterday (June 11), Republic Services notified the department the site team was installing controls to contain leachate and gas releases from work on leachate collection sump (LCS-4) and were continuing their efforts to capture and mitigate the odors. Odors were expected to remain high until these controls are in place and the sump installation is completed.

**June 11, 2013** - Republic Services notified the department this morning that the driller replacing a leachate collection sump (LCS-4) had reached the bottom of boring and is now ready to install the sump casing materials. As this occurs, the odors being generated in this area of the landfill are expected to increase. Republic Services is unsure how long it will take to get the sump materials installed and grouted so that the odors are halted. Higher than normal odors were expected.

**June 5 - 7, 2013** - Construction work on the new capping system continued this week. Odors were moderate to strong Wednesday afternoon downwind from the landfill. Odors on Thursday morning were moderate to strong downwind from the landfill. The department and the department's contractor continue air monitoring with the AreaRAE system and daily monitoring.

**June 4, 2013** - Construction work on the new capping system continued today. Odors were strong in the afternoon at locations southwest of the landfill. This date's air monitoring data includes some gaps due to intermittent power outages.

**RCP Abandonment Completed - June 3, 2013** - The last of the 6 reinforced concrete pipes was successfully abandoned. Work will now focus on preparation for installation of the new interim EVOH capping system. Over the next several working days as weather permitted, construction crews began work on drain structures for the new capping system. Odors were intense. Winds in the area around Bridgeton Sanitary Landfill were very slight and changed in direction frequently. The wind was generally from the north-northwest or the northeast.



**June 1, 2013** - Construction activities were cancelled due to the inclement weather

**May 31, 2013** - Due to inclement weather, the abandonment of the final RCP was delayed. With a slow, shifting wind around the site, odors were mild at several locations around the landfill, including Taussig Road at St. Charles Rock Road. Odors were mild and were drifting north of the landfill in the afternoon.

**May 30, 2013** - Winds were out of the south causing locations north of the landfill such as Northwest Industrial Park to be impacted by moderate to strong odors throughout the day. With successful abandonment of one RCP (LCS-3) on this date, one RCP remains to be abandoned. With completion of the remaining three perimeter collection sumps (19, 22 and 24), Bridgeton Landfill installed all 25 of the sumps needed for the new interim capping system. Bridgeton Landfill then began installation of the new EVOH capping system on the South Quarry to help reduce odors.

**May 29, 2013** - Republic Services closed SC-3 leaving two of the original six RCPs to be completed while six of the remaining nine perimeter collection sumps (2, 25, 24, 21, 20 and 18) were installed. Odors have been moderate to occasionally strong at locations to the north and northeast of the landfill including the Taussig/St. Charles Rock Road intersection and further to the northeast. During construction activities, a 12 inch gas header was broken near SC-3 and a leachate force main near PS-18 was cut as the perimeter collection sumps were being installed. All of these factors contributed to the odors. The department's air sampling contractor began a comprehensive air sampling event on this date.

**May 28, 2013** - As no construction activity took place at the landfill, the daily monitoring cycles were limited to two circuits - one in the morning and one in the afternoon. Odors were moderate at locations north of the landfill.

**May 26 and 27, 2013** - Due to the weather forecast predicting rain for the Bridgeton area throughout Sunday and Monday construction work has been postponed for those days. Construction activity will resume on Tuesday, May 28, 2013, weather permitting. As no construction activity took place at the landfill, the daily air monitoring cycles were limited to two circuits one in the morning and one in the afternoon. Department field staff reported at 1:30 p.m. on Sunday that landfill odors were slight, but noticeable north of the landfill along St. Charles Rock Road. On Monday, odors were strong between 1:30



and 3 p.m., especially east-northeast of the landfill. An isolated odor pocket was also noticeable by Corporate Exchange Drive at Old St. Charles Rock Road south of the landfill.

**May 25, 2013** - Work on the RCPs was postponed due to the weather forecast. Work continued on the perimeter collection sumps as weather allowed. Three perimeter collection sumps (1, 17 and 24) were completed before rain stopped work. Winds were from the east early in the day and from the south-southwest for the remainder of the day. Odor levels on the west side of the landfill were described by department staff on-site as being slight to moderate.

**May 24, 2013** - Republic Services continued work to complete abandonment of LCS-4 with removal of two sections of reinforced concrete pipe. Installation of seven perimeter collection sumps was completed. The wind was primarily from the east-northeast, but was variable throughout the day. Odors were significant and strong directly to the southwest of the landfill. Some odors were observed at least 1/2 mile west-southwest of the landfill. (Rider Trail S. at Rams Way.)

**May 23, 2013** - Republic Services completed work on SC-4, which is the second of the six RCPs to be abandoned and installed perimeter collection sumps 5, 6, 7, 8 and 13. Two sections of the reinforced concrete pipe were removed from SC-4. As expected with this RCP and the prevailing wind direction, odors were very strong on the east side of the landfill and intermittently noticeable on the south side of the landfill.



**May 22, 2013** - Republic Services began work on the RCP abandonment project. Recent heavy rains resulted in preparation work being completed this morning prior to the start of the intrusive work into the cap around 8 a.m. Work on SC-2, which is the first of six RCPs to be closed, will be completed today. Work on 25 perimeter collection sumps for the new interim capping system also began with sumps 2 and 4 completed. Odors were described by department staff as light on the north side of the landfill and by a local resident as moderate to strong on the east side of the landfill. An increase in odors was noticed in the afternoon possibly due to a leachate line break during work on the RCP.

**May 21, 2013** - Planned construction work was postponed due to weather conditions. Department of Natural Resources staff on-site noted winds out of the south for most of the day and shifting to the southwest for the remainder of the day. Odors were reported as minimal in the morning and were moderate in the afternoon near St. Charles Rock Road and Taussig, as would be expected with winds from the southwest.

**May 20, 2013**, weather dependent - Republic Services planned to start the reinforced concrete pipe (RCP) abandonment construction project. (See the Construction Schedule webpage for details on the work to be completed.) Additionally, Republic Services provided a Temporary Housing Program for local residents living near the Bridgeton Landfill during the RCP construction project. Department of Natural Resources staff on-site noted winds were generally from the south with odors at a moderate level north of the landfill.

**May 14, 2013** - Missouri Attorney General Chris Koster outlined the terms of a First Agreed Order reached with the Bridgeton Landfill. Under the agreement the landfill's operator provided temporary

accommodations for residents most affected by the odor and reimbursement to state agencies for continuous monitoring and sampling of the air and ground at the site.

**May 11, 2013** - Republic Services performed maintenance on gas extraction well (GEW72) and odors were expected to increase from approximately 9:30 a.m. until 1 p.m.

**May 7, 2013**— The department received calls from the public on May 7 concerning increased odors south of the landfill property. Weather conditions, low winds and high barometric pressure, resulted in little air movement in the area. Republic Services also indicated they completed some work on a leachate collection well.

**May 1, 2013** - Republic Services performed some maintenance on gas extraction well (GEW74) and odors were expected to increase from approximately 9:30 a.m. until 1 p.m.

**April 25, 2013** - Republic Services performed some maintenance on a perimeter gas extraction well (PEW37) and odors were expected to increase from approximately 10:30 a.m. until 2 p.m.

**April 8-9, 2013** – Republic Services anticipates some increase in odors as they abandon the site planned for temperature monitoring probe #15. Republic Services was unable to complete installation of this temperature monitoring probe as the thermocouples could not be set due to pressure in this area of the waste mass.

**April 9, 2013** – Republic Services reported five additional temperature monitoring probes are completed and are monitoring temperatures in the waste mass within the neck between the south and north quarries. As noted above, temperature monitoring probe #15 was not installed. Republic Services completed installation of a total of 40 gas extraction wells. The wells are being operated to decrease the amount of landfill gas and associated odors escaping to the atmosphere.

**March 23, 2013** -- Odors were elevated while Republic Services drilled Gas Extraction Well, GEW64A.

**March 21, 2013** -- During the drilling of Gas Extraction Well 88, elevated odors have resulted as a pocket of landfill gas and steam was encountered. The department's AreaRae equipment continues to collect data related to odors.

**March 15, 2013** – During drilling of gas extraction well, or GEW 71B, elevated odors have resulted as a pocket of landfill gas and steam was encountered during the drilling operation. The department's AreaRae equipment continues to collect data related to odors.

**March 11, 2013** – During the drilling of gas extraction well, or GEW 58, elevated odors resulted when a pocket of landfill gas and steam was encountered during the drilling operation. The department's AreaRae air monitoring equipment is continuing to collect data related to odors.

**Feb. 15, 2013** - During installation of a gas extraction well, significant odors were created resulting in several odor concerns. As a result, the department collected air samples that evening. Analysis is provided on the Air Sampling page.

The Department is and will continue to require additional work, whether for maintenance or in an emergency, in order to ensure Republic's return to compliance with Missouri environmental laws as soon as possible. Department approval of plans submitted by Republic for ongoing management of the subsurface smoldering event does not excuse Republic's violations of Missouri environmental laws.