



Minnesota
Pollution
Control
Agency

Closed Landfill
Program,
Remediation Division

Washington County Landfill containment remedy

MPCA Recommended alternative

Cleanup/Closed Landfill #2.04 • February 2007

This fact sheet provides background on contamination at the Washington County Landfill related to perfluorochemicals (PFCs) and other contaminants, and presents the Minnesota Pollution Control Agency's proposed cleanup remedy for the site.

The 40-acre Washington County Landfill was the MPCA's first permitted, mixed municipal solid waste (MSW) disposal facility, and began accepting wastes in 1969. Operations at the unlined facility were discontinued in 1975 and the site was closed and capped. In 1981, groundwater monitoring found elevated concentrations of chemicals called volatile organic compounds (VOCs) and some heavy metals in on-site monitoring wells and residential wells near the site. Alternate drinking-water supplies were provided to affected residences in 1983-84, and Ramsey and Washington counties installed a pump-and-treat system to address the groundwater contamination.

The site was added to the federal and state Superfund lists in 1984. After the MPCA's Closed Landfill Program (CLP) was created in 1994, the site was removed from the Superfund programs and the state took over its long-term care.

At that time, the CLP took additional steps to address groundwater contamination by improving the landfill cover and groundwater treatment system. Groundwater contamination related to the site appeared to be under control. But in 2004, a different class of contaminants called perfluorochemicals (PFCs) was detected at the landfill.

What are PFCs?

PFCs are proprietary chemicals made by the 3M Company that have been used for decades to make products that resist heat, oil, stains, grease, and water. Common uses include nonstick cookware, stain-resistant carpets and fabrics, firefighting foam, coating for photographic film, industrial applications, and coatings for packaging such as milk cartons, cosmetic additives, and many other products. PFC use was not regulated in the past. The chemical structure of PFCs make them extremely long-lasting and mobile in the environment.

Six different PFC compounds have been detected at the landfill. Three of them -- perfluorooctane sulfate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanoic acid (PFBA) -- are of concern. 3M phased out manufacture of PFOS and PFOA in 2002. PFOS and PFOA are "bioaccumulative," i.e., they build up in the tissues of humans and animals, where they may affect the liver and thyroid. Less is known about PFBA, although we do know it is much less bioaccumulative than the other two.

Responses to PFC contamination at the landfill

Since 2004 the MPCA and Minnesota Department of Health have conducted extensive sampling of private and municipal wells around the landfill.

Their aims have been to identify drinking-water supplies with PFCs above applicable standards or guidelines, and define the extent of contaminated ground water. The history of sampling efforts and findings is available from MPCA and MDH at

<http://www.pca.state.mn.us/publications/c-clf2-03.pdf>

and

<http://www.health.state.mn.us/divs/eh/hazardous/sites/washington/lakeelmo/index.html>.

All known drinking-water exceedances have been resolved, but the existing pump-and-treat system, designed to control migration of VOCs, is not effective at preventing PFCs from leaving the site. Unlike currently operating MSW landfills, the site is unlined, and some wastes are in contact with groundwater. Therefore the landfill continues to be a source of groundwater contamination, and a long-term remedy is needed.

Evaluating cleanup alternatives

In 2007 the MPCA began examining possible remedies, and hired an independent engineering firm to evaluate a range of options and determine the most effective choice. The evaluation was completed and submitted to the MPCA last November. The options evaluated were:

1. **No Additional Action.** Standard “baseline” option. Do nothing beyond existing remedies (cover reconstruction and groundwater pumpout, the latter not effective for PFCs). Estimated costs: \$5,000,000 initial/\$120,000 annual operation and maintenance (AOM).
2. **Plasma Torch.** Excavate wastes and convert them on-site to gas and inert slag using extremely high-temperature treatment. Estimated costs: \$192,300,000 initial (includes typical 20% contingency)/\$87,000 AOM.
3. **Force Main.** Pump groundwater at the site (110 gallons per minute) and discharge it untreated to a force main (sanitary sewer line) which would convey the discharge to a wastewater treatment plant. Estimated costs: \$7,300,000 initial (includes cover reconstruction)/\$450,000 AOM.
4. **Pump and Treat.** Treat contaminated groundwater and discharge (150 gpm) to on-site infiltration basin. Estimated costs: \$5,800,000 initial (includes cover reconstruction)/\$700,000 AOM.
5. **Dig and truck.** Remove all wastes from the landfill and truck them to a licensed disposal facility off-site.

Estimated costs: \$66,800,000 initial (more if out of state)/\$87,000 AOM.

6. **Dig and Line.** Relocate all waste in a new, lined landfill at the current site. Estimated costs: \$27,600,000 initial/\$210,000 AOM.

These options were evaluated and scored against a standard set of criteria from the U.S. Environmental Protection Agency for judging cleanup remedies, including:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements
- Long-term effectiveness and performance
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost

The table shows the relative ranking of each of the six options (lowest score = best).

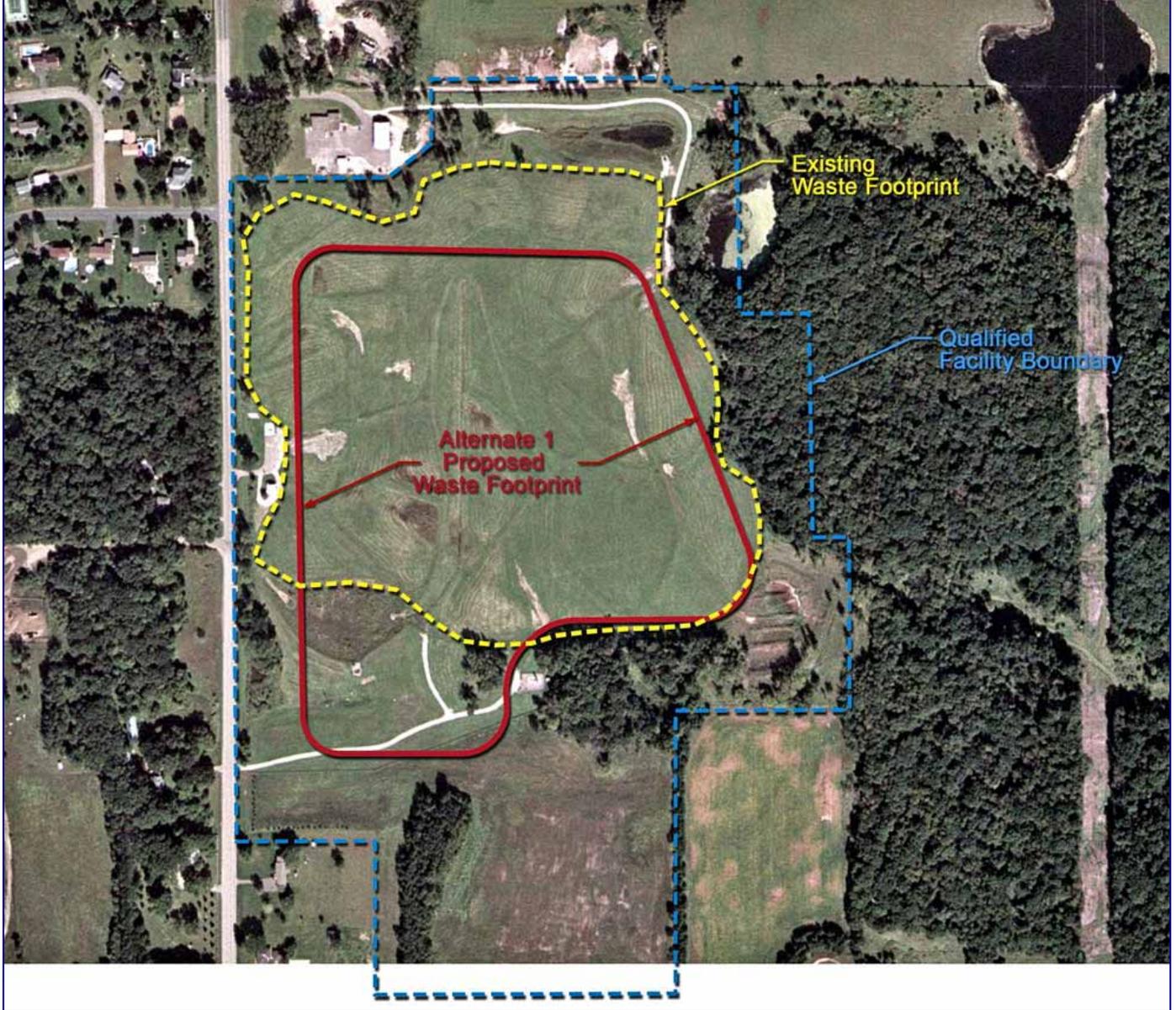
Option	Score
1. No additional action	27
2. Plasma Torch	18
3. Force Main	20
4. Pump and Treat	16
5. Dig and Truck	15
6. Dig and Line	14

MPCA’s proposed remedy

The analysis showed that Dig and Line (option 6) appears to be the most feasible remedy, followed closely by Dig and Truck (5) and Pump and Treat (4). The MPCA prefers Dig and Line for the following reasons:

- Contains the source effectively over the long term
- Offers a long-term remedy for both PFCs and VOCs
- Does not transfer pollutants elsewhere
- Is cost-effective

Under Option 6, new waste cells would be created on-site and equipped with liners and collections systems for landfill gas and leachate. Wastes would be excavated, placed in the new cells, and capped. The work would proceed in phases. The MPCA’s design for the remedy at this point is preliminary. When funding is secured, a



complete design covering all aspects of remedial action at the site will be prepared. In addition to complete

Aerial photo showing current and proposed waste footprint

engineering and construction specifications, the final design will address such concerns for neighbors as site safety, control measures for dust and odors, environmental monitoring, potential for release of airborne contaminants, truck routes, and hours of operation.

Funding and time frame

Based on the preliminary design, the cost for constructing the proposed remedy is estimated at \$24.5 million. In order to implement the remedy, the MPCA would need to receive funding from the Minnesota Legislature. 3M has committed to providing up to \$8 million toward cleanup of the landfill, even though the company has no legal responsibility to do so under the

Closed Landfill Program. In addition to that amount, the MPCA is seeking \$15 million in the 2008 legislative

session for the cleanup. (The estimated cost for the project factors in a range of possible contingencies.) If funds are available, the MPCA plans to begin work on the site in late 2008 or early 2009. Construction would take three to four years to complete.

⇒

Public comment on the proposed remedy

The public can review and comment on the proposed remedy during a 30-day public comment period, from February 14 through March 15, 2008. The MPCA also will present the preferred remedy at a public informational meeting on Feb. 21, 2008, 7:00 p.m., at the Oak Land Junior High School in Lake Elmo, 820 Manning Av. N. Comments must be in writing and must

be received at the MPCA by close of business on March 15th.

After MPCA staff have reviewed all public comments, the agency will prepare a summary of the comments and explain the rationale for any revisions made based on comments received. The MPCA commissioner will make a decision on the remedy, which will be outlined in a final decision document. Comments should be directed by close of business on March 15, 2008 to:

Shawn Ruotsinoja
Minnesota Pollution Control Agency
Remediation Division
520 Lafayette Road North
St. Paul, MN 55155-4194

For more information

Documents related to the site are available on the MPCA's Web site at
<http://www.pca.state.mn.us/cleanup/pfc/pfcsites.html>.

Contacts at the MPCA are:

- Shawn Ruotsinoja, project manager, 651-282-2382 or shawn.ruotsinoja@pca.state.mn.us
- Ralph Pribble, Public Information Office, 651-296-7792 or ralph.pribble@pca.state.mn.us