



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

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SEP 04 2014

Mr. Brian Power
Environmental Manager
Republic Services, Inc.
13570 St. Charles Rock Road
Bridgeton, MO 63044

RE: Crack and Void Filling with Flowable Fill, Bridgeton Landfill, Permit Number 0118912,
St. Louis County

Dear Mr. Power:

This is in response to April 18, 2014, and May 28, 2014, letters received via e-mail and a technical addendum received via e-mail by the Missouri Department of Natural Resources' Solid Waste Management Program (SWMP) on August 22, 2014, submitted by Bridgeton Landfill. The submittals seek approval for the use of flowable fill for cracks, minor depressions and voids resulting from the ongoing subsurface smoldering event (SSE) at Bridgeton Landfill. The August 22, 2014, e-mail submittal also included Attachments A and B providing detailed product descriptions and Material Safety Data Sheets (MSDS) for the flowable fill program.

From the facility's submittals and a number of discussions with Bridgeton Landfill staff, the SWMP understands the purpose of the proposed flowable fill program is to provide Bridgeton Landfill with a method of re-establishing positive surface drainage to maintain the structural stability of landfill infrastructure. The fill material will be placed under the ethylene vinyl alcohol (EVOH) capping material around such landfill infrastructure, as gas extraction wells and leachate collection sumps. The flowable fill will be used only for small "spot-treatment" applications, i.e., approx. eight (8) cubic yards for a typical crack and approx. two (2) cubic yards for a typical void. As the size of the opening needed to insert the fill into these areas is small, the potential for odors during performance of the repairs is expected to be minimized. However, the MSDS for the additive product indicates a potential for a "sulfurous" type odor that the facility will need to be aware of and manage under the facility's odor management plan.

The flowable fill proposed for use is fly ash and water with Nalco's Nalmet 1691 at 30 ppm used as a heavy metal binder. During discussions regarding potential flowable fill mixtures, the SWMP expressed concerns with a mixture that contained only fly ash and water. Bridgeton Landfill researched and has determined that Nalmet 1691 is designed to bind up these

contaminants and prevent leaching into the environment. We understand test cylinders were prepared to determine the effect on strength of the final product which were fairly consistent with a mixture of fly ash and water only and such mixture meets Bridgeton Landfill's needs for the flowable fill program.

The SWMP **approves** the use of flowable fill at Bridgeton Landfill with the following conditions:

CONDITIONS:

1. The flowable fill will only be used in small areas requiring no more than 10 cubic yards of fill.
2. The flowable fill will only be used in areas covered by the EVOH cap.
3. Bridgeton Landfill must record in the facility's operating record the date, general location, i.e., around GEW-1, and quantity of flowable fill used, i.e., approx. 8 cu yds.
4. Bridgeton Landfill shall ensure proper material handling practices to minimize the potential for accidental releases of flowable fill to areas not being filled.
5. Locations of use must exclude those areas where the potential exists for the fill material to enter collection systems, clog or negatively impact leachate removal.
6. Prior to filling around gas extraction wells, the screen location of a well must be identified so that repairs do not compromise well operation.
7. The pH of the product appears to be in the range of 12 to 13.2 and the landfill pH is in the range of 6 to 7. Please be aware of the difference in pH when the flowable fill is placed and monitor for any effect.
8. The MSDS sheet for the binding material indicates the product has a sulfurous smell. The facility's odor management plan must be followed, so that odors do not extend beyond the permitted facility's boundary or effect worker health and safety as a result of the filling process.
9. Bridgeton Landfill will be required to immediately cease using flowable fill, if any negative impacts to the environment from use of the flowable fill mixture are observed or determined through analysis.

DOCUMENTS:

1. A technical addendum e-mail with attachments received August 22, 2014, providing, in part, details about the binder to be used in the flowable fill.
2. An e-mail with attachments dated July 9, 2014, providing the flowable fill mixture details in response to two (2) e-mails containing questions about flowable fill and its use from SWMP dated April 18, 2014, and June 25, 2014. (Note: Additionally, these e-mails were supplemented with several phone discussions and meetings between Brian Power and Jim Getting of Bridgeton Landfill and SWMP staff.)
3. An e-mail with a letter and attachments received May 28, 2014, providing general information about a flowable fill proposal.

Mr. Power
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This approval should not be construed as compliance with any existing federal or state laws other than the Missouri Solid Waste Management Law; nor should this be construed as a waiver of any other regulatory requirements. This approval is not to be construed as compliance with any existing local permitting or zoning ordinances; nor does it supersede any local permitting and/or zoning requirements.

The department reserves the right to revoke, suspend, or modify Permit Number 0118912 after due notice, if the permit holder fails to operate the facility in compliance with the Missouri Solid Waste Management Law and regulations, terms and conditions of the permit, and the approved engineering plans and specifications.

If you have any questions or comments regarding this letter, please contact J. P. Boessen, of my staff at (573) 526-3940 or P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

SOLID WASTE MANAGEMENT PROGRAM



Charlene S. Fitch, P.E.
Chief, Engineering Section

CSF:jbm

- c: Mr. James Getting, Environmental Manager, Bridgeton Landfill
Mr. Larry Lehman, Chief, Compliance/Enforcement Section, SWMP
Ms. Brenda Ardrey, Chief, Operations Section, SWMP
Ms. Laura Yates, St. Louis County Department of Health
St. Louis Regional Office via Electronic File Share

