

traditional and nontraditional partners and with input from those served to decide on the ideal response to circumstances that negatively affect citizens. These and all innovative initiatives in public health are gratifying to witness and be a part of. 📺

In the field of public health, possibilities are many, and "can't do" is not a part of most conversations.

Government and Industry Collaborate to Monitor Drinking Water Wells around Landfills in Mahoning County, Ohio

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Organization

Mahoning County District Board of Health (OH)

Overview

Each year, more than a million tons of solid waste and construction/demolition debris are disposed of in Mahoning County landfills, making Mahoning County one of the largest waste-importing counties in the nation. In Ohio, health districts are responsible for regulating the operation of these landfills as agents of the state's Environmental Protection Agency (EPA).

Eight landfill facilities—four closed and three active solid waste landfills and one active construction demolition debris (C&DD) landfill—are spread throughout Mahoning County's 14 townships. The C&DD facility located in Green Township is unique because it is located on top of and adjacent to two closed sanitary landfills. Lewis/County Land Development is composed of two landfills that filled so far from opposite ends they eventually combined. The C&DD landfill was then constructed on top of one of the solid waste landfills as an environmental improvement for surface water issues.

All three nationally owned solid waste landfills located in Mahoning County are currently seeking major expansion permits and authorized daily waste receipt limit increases. One closed solid waste landfill is currently regulated as a potential contamination source by Ohio EPA's Division of Emergency and Remedial Response, and one closed solid waste facility is abandoned and classified as an orphan landfill.

Mahoning County residents have long expressed concerns about groundwater protection in rural areas where water wells are the only source of drinking water for many families. Mahoning County has approximately 240,000 residents. Rural residents rely on approximately 12,000 private water wells for their drinking water. Groundwater resources also serve industries and farming operations within the community. A groundwater surveillance program began at the request of families and well-organized opposition groups in the vicinity of the these landfills

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and was funded through a landmark 1991 “host community” agreement between the District Board of Health (BOH), Allied Waste Services (now Republic Services), Poland Township, and Mahoning County’s solid waste management district.

Implementation

Recruitment for the voluntary groundwater monitoring program began in 1993, when any resident who lived within a one-mile radius of any county landfill was invited by mail to participate in the program. The BOH continues to recruit participants through word-of-mouth referrals, telephone surveys, and personal contact with constituents. Using the Mahoning County geographical information system and the resources of the Mahoning County Engineer’s Office, the BOH mapped all wells serving residences located within the one-mile radius. As of fall 2008, 183 residents were participating in the program. Participation has increased by approximately five percent per year since the program’s inception.

Drinking water samples are collected on average twice yearly from each participant. Sanitarians from the BOH collect samples from residents’ homes using Ohio EPA’s standard sampling procedures. Sanitarians attempt to collect raw water samples from either inside the residence at the well storage tank or from an outside spigot that is not connected to a water treatment system. The samples are analyzed in the BOH’s accredited laboratory. All tests are performed using approved EPA methods along with testing procedures from *Standard Methods for the Examination of Drinking and Wastewater*. The water samples are analyzed for 28 different chemical and bacteriological parameters such as heavy metals, volatile organic compounds, coliform bacteria, and chemicals that may cause aesthetic problems in water. These parameters are part of Ohio EPA’s primary and secondary drinking water standards.

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Outcomes

Homeowners receive several reports once the results are finalized: an explanation of the chemical and bacteriological parameters tested; an explanation of public drinking water standards; and “At a Glance” tables that compare the test results over the last eight sampling periods. This report enables homeowners to identify easily anomalies or trends in their water quality. The BOH has begun a time series analysis to determine if the landfills are affecting groundwater quality and to compare these wells to water quality in Ohio EPA’s monitoring network of wells throughout Ohio.

Statistical analysis of the database indicates that the solid waste landfills are not impacting private drinking water wells in the area. Most observable exceeded levels in public drinking water are attributed to secondary maximum contaminant levels for aesthetic quality.

How the Program Has Been Sustained

The BOH’s ongoing surveillance of groundwater around Mahoning County landfills has allayed residents’ apprehension about the environmental impact of creating landfills with large volumes of out-of-state waste in their communities and effectively addresses residents’ concerns about the potential impact on their drinking water.

Funding for the program is sustained via a combination of industry support and government regulatory fees. Through a unique host community agreement, Republic Services has provided \$400,000 in financial assistance to the BOH since 1993. Because Ohio law allows for the expenditure of fees levied on landfill waste for paying the costs incurred by boards of health for collecting and analyzing samples from public or private water wells on lands adjacent to those facilities, the BOH also receives approximately \$180,000 each year in operational support from the Mahoning County Solid Waste Management District.

The local health department’s success in negotiating a formal “host community” agreement among program participants, public health, local government, and the landfill industry in Mahoning County to fund groundwater monitoring can serve as a model for other health departments struggling to respond to citizens’ concerns about safe drinking water.

For More Information

Contact Mary Helen Smith at mhsmith@mahoninghealth.org. A copy of the 2008 annual report titled *Groundwater Surveillance around Mahoning County Landfills* is located at www.mahoning-health.org/healthreports/specialreports/tabid/526/default.aspx. 