



Minnesota
Pollution
Control
Agency

Highway 96 Dump Superfund Site Proposed Plan

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The Minnesota Pollution Control Agency (MPCA) proposes to amend the Minnesota Decision Document (MDD) dated October 7, 1993 for the Highway 96 Dump Superfund Site (Site) located in North Oaks, Ramsey County, Minnesota. This Proposed Plan Fact Sheet describes the MPCA's preferred remedy for Operable Unit 4 (Residential Drinking Water – west of Gilfillan Lake), which will be memorialized as an amendment to the MDD.

In 1993, MPCA issued a MDD, which identified selected remedies for three operable units associated with the Site:

- Operable Unit 1 – Source Control
- Operable Unit 2 – Groundwater Remediation
- Operable Unit 3 - Residential Drinking Water (east of Gilfillan Lake)

Since 1993, the selected remedies for Operable Units 1, 2 and 3 have been implemented by the responsible parties (RP) pursuant to the MDD and under the direction of the MPCA.

The MDD amendment will select a remedy for the following additional operable unit associated with the Site:

- Operable Unit 4 – Residential Drinking Water (west of Gilfillan Lake)

The MPCA established Operable Unit 4 based on residential well monitoring conducted since 2004, which revealed vinyl chloride contamination in four wells west of Gilfillan Lake. This new Operable Unit includes homes west of the lake with wells that could potentially be impacted by

vinyl chloride contamination from the Highway 96 Dump Site.

The remedies and obligations of the RPs identified in the 1993 MDD for Operable Units 1, 2, and 3 will continue to be implemented, and will not be altered by the establishment of Operable Unit 4 or the MDD Amendment.

This Proposed Plan will:

- Summarize historical Site investigation, and remedial action activities conducted by the responsible parties (RPs) in accordance with the MDD
- Summarize current groundwater conditions associated with Operable Unit 4 and potential changes at the Site
- Discuss the risks to human health and the environment that may be present at the Site
- Outline the potential remedial action alternatives evaluated in the July 2007 Feasibility Study (FS) Report
- Identify the MPCA's preferred remedial action plan for Operable Unit 4 and explain why the MPCA prefers this remedy
- Ask for public comment on the Proposed Plan as part of the remedy selection process for Operable Unit 4

This Proposed Plan summarizes all remedial action alternatives evaluated to date for the Highway 96 Dump Site Operable Unit 4. All alternatives summarized in this Proposed Plan are more thoroughly described in the July 2007 FS

Report, the MPCA's September 25, 2007 FS comment letter, the RP's October 25, 2007 response to MPCA's FS comments letter, the MPCA's November 7, 2007 FS and Response to Comments Approval Letter Report, the MPCA's September 25, 2007 FS Comment Letter, the RP's October 25, 2007 Response to MPCA's FS Comments Letter, and the MPCA's November 7, 2007 FS and Response to Comments Approval Letter.

For more details on all remedial action alternatives, see the FS and other pertinent documents in the Administrative Record, which is kept at the Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155.

The public's review and comment on the remedial action alternatives, and on the information that supports the alternatives, is an important contribution to the remedy selection process. The public is invited to submit written comments with regard to this Proposed Plan on or before March 21, 2008. During this time, please send comments to:

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St. Paul, MN 55155-4194
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Toll-free/TDD: (800) 657-3864

The public is also encouraged to attend and submit written comments in person at the public meeting scheduled for:

February 26, 2008
7:30 p.m.
East Rec Center, North Oaks

Based on new information or public comments received during the comment period, MPCA may modify the recommended alternative or select another alternative presented in this plan and/or the FS. After evaluating all pertinent information and public comment, the MPCA will select a final remedial action plan for Operable Unit 4 that will be memorialized in an amendment (MDD amendment) to the Minnesota Decision Document.

The MPCA is issuing this Proposed Plan as set forth in Minn. Stat. § 115B.17, subd. 2b of the Minnesota Environmental Response and Liability Act (MERLA).

Background

From the 1920s to 1973, the Highway 96 Dump Superfund Site, located north of Highway 96 and west of Allendale Drive in White Bear Township, Minn, operated as a small unpermitted open dump, with periodic burning to reduce volume. The dump accepted primarily solid waste. In the late 1960s, the dump owners and operators ran a business involving the transport of waste paints and solvents to other facilities for recycling. Some waste paints and solvents were disposed of at the Site.

In 1986, the U.S. Environmental Protection Agency (EPA) discovered that ground water beneath the Site was contaminated with volatile organic compounds (VOC) including industrial, solvent-like chemicals. As a result of the discovery, the MPCA identified responsible parties including Reynolds Metal Company, Whirlpool Corporation, Mrs. Helen A. Krawczewski, and Red Arrow Waste Disposal Company. The MPCA requested them to investigate and clean up the contamination. Additional investigations found waste in drums, soil contamination, and landfill gas below the surface, in addition to better defining the extent of the ground water contamination.

Remediation of the Site commenced in 1987 and consisted of four major remedial components: source remediation, ground water remediation, alternate water supply, and groundwater monitoring. The RPs completed three interim response actions (IRAs). In 1987 – 1988, the RPs removed waste drums from the north- and south disposal areas (NDA and SDA). In 1989, the RPs installed an extraction well at the NDA to capture contaminated ground water. In 1993, the RPs removed waste drums from the SDA. In 1994, after the consolidation of the NDA and SDA into the consolidated waste area (CWA), the RPs installed a leachate collection well directly under the CWA to collect the leachate before it reached deeper, drinking-water aquifers. However, prior to the installation of the ground-water extraction system, the ground-water plume migrated from the CWA to the west, in the direction of Gilfillan Lake.

In 1993, the Minnesota Department of Health (MDH) issued drinking water advisories to 12 homes on the east side of Gilfillan Lake because of vinyl chloride in the well water at levels exceeding the existing health-based risk levels. Vinyl chloride is a VOC that has been found in ground water at the Site and is often found in old dumps and landfills containing municipal and/or industrial waste.

Pursuant to the MDD, the RPs took action to address this off-site contamination. In 1994, the 12 homes with private wells subject to an MDH well advisory were connected to the White Bear Township municipal water system. Other alternatives would have been equally effective at protecting human health; however, municipal water was selected because nearby developments were interested in using municipal water. Thus, the municipal system was a joint project, and was partially funded by sources other than the RPs. As a result of this joint project 48 additional homes were connected to municipal water.

Residential wells within the area where homes were connected to the municipal water supply were sealed with cement or grout. At that time 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 in the MDD included ongoing monitoring of the four remaining monitoring wells and periodic monitoring of residential wells in homes that have not been connected to the municipal water system on the east side of Gilfillan Lake.

In 1993, at the time the remedial action was selected, vinyl chloride was detected at one residential well on the west side of Gilfillan Lake. The concentration was below the level warranting a MDH drinking water advisory. However, as a precautionary measure, the MDD required this residential well and approximately ten other locations on the west side of Gilfillan Lake be sampled periodically for VOCs. Between 1994 and 2000, the wells were sampled annually, and from 2000 to 2004, the wells were sampled every two years. Vinyl chloride was not detected in any of the residential wells on the west side of Gilfillan Lake between 1994 and 2003.

Current Conditions – Operable Unit 4

In October 2004, during routine monitoring of residential wells in the Gilfillan Lake area, low levels of vinyl chloride were detected in water samples collected from two residential wells located west of Gilfillan Lake.

In response to the October 2004 detections of vinyl chloride in residential wells west of Gilfillan Lake, the RPs subsequently conducted a number of residential well sampling events. The residential well sampling events conducted in 2005, 2006, and 2007 of over 80 residential wells in the southeast area of North Oaks, showed that the vinyl chloride contamination is limited to four residential wells located near the west shore of Gilfillan Lake. To date, the vinyl chloride

concentrations have remained at or below the health risk limit (HRL) for vinyl chloride established by MDH.

In May 2005, MDH issued a drinking water well advisory for one home because of the presence of vinyl chloride, in addition to two other VOCs, unrelated to the dump Site.

Since May 2005, the RPs have installed six monitoring wells west of Gilfillan Lake, and profiled the aquifer for vertical distribution of vinyl chloride contamination. Sampling of residential and monitoring wells has continued on a regular basis.

The RPs conducted an extraction system pilot test in the Ski Lane Ravine from November 2006 through December 2006. The pilot test included extraction- and monitoring well installation, aquifer performance testing, and infiltration analysis.

Summary of Site Risks

The chemical of concern for this Site, including Operable Unit 4, is vinyl chloride, which is present in ground water at concentrations equal to, or below the MDH HRL.

In March 2006, the Agency for Toxic Substances and Disease Registry (ATSDR) issued a Health Consultation Report for “North Oaks Private Well Contamination Associated with the Highway 96 Dump Site.” A copy of the Health Consultation Report can be found in the Administrative Record.

As described in the Health Consultation Report, vinyl chloride at room temperature is a colorless gas, burns easily, and is not stable at high temperatures. Vinyl chloride is a manufactured substance; however, it can be formed in the environment when other manufactured substances, such as trichloroethene, and tetrachloroethene, are broken down by certain microorganisms. Vinyl chloride is a probable human carcinogen. Long-term exposure to high levels of vinyl chloride in drinking water can damage the liver, respiratory system, and central nervous system.

Potential routes of exposure for vinyl chloride impacted water include direct contact during activities such as bathing and dish washing, ingestion of drinking water, and, although the risk is minimal, inhalation of volatilized vinyl chloride.

The only exposure to vinyl chloride, for Operable Unit 4, occurs through the use of private well water. MDH rules regulate private wells through the HRLs. Vinyl

chloride concentrations in residential wells on the west side of Gilfillan Lake have been at or below the established HRL of 0.2 parts per billion. Therefore, current concentrations of vinyl chloride in residential well water on the west side of Gilfillan Lake do not pose a risk to human health. The only well advisory currently issued by MDH is the result of other VOCs (unrelated to the dump) in addition to vinyl chloride.

While it is difficult to predict the fate of the remnant groundwater contamination, it is possible that the concentrations of vinyl chloride and/or other VOCs could increase in homes on the west side of Gilfillan Lake, thereby leading to additional well advisories.

There are no known ecological exposures to vinyl chloride at this Site and therefore ecological risks are not considered in this summary.

Remedial Action Objectives

The Remedial Action objectives for the current conditions on the west side of Gilfillan Lake are to protect the public from exposure to ground water which exceeds the HRLs, and to protect residential wells from the release or threatened release of contaminated ground water (e.g., vinyl chloride concentrations above the HRL).

Summary of Alternatives

The July 2007 FS identified and evaluated alternatives that could be used to remediate a release or threatened release from the Site and protect human health or welfare or the environment for Operable Unit 4. These alternatives were developed to address the vinyl chloride concentrations in ground water west of Gilfillan Lake (Operable Unit 4). In addition to cost, the FS evaluates, compares, and contrasts each alternative for short and long-term effectiveness, reduction of toxicity, mobility, or volume through treatment, implementation, and overall protection of human health and the environment (see Tables 4.4 and 5.5 of the FS). The FS which evaluates these alternatives has been placed into the Administrative Record for the Site, which is kept at the Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155.

The completed FS evaluates potential remedial actions under two potential scenarios related to contaminated ground water on the west side of Gilfillan Lake. Cost estimates are based on 20 years of operating each alternative and include installation costs.

- Scenario A: The concentrations of vinyl chloride and other site-related VOCs in water samples from residential wells west of Gilfillan Lake remain at or below the MDH HRLs and MDH does not issue a well advisory based on additivity.
- Scenario B: The concentrations of vinyl chloride and other site-related VOCs in water samples from residential wells west of Gilfillan Lake (singly or through additivity) exceed the MDH HRLs, and a well advisory is issued by MDH. (Based on a single Site-related compound or as the result of the additive presence of other compounds, in addition to a Site-related compound.)

Three alternatives were evaluated under Scenario A:

Alternative A1 - No Further Action. This alternative would involve no further remediation or monitoring west of Gilfillan Lake. The remedy and monitoring program at the CWA would continue as provided in the October 7, 1993 MDD.

Alternative A2 - Long Term Monitoring. This alternative would continue the regularly scheduled sampling of residential and monitoring wells. In addition, four new monitoring wells will be installed west of Gilfillan Lake. Two of these wells will be installed in the Ski Lane Ravine (located just east of Ski Lane, see attached figure) and two other wells will be installed at an angle near the west shore of Gilfillan Lake, and would monitor the St. Peter aquifer beneath the Lake. Based on available data, the latter wells will provide an indication of VOC concentrations under the Lake approximately two years prior to the same ground water arriving at any west shore residential well. The estimated cost for this alternative is \$739,364.

Alternative A3 - Ground Water Extraction and Monitoring. This alternative would involve the installation of a ground water extraction system in the Ski Lane Ravine area. The RPs have already installed one extraction well in this area, however, it is not currently operating. The RPs would add another extraction well and would install and activate the treatment/discharge system under this alternative.

The extracted ground water would either be treated by aeration and discharged to an infiltration basin, or discharged directly to Gilfillan Lake. The estimated cost to discharge to an infiltration gallery with long-term monitoring is \$1,146,591 for 20 years. The estimated

cost to discharge to Gilfillan Lake with long term monitoring for 20 years is \$1,188,591.

Four alternatives were evaluated under Scenario B:

Alternative B1 - No Further Action. This alternative would involve no further remediation or monitoring. The remedy and monitoring program at the CWA would continue as provided in the October 7, 1993 MDD.

Alternative B2 - Residential Carbon Filter and Monitoring. This alternative would require the installation of an in-home carbon filter to remove VOC contamination, including vinyl chloride at homes where MDH has issued a well advisory. Given the existing ground water conditions, two carbon filters (in series) would be required, together with an iron removal system. Continued monitoring is necessary to determine when the filters require replacement. Based on available information, carbon filters would likely require replacement in approximately two years. The long-term monitoring program would continue as in alternative A2. The estimated cost to provide carbon filters to three homes and continue monitoring for 20 years is \$807,687. Note that the number of homes (three) was assumed simply for cost estimating purposes, the actual number of homes could be more or less.

Alternative B3 - New /Deeper Residential Well and Monitoring. This alternative would require the installation of a new deeper well to provide clean water to a residence where MDH has issued an advisory. The new well would be drilled into the Prairie du Chien aquifer, and would be tested twice within the first six months to confirm that the well provides water that complies with HRLs. The long-term monitoring program would continue as in Alternative A2. The estimated cost to provide new wells to three homes and to continue monitoring for 20 years is \$799,731. Note that the number of homes (three) was assumed simply for cost estimating purposes, the actual number of homes could be more or less.

Alternative B4 - Municipal Water and Monitoring. This alternative would require the installation of, and connection to, a municipal water system at homes where MDH has issued a well advisory. Long-term monitoring would continue but be reduced in scope. The estimated cost to connect three homes to a municipal water system and to continue monitoring for 20 years is \$1,378,935. Note that the number of homes (three) was assumed simply for cost estimating purposes, the actual number of homes could be more or less.

MPCA-Recommended Alternatives

In Scenario A, where the concentrations of vinyl chloride and other site-related VOCs in water samples from residential wells west of Gilfillan Lake (singly or through additivity) remain at or below the MDH HRLs, the MPCA preferred option is Alternative A2. Long-term monitoring will continue to provide the information necessary to track the contaminant plume and will provide residences with information on the quality of their water. This alternative includes the addition of two monitoring wells to monitor ground water beneath Gilfillan Lake. These wells will provide an indication of ground water quality approximately two years before the same ground water arrives at residential wells on the west side of Gilfillan Lake.

In Scenario B, where the concentrations of vinyl chloride and other site-related VOCs in water samples from residential wells west of Gilfillan Lake (singly or through additivity) exceed the MDH HRLs, and a well advisory is issued by MDH, the MPCA preferred option, when homes within Geographic Area 3 (see attached figure) are issued well advisories, is Alternative B3.

Installation of a new/deeper well(s) will provide clean water to the affected residence, can be implemented in a timely manner, and will cause the least disruption to the community and the residence (e.g., there will be no need to periodically change filters in residences). Please note that the MPCA preferred option for Scenario B also includes Alternative A2 (Long-term monitoring).

If MDH issues well advisories to multiple homes outside Geographic Area 3, or to multiple homes scattered within Geographic Areas 3, 4 and 5 that exceed the HRLs (singly or through additivity), and other criteria to be developed by the MPCA are met, the MPCA preferred option is Alternative B4 (Municipal Water and Monitoring). This situation could occur, if the ground water plume on the west side of Gilfillan Lake expands.

Alternative A3 (extraction well system in Ski Lane Ravine) will be required when vinyl chloride levels in any of the monitoring wells which are located in the Ski Lane Ravine area exceed the HRL and are confirmed with a follow-up sample within 30 days.

What happens next?

The MPCA will present its Proposed Plan at a public meeting at 7:30 p.m. to 9:30 p.m. February 26, 2008, at the East Rec Center located at 5 Mink Lane, North Oaks, MN. The MPCA will take public comments on all proposed alternatives, and on the information that

supports the alternatives, until March 21, 2008.
Comments can be mailed to the addresses below.

The MPCA will review these comments and select a remedial action, which will be documented in the Minnesota Decision Document (MDD) Amendment. All comments received during the public comment period will be addressed in the Response to Comments, attached to the MDD Amendment. Design and construction of the remedial action for the west side of Gilfillan Lake will then begin, in accordance with the MDD Amendment.

Where can I get more information?

All of the site information, including the FS, can be found in the Administrative Record, which is kept at the Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155.

Contact Information

For more information about the Highway 96 Dump Superfund site or its remediation process or to submit a public comment before March 21, 2008, please contact:

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