



# Highway 96 Dump Superfund Site - Vinyl Chloride Sampling and Site History

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(revised)

This fact sheet provides information about vinyl chloride sampling and site history at the Highway 96 Dump Superfund Site in White Bear Township.

## Background

The Highway 96 Dump Site, located north of Highway 96 and west of Allendale Drive in White Bear Township, was operated as a small burning dump from the 1920s to 1973. During operation, the former dump accepted, primarily, solid waste. In the late 1960s, the dump owners and operators ran a business involving the transport of waste solvents to other facilities for recycling. Some hazardous wastes were disposed of at the dump.

In 1986, a study conducted by the U.S. Environmental Protection Agency (EPA) showed that ground water beneath the dump site was contaminated with volatile organic compounds (VOCs) including industrial, solvent-like chemicals. As a result of the study, the Minnesota Pollution Control Agency (MPCA) requested potentially responsible parties including Reynolds Metal Company, Whirlpool Corporation, Mrs. Helen A. Krawczewski, and Red Arrow Waste Disposal Company to investigate and clean up the contamination. Additional investigations found waste in drums, soil contamination, and landfill gas below the surface.

The investigations identified waste in two areas: the North Disposal Area (NDA) located in the northwest portion of the current development referred to as Weston Woods. Town house development has occurred in the South Disposal Area (SDA).

This area is near the intersection of Greenhaven Drive and Weston Woods Way.

## Soil and Waste Excavation Screening and Relocation

During 1987 and 1988, contractors for the responsible parties removed barrels containing hazardous substances from the NDA. Contractors for the responsible parties began additional cleanup work at the site in August 1994. The NDA and SDA waste material was screened for buried drums and associated contaminated soil. Contaminated soil and hazardous waste identified during the screening process was removed and hauled off-site for disposal. The contractors also drained the pond located within NDA. All of the pond water was discharged to the sanitary sewer. Sediment and material from the pond bottom were screened and drums of waste were removed. After screening the NDA and the pond, the contractors transferred all waste material from the SDA to the NDA. Tests of the SDA showed no residual contamination. Next, the SDA was back filled with clean soil. NDA material was compacted and capped with two feet of clean soil and remains on the property. This is the Consolidated Waste Area (waste deposit).

## Ground-water Remediation

Ground-water contamination is present beneath the waste deposit and has migrated to the west, in the direction of ground water flow. The ground-water contaminants found below the waste deposit include 1-1 dichloroethane, benzene, toluene,





trichloroethene, methyl ethyl ketone, trans -1, 2 – dichloroethane, and vinyl chloride. Since June 1989, a ground-water extraction system has been in operation at the site. The extraction system collects ground water from aquifers below the surface to stop the spread of contamination in the ground water. The ground-water extraction system has been effective in limiting the spread of contamination and removing contaminants from the ground water. The contaminated ground water is discharged to the sanitary sewer for treatment. Regular ground water monitoring by the responsible parties will continue for many years.

In late 1994, after the consolidation of the NDA and SDA, a leachate collection well was installed directly under the waste deposit. Its purpose is to collect the leachate before it reaches deeper, drinking-water aquifers. Leachate is produced when rain and melting snow filter through the waste and dissolve chemicals from the waste. The responsible parties will continue to operate the collection well to reduce the potential for degradation of the ground water in the deeper, drinking-water aquifers.

## History of Well Sampling and Ground-water Monitoring

In 1993, 12 homes in North Oaks were issued drinking water advisories by the Minnesota Department of Health because of vinyl chloride in the well water at levels exceeding the existing health-based risk levels. Vinyl chloride is a volatile organic compound. It has been found at the Site and is often found in old dumps and landfills containing municipal and/or industrial waste.

Prior to the installation of the ground-water extraction system, the ground-water plume extended from the waste deposit to the west, in the direction of North Oaks. The responsible parties have taken actions to address this off-site contamination. In 1994, 60 North Oaks homes with private wells were connected to the White Bear Township municipal water system.

Residential wells within the area where homeowners connected to the municipal water supply were sealed with cement or grout. Five residential wells on the east side of Gilfillan Lake were converted to long-term ground-water monitoring wells. One of these monitoring wells was sealed in 2000. Long-term site plans required by the MPCA include ongoing monitoring of the four remaining monitoring wells and periodic monitoring of residential wells that have not been connected to the municipal water system.

The MPCA and the responsible parties continue to monitor the ground water at the Site and in the nearby residential area. The current ground-water monitoring network on site includes 18 wells which are screened in the perched ground water, the unconsolidated glacial aquifer (Lower Sand Aquifer) and the St. Peter Sandstone Aquifer. Ground-water samples are collected from the on-site monitoring wells annually. Ground water collected from nine compliance wells is analyzed to evaluate the effectiveness of the extraction system.

Since 1993, the MPCA and the responsible parties for this site have monitored the residential wells outside the municipal water service area (on the north, south, and west sides of Gilfillan Lake, the northern end of Robb Farm Road, and Mallard Lane). Fifty residential wells have been identified in these areas. Under the current monitoring program, the MPCA selects nine residential wells each year for sampling. In addition, the four monitoring wells are sampled every year. All 50 of the residential wells identified in the areas mentioned above have been sampled at least twice since monitoring began.

So far, only three residential wells located on the west side of Gilfillan Lake have been found to contain vinyl chloride at concentrations that are at or below the Minnesota Department of Health's health risk limit of 0.2 micrograms per liter. A health risk limit is the highest concentration of a contaminant that is safe to ingest on a daily basis over the course of a lifetime.

Vinyl chloride was detected at one residential well in 1993. This residential well and five other locations on the west side of Gilfillan Lake have been sampled for VOCs between 1994 and 2000 annually as a precautionary measure. Vinyl chloride was not detected in any of the residential wells on the west side of Gilfillan Lake between 1994 and 2003.

During the October 2004 sampling event, vinyl chloride was detected in two of sixteen residential well samples on the west side of Gilfillan Lake at 0.12 parts per billion. No other VOCs, including vinyl chloride, were detected in the other 14 residential wells on the west side of Gilfillan Lake. Of the two residential wells with detects, only one of the wells had previously shown the presence of vinyl chloride in 1993.

An enhanced, residential-well monitoring program was implemented in January 2005 to confirm the presence and evaluate the extent of vinyl chloride in the ground water on the west side of Gilfillan Lake. The enhanced



monitoring program included sampling the two residential wells with detects on a monthly basis from January 2005 through May 2005. The enhanced, residential-well monitoring program was expanded during the March 2005 sampling event to include an additional 34 residential wells. In May 2005, 21 residential wells were sampled and in June 2005, 25 residences were sampled. In August 2005, another round of sampling will be conducted.

During the April 2005 sampling event, vinyl chloride was detected at one home at .2 ug/l, the MDH HRL for vinyl chloride. In addition, in May 2005, the MDH issued a drinking water well advisory for one home because of the presence of multiple chemicals in the ground water, including vinyl chloride.

During the May 2005 sampling event, Methyl ethyl ketone (MEK) was detected in six well samples at 6 ug/l. The HRL for MEK is 4,000 ug/l. Previous sampling events did not detect MEK, but subsequent sampling events in June 2005 detected MEK in different locations than the May sampling.

At this time, the HRL for MEK is 4,000 ug/l., MEK does not appear to originate from the landfill. However, future sampling events will include MEK analysis.

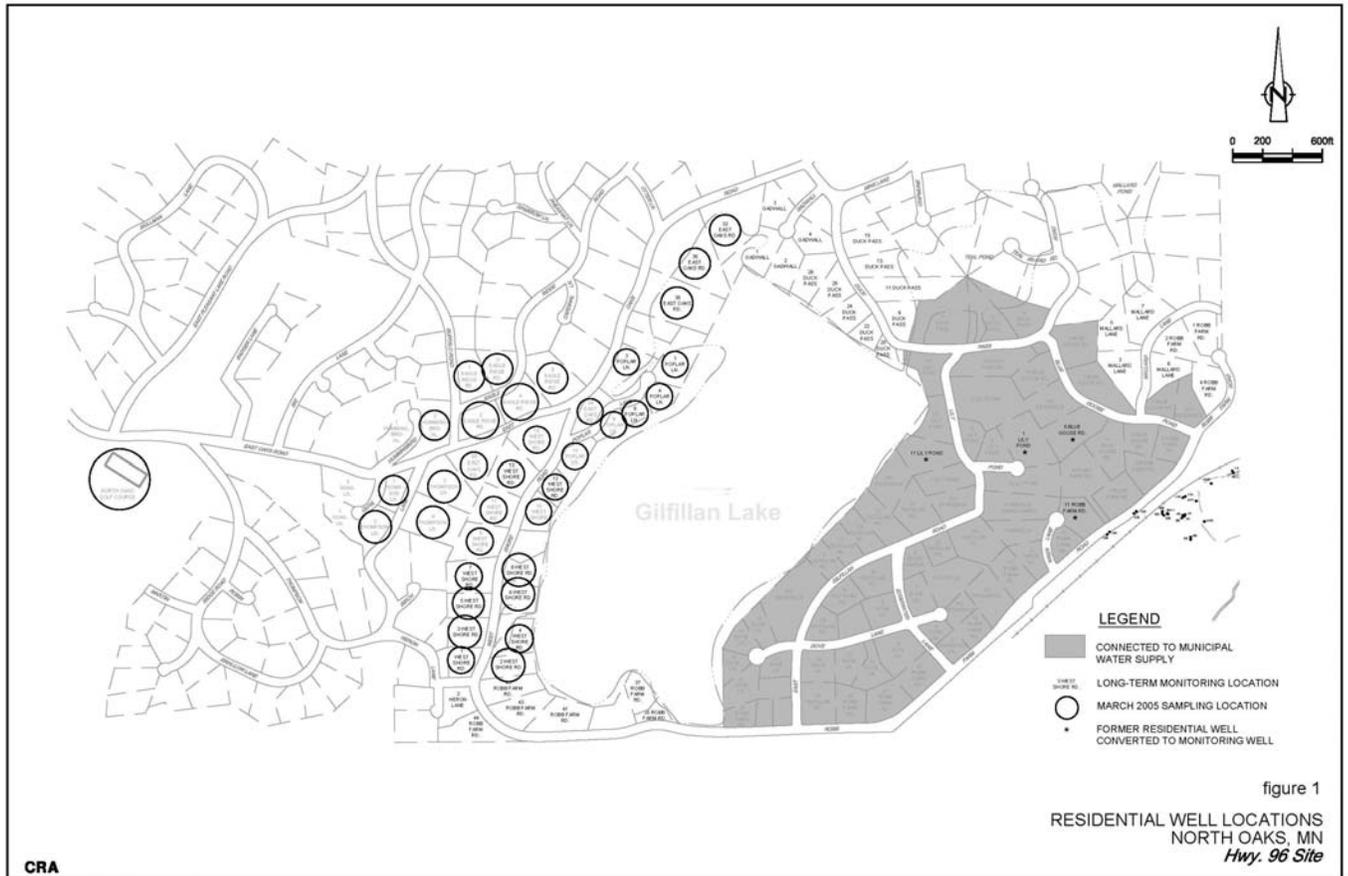
## Chronological Summary

- Highway 96 Dump Site operated as a dump from the 1920s to 1973. In the late 1960s, the owners and operators of the dump also had a business of transporting waste solvents to other facilities for recycling. Some of these hazardous wastes were disposed of at the dump, at times without the knowledge of the companies generating the wastes.
- EPA's study in 1986 showed ground-water contamination that includes VOCs.
- Responsible parties ordered to begin investigation and cleanup of site. Site is divided into two disposal areas: the North Disposal Area (NDA) and the South Disposal Area (SDA).
- Drums were removed from the NDA between 1987 and 1988.
- Contractor conducted additional cleanup work at the site in 1994.
- Contaminated soil and hazardous waste were removed during screening process and hauled away for disposal. A pond in the NDA was drained and discharged to sanitary sewer. Remaining sediments and material from pond bottom were screened and drums of waste were removed. Next, all SDA waste material was transferred to the NDA. SDA was tested for residual contamination and none was found. Material remaining in the NDA was consolidated, compacted and capped with two feet of clean soil.
- A ground-water plume is present below the Consolidated Waste Area (waste deposit) and is migrating to the west, in the direction of the ground-water flow. Contaminants found include 1-1 dichloroethane, benzene, toluene, trichloroethene, methyl ethyl ketone, trans - 1, 2 - dichloroethane and vinyl chloride.  
  
A ground-water extraction system has been in place since 1989 collecting ground water from aquifers below the surface to stop the spread of contamination in the ground-water plume into North Oaks. The extraction system has been successful in limiting the spread of contamination and in the removal of contaminants in the water. Contaminated ground water is discharged to sanitary sewer for treatment and the ground water will continue to be monitored.
- In 1994, a leachate collection well was installed under the waste deposit. The well is in place to prevent leachate from reaching deeper, drinking-water aquifers. (Leachate is the liquid material that results from the mixture of chemicals from waste and rain or snow melt.)
- The ground-water plume currently extends from the waste deposit to the west, in the direction of North Oaks.
- In 1994, 60 homes in North Oaks with private wells were connected to the White Bear Township municipal water system.
- In 1993 vinyl chloride was detected below the HRL at one home on the west side of Gilfillan Lake.
- From 1994 to 2004, vinyl chloride was not detected in samples from wells on the west side of Gilfillan Lake.
- In October 2004, vinyl chloride was detected at levels below the HRL at two homes on the west side of Gilfillan Lake.



- In January 2005, an enhanced sampling program on the West side of Gilfillan Lake was, and continues to be, undertaken.

This map gives a general idea of where sampling is taking place.



## For More Information

Complete reports on the investigation and implementation of the response actions are available for review at the MPCA's St. Paul office. If you would like additional information or have questions about the Highway 96 Dump site, please contact Fred Campbell at (651) 296-7267.

You can also contact James Kelly from the Minnesota Department of Health (651) 215-0913 for assistance with questions about ground-water health risk limits.

You can access the MPCA's Web site for more information about the state and federal Superfund Program at

[www.pca.state.mn.us/programs/superf\\_p.html](http://www.pca.state.mn.us/programs/superf_p.html)