



# Fridley Commons Park Well Field Superfund Site

This Minnesota Pollution Control Agency (MPCA) fact sheet for the Fridley Commons Park Well Field Superfund Site, located in the city of Fridley, Anoka County, Minnesota will:

- summarize site historical and investigation activities conducted during the remedial investigation,
- discuss the risks to human health and the environment that may be present at the site, and
- indicate the current status of the site.

## Where is the site?

The Fridley Commons Park Well Field is an active well field with eight public wells, owned by the city of Fridley. The well field serves a population of about 29,000. The site is about one mile north-northwest of the intersection of Interstate Highway 694 and Minnesota Highway 65. The site is about one mile east of the Mississippi River and approximately 0.2 mile northwest of Moore Lake. The site provides recreational activities, and land use in the area surrounding it is mostly residential, with some areas of commercial and industrial use.

The city owns and operates eight municipal water supply wells and a water treatment plant (City Plant #2) at the site. Four of the wells (wells #6, #7, #8 and #9) are open to the Prairie du Chien-Jordan (PdCJ) Aquifer. The other four wells (#2, #3, #4 and #5) are screened in the deeper Mount Simon Aquifer. Water from the wells is blended and treated before it is distributed to the community.

## What is the site's background?

In 1981, the city of Fridley began sampling its wells for the presence of volatile organic compounds (VOCs). Although trichloroethylene (TCE) was detected in well #9 in February 1984, it was not detected in blended water from the well field. In 1989, TCE was added to the list of chemicals with maximum contaminant levels (MCLs), which specify maximum concentrations of contaminants allowed by the U.S. Environmental Protection Agency (EPA) for public water supplies under the federal Safe Drinking Water Act. The MCL for TCE is 5 micrograms per liter ( $\mu\text{g}/\text{L}$ , equivalent to parts per billion).

Subsequent testing of the wells at the site revealed that the four PdCJ Aquifer wells (#6, #7, #8 and #9) were contaminated with low levels of VOCs (mainly TCE). Analyses indicated that well #9 consistently had the highest concentrations of TCE. Well #9 was taken out of service in February 1989. Between 1989 and 1993, this well often showed TCE levels above the MCL.

In addition to taking well #9 out of service, the city used blending and decreased reliance on the PdCJ Aquifer wells to meet water-quality standards at the well field. However, the city indicated that periods of peak demand in summer forced it to utilize the wells (#6, #7 and #8). This renewed pumping caused the TCE levels in the PdCJ wells to rise again. The data showed that TCE concentrations in wells #6, #7 and #8 seem to be directly related to the volume of water pumped from them.

The city's water supply has been partially supplemented by an interconnection to the New Brighton water system that was completed in October 1992. This interconnection provides excess water from a groundwater-treatment system installed in New Brighton to remediate groundwater affected by the release of TCE from the Twin City Army Ammunition Plant (TCAAP). Most water is supplied in winter, as New Brighton's summer demand leaves little water to be provided to Fridley. The city has not used its municipal wells as much since the interconnection occurred.

## What's the cleanup history of the Fridley Commons Park Well Field Superfund Site?

At the recommendation of the Minnesota Department of Health (MDH), the city of Fridley took well #9 out of service due to TCE contamination levels that might cause the water supply to exceed the MCL. Wells #6, #7 and #8, while at various times indicating contamination from TCE, remained in service and were used primarily during times of peak summer water usage.

On February 20, 1991, the Fridley Commons Park Well Field Site, numbered MN985701309, was placed on the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) inventory of potential hazardous waste sites. The preliminary assessment (PA) was completed by MPCA staff and approved by the EPA on September 20, 1991. A screening site inspection (SSI) was conducted by MPCA staff on November 5 and 6, 1991. The SSI report was submitted to the EPA and approved on July 6, 1992. The SSI recommended the site for an expanded site inspection (ESI). The site was added to Minnesota's Permanent List of Priorities (PLP), the state Superfund list, in June 1992. The 1996 ESI recommended listing on the National Priorities List (NPL), the federal Superfund list, and more effort to define the source within the limitations of cost. The site was listed on the NPL in February 1999.

The MPCA conducted investigations after the closure of well #9 to narrow the range of the contamination source possibilities. The report by Barr Engineering, titled *Evaluation of Groundwater Contamination, Fridley Commons Park Well Field Site, March 1997*, recommended an alternative water supply to be planned for implementation during peak-demand periods, some longer-term investigative techniques, and additional work to locate the source of the TCE contamination. The report concluded that it is likely an MCL violation will occur. Therefore, the report recommended that a more reliable source of TCE-free water should be provided.

In 2000, the MPCA contracted with Delta Environmental Consultants to conduct a limited remedial investigation of the site. Monitoring wells in the area were sampled and the Moore Lake Dump was investigated. To accomplish this, a new monitoring well was placed near the dump. Because homes now covered the dump, borings and trenching was not feasible. All well-monitoring data from the dump area showed undetectable levels of TCE. At that time, evaluation of more recent data for wells #6, #7, #8 and #9 showed reduced levels of contamination in all four wells, with only well #9 still consistently over the MCL.

In 2002, the MPCA had Delta Environmental Consultants prepare a focused feasibility study (FFS). The FFS evaluated several remedial alternatives, including installing new wells, activated carbon treatment, and aeration treatment, to address the remaining contamination above the MCLs.

The city and the MDH continue to monitor the PdCJ wells while they are being used. Monitoring results since 2002 indicated that the concentration levels of TCE have remained below the MCL or were not detected in wells #6, #7 and #8. Concentrations in well #9 have been below the MCLs since January 2004. Also, breakdown products of TCE [for example, dichloroethylene (DCE) or vinyl chloride] were not being detected.

According to city personnel, wells #6, #7, #8 and #9 were used throughout the summer of 2004 and contaminant levels remained below the MCL. Whereas studies in the 1990s had shown levels of contamination increasing with usage, water-quality monitoring in 2005 continued to show that levels of TCE were nonexistent or below the MCL. No source of TCE has ever been identified. However, TCE contamination in the groundwater has been documented at other Superfund sites within two miles of the well field. These sites include the Naval Industrial Reserve Ordnance Plant (NIROP), Kurt Manufacturing, FMC Corporation, and the New Brighton/Arden Hills Twin Cities Army Ammunition Plant (TCAAP).

Given the complexity of the groundwater flow system in the PdCJ Aquifer, other major sources that have been documented nearby, the significant costs of installing multiple monitoring wells necessary for additional investigation activities, the limitation of potential funding, and that TCE has remained below

the MCL at the well field since 2004, additional efforts to identify the potential source of TCE contamination at the site were not pursued. When the levels of TCE contamination in wells #6, #7, #8 and #9 were not detectable or were not detected above the MCL for several years, the MPCA and the EPA wrote a No Action Record of Decision (ROD) that was proposed in July 2005. A public meeting to discuss the proposed ROD was held July 21, 2005. The ROD was signed in September 2005.

Additional monitoring of wells #6, #7, #8 and #9, as required by the ROD, has continued to find TCE concentrations undetectable or below the MCL for all four wells. The MPCA removed the Fridley Commons Park Well Field site from the state Superfund list in April 2010.

## Summary of site risks

The chemical of concern for this site is TCE, which was present in groundwater, and had at one time been detected in municipal wells at concentrations above the MCL. TCE is a colorless solvent with a slightly sweet odor used primarily in industrial processes as a degreaser for metal parts. Since TCE is very volatile, it is not typically found in surface soil or surface water. TCE is a probable human carcinogen. Long-term exposure to high levels of TCE in drinking water can damage the liver, kidney, immune system, and nervous system.

Potential routes of exposure for TCE-impacted water at Fridley include direct contact during activities, such as bathing and dishwashing, ingestion of drinking water, and inhalation of volatilized TCE. However, the well with the highest contamination (well #9) was shut off in 1989, and water from wells #6, #7 and #8 was used only in summer during periods of peak demand. In addition, water from wells #6, #7 and #8 was mixed with water from non-impacted wells to ensure that any TCE concentrations in the finished water were below the MCL. Thus, human exposure to TCE from the Fridley water system has been below health-based standards or nonexistent.

The vapor intrusion exposure pathway was evaluated consistent with EPA's Draft Subsurface Vapor Intrusion Guidance (November 2002). Potential exposure to contaminants via this pathway is considered negligible because (1) contaminant concentrations in the aquifer are located at depths greater than 125 feet below ground surface, (2) contaminant concentrations are sufficiently low, and (3) the contaminant concentrations are not found in the uppermost zone of groundwater.

Since contamination at the site is limited to one contaminant in the groundwater, exposure to contamination is limited to uses of the water supply and is regulated under the Safe Drinking Water Act. Contaminant concentrations in wells at the site have been below the established MCL, which is a health-based standard, since January 2004. Therefore, current concentrations of TCE at the site are considered protective of human health. There are no ecological exposures to contamination at this site and therefore ecological risks are not evaluated.

## Where can I get more information?

For more information about the Fridley Commons Park Well Field Superfund site or its remediation process, contact:

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To view the documents in the MPCA's administrative record that contain more details on the cleanup activities at this site, call the MPCA at 651-296-6300 or 800-657-3864.