



Minnesota
Pollution
Control
Agency

Waste Disposal Engineering Closed Landfill update

Cleanup/Closed Landfill 2-01 • March 2012

This fact sheet provides an update on work being conducted by the Minnesota Pollution Control Agency (MPCA) at the Waste Disposal Engineering (WDE) Landfill, including response to the discovery of polychlorinated biphenols (PCBs) in the water beneath the hazardous waste pit.

Site history

Located in Andover, the WDE Landfill site was operated as a dump in the 1960s. From 1971 to 1983, it was a sanitary landfill with an MPCA permit. During its operation, the WDE Landfill received mixed municipal solid waste and some hazardous wastes.

In 1993, a six-foot-deep cover, with a passive gas-venting system was installed to prevent infiltration of surface water into the wastes and leaching of hazardous materials into the groundwater. A groundwater pumping system was installed also at that time to prevent further spread of contamination. A tray stripper was constructed in 1995 to remove volatile organic compounds (VOCs) from the groundwater that was collected prior to being discharged into the sanitary sewer.



Active gas extraction removes methane gas and other VOCs, preventing their migration off site. The active gas-extraction system draws gas and vapors from the buried waste through a system of wells, pipes and a blower. The captured gas is ignited in a controlled manner inside an enclosed flare. The gases are converted to simple exhaust gases (mostly carbon dioxide, water vapor, and chloride compounds). The flare stack contains the flame completely inside it. An insulating material lining the stack keeps the outside cool enough to touch. The blower and other controls are mounted on a steel frame next to the stack. A multistage blower is used to provide efficient gas movement and keep the noise level low.

Discovery of PCBs in extraction well water prompts installation of new treatment system.

In the spring of 2012, MPCA staff for the first time detected PCBs in groundwater from beneath the hazardous waste pit that discharges to the landfill's treatment ponds. The MPCA immediately discontinued pumping groundwater from beneath the hazardous waste pit, because our discharge permit does not allow PCBs. A pilot granulated activated carbon (GAC) treatment system was designed and installed to determine the proper size for a permanent treatment system. This pilot was completed in early February 2012, and the MPCA is currently reviewing the data with intentions to install a permanent GAC treatment system in 2012. In the meantime, groundwater will not be extracted beneath the hazardous waste pit. However, groundwater pumped from around the rest of the landfill (where there is no PCB contamination) will continue to be treated and discharged to the sanitary sewer.

Vapor extraction system for the hazardous waste pit will be operating by fall 2012.

In 2009-2010, MPCA staff conducted a pilot vapor extraction system (VES) on the hazardous waste pit that used a proprietary cryogenic, compression and condensing (C3) technology. The purpose of this pilot was to determine the effectiveness of this technology for removing VOCs from the pit and converting them to a liquid that could be recycled and/or used in a fuel-blending process. The results from the pilot were impressive. During one year of operation, this system recovered nearly 4,400 gallons of liquid product. Therefore, staff decided to install the VES, which will be rented for possibly up to five years. Plans are to have the system installed and fully operational by autumn 2012.

What is methane and should you be worried about it?

Methane is a gas that is produced by certain bacteria as organic materials decay. It is colorless, odorless (although it usually is accompanied by other odors from the waste) and flammable. Most landfills produce methane. Methane can move through soil and be a problem if it makes its way into poorly ventilated basements. If enough methane builds up inside a structure and is ignited, an explosion is possible. Although some methane movement has been detected at the landfill, the methane has not moved very far off the site. An active gas-extraction system is the most reliable method to control gas migration at landfills.

What does the MPCA do to make sure the remediation systems are working?

The MPCA's contractors regularly monitor all remediation systems at the WDE site. This includes the gas flare, sampling groundwater monitoring wells for laboratory analysis three times a year, monthly monitoring of effluent from the present pump-out system, and quarterly checks on gas monitoring probes. Also, the MPCA staff or state contractor checks the site continuously for signs of trespassing and to ensure the remediation equipment is operating.

What is the citizen's role in the cleanup process?

In the past, trespassing has been a problem at the site. Because gas and monitoring wells stick up above the surface, people who sled, snowmobile or drive all-terrain vehicles on the WDE site are in danger of being injured if they run into this equipment. Damage to the remediation equipment could also cause the systems to stop functioning. This would lead to an unsafe environment (explosive gases building up) around the landfill. The WDE site is fenced and

posted to prevent public access because of this danger and to protect on-site equipment. However, there are also monitoring wells and gas probes outside the fenced-in area. This equipment is marked with three bumper posts.

Residents should keep children away from the landfill and report vandalism to the Anoka County Sheriff and the MPCA. Since taxes pay for the landfill's upkeep, it is in the public interest to prevent damage to the landfill-cleanup systems.

Can land near closed landfills be used and developed?

Groundwater contamination and landfill gas can present a health and public safety threat to persons wishing to use or develop land near some closed landfills. The Landfill Cleanup Act requires that a land-management plan be developed to assist local units of government to prudently manage land use and development around these landfills.

The purpose of the land-management plan is to:

- protect the integrity of the landfill's remediation systems;
- protect human health and the environment at and around the landfill;
- ensure that the cleanup and future operation and maintenance of the remediation systems at the landfill are successful; and
- accommodate local government needs and desires for use of land where health and safety requirements can be met.

The act also requires local units of government to make their land-use plans consistent with the plan developed by the MPCA. These goals can be accomplished not only by the state's cleanup efforts, but also through the adoption and implementation of a site-specific land management plan through local zoning and other land-use measures consistent with public health and safety needs. In 2006, the City of Andover adopted a new zoning ordinance, Closed Landfill Restricted, for the WDE Landfill.

For more information

For more information about the Closed Landfill Program, go to the program's main webpage at <http://www.pca.state.mn.us/0agx803>. You can also call the MPCA at (800) 657-3864 and ask for the Closed Landfill Program staff associated with this site.