SUPERFUND PROGRAM
FACT SHEET

EPA
REGION V

ST. ANTHONY MUNICIPAL WELL STUDY
ST. ANTHONY, MINNESOTA

JUNE 1986

INTRODUCTION

The U.S. Environmental Protection Agency (U.S. EPA) recently completed a study for the St. Anthony Municipal wells. This study examined and evaluated alternatives for replacing or treating the contaminated water from these wells. This fact sheet provides information on the study and the alternative proposed by the U.S. EPA. The full report on the study is publicly available at the St. Anthony Branch of the Hennepin County Public Library.

Concurrent with the U.S. EPA study of St. Anthony municipal wells, U.S. EPA is also funding Minnesota Pollution Control Agency's (MPCA) comprehensive study, known as a remedial investigation/feasibility study (RI/FS), of the New Brighton/ Arden Hills/ St. Anthony area to determine the nature and extent of ground-water contamination in the region.

THE PROBLEM

In 1981, MPCA discovered that the drinking water from wells in the New Brighton/Arden Hills/St. Anthony area was contaminated by volatile organic compounds (VOCs), primarily trichloroethylene (TCE). The City of St. Anthony has since shut down well number three, leaving only wells number four and five in full operation. All of the St. Anthony municipal wells extend into the Prairie du Chien-Jordan aquifer system. To supply water during peak use periods to the southern section of St. Anthony, the City of St. Anthony through, U.S. EPA funding, made a connection to the City of Roseville's water system.

At the present time, the water in well number five is below U.S. EPA's target drinking water concentrations for TCE. In the last few months, test results from well number four have slightly exceeded the TCE target levels. Water from well number five alone is insufficient to meet St. Anthony's water supply needs; therefore, U.S. EPA recommended investigating alternative water supply and treatment options for St. Anthony municipal wells in order to ensure a safe, sufficient supply of water should the elevated TCE levels persist or increase.

ALTERNATIVE RECOMMENDED FOR ST. ANTHONY MUNICIPAL WELLS

In studying options for treating or replacing water for St. Anthony, U.S. EPA evaluated a range of alternatives based on the following criteria used for all Superfund sites:

- Technical feasibility
- Environmental effectiveness
- Ability to meet relevant environmental standards and criteria
- Ability to protect public health
- Constructability
- Reliability
- Compatibility with other federal, state, and local regulations
- Cost
- Community acceptance

The alternatives for treating water from or replacing St. Anthony's wells

were narrowed down to the three alternatives listed below and then a detailed evaluation was conducted on each one.

1. Connection to the Roseville/St. Paul water system. Water would be supplied to St. Anthony by means of a direct connection into the Roseville water main located at the border between St. Anthony and Roseville. This alternative would supply enough water to meet St. Anthony's current needs.

2. Treatment of water from wells #3 and #4 to remove contaminants through carbon adsorption. Carbon adsorption involves pumping water from the wells through units containing granular activated carbon. The contaminants are attracted to the carbon surface and in effect filtered out of the water. Once the concentration of the contaminants adsorbed onto the carbon has reached a certain level, the carbon must be replaced.

3. Treatment of water from wells #3 and #4 by combining air stripping and carbon polishing. This alternative involves treating the contaminated water through a system combining an air stripper with a carbon adsorption unit. Air stripping involves pumping water from the wells to the top of an air stripping tower constructed at the site. As the water cascades down through the tower, a high-powered fan sends air upward past the water, causing the contaminants to volatilize (i.e., change from a liquid to a gas). With this change, contaminants removed from the water are released into the air. The air stripper would remove the majority of the volatile organic compounds (VOCs) and the carbon unit would treat the air stream from the air stripper to "cleanup" the emissions prior to release into the atmosphere.

THE RECOMMENDATION

The results of the study indicate that alternative number two, treatment of St. Anthony's water by carbon adsorption, is the most economically feasible while protecting human health and the environment. The proposed carbon adsorption system for St. Anthony wells #3 and #4 will consist of nine carbon units, known as carbon contactors, with each contactor designed for a flow of approximately 250 gallons per minute. This number of contactors will meet St. Anthony's estimated peak water demand of 3.1 million gallons per day. Each contactor will require 10,000 pounds of carbon. Based on average usage, carbon in six of the nine contactors will be changed annually. The estimated construction cost of this alternative is $700,000. Operation and maintenance costs are estimated at $170,000/year. Implementation of this alternative with federal funds is dependent on the availability of funding provided by the Superfund program.

SUPERFUND PROGRAM

Under Superfund, federal money is available to investigate and respond to releases or threatened releases of hazardous substances that may endanger public health or welfare or the environment. Money for Superfund has been provided through taxes on petroleum and certain other chemicals, general revenues and collections from parties legally responsible for Superfund sites. Congress is currently working toward reauthorizing funding for the program which expired in October 1985. The delay in reauthorization has resulted in a slow down of work at some sites as well as delays in implementing remedial actions. Consequently, implementation of the alternative chosen for St. Anthony municipal wells will be delayed until the Superfund Program receives additional funding from Congress.

ON-GOING ACTIVITES

At the New Brighton/Arden Hills/St. Anthony site, U.S. EPA has provided funding to MPCA to investigate the extent and sources of contamination. The first phase of that investigation is now complete. Results indicate that the U.S. Army's Twin Cities Ammunition Plant is a major source of contamination.

Subsequently, U.S. EPA has invited the Army to negotiate with the Agency and MPCA to formulate a coordinated plan for financing and addressing the contamination problem. The first phase of these negotiations have concluded with concurrence on the scope and nature of the work that remains to be done. Agreement on expanded participation by the Army is still in negotiation.

Under the Superfund reauthorization process, relationships between EPA and other federal agencies are being evaluated to clarify roles and responsibilities. Negotiations in phase two are continuing and are expected to culminate in an agreement that reflects these clarified roles. This negotiation process has been conducted concurrently with the separate agencies on-going project work.

PUBLIC COMMENT INVITED

The public is invited to submit written comments on the proposed alternative for St. Anthony to U.S. EPA. Letters must be post-marked on or before July 2, 1986 and should be sent to:

Judy Beck
Office of Public Affairs
U.S. EPA Region V
230 South Dearborn Street
Chicago, Il 60604

FOR MORE INFORMATION

Individuals desiring additional information about the study or the RI/FS are encouraged to review various documents that have been prepared for the site. Copies of applicable laws, the Phase 1 RI report, the study for St. Anthony, and other site-related materials are available at:

St. Anthony Branch Hennepin County Library 2900 Pentagon Drive, N.E. ST. Anthony, MN 55418 (612)781-1900	Hours: 12:00 p.m. - 8:30 p.m. M - W 12:00 p.m. - 5:00 p.m. Th 10:00 p.m. - 5:00 p.m. F

The following U.S.EPA personnel may be contacted to answer further questions regarding St. Anthony municipal wells:

Judy Beck Superfund Community Relations Coordinator (312)353-1325	Gene Wong Remedial Project Manager (312)353-6341

U.S.EPA - REGION V
230 South Dearborn Street
Chicago, Il 60604
Toll free number 800-621-8431
8:30 a.m. - 4:30 p.m. Central Time

GLOSSARY

Aquifer	A layer of rock or soil below the ground surface that can supply useable quantities of ground water to wells and springs.
Volatile Organic Compound (VOC)	An organic compound composed mainly of carbon and hydrogen that easily evaporates.
Trichloroethylene (TCE)	TCE is a VOC that is widely used as an industrial degreaser; a solvent for oils, paints, and varnishes; and a dry-cleaning agent. TCE is a central nervous system depressant. People exposed to high levels of TCE become sleepy, experience headaches, and may develop liver or kidney damage. Some animals exposed to high doses of TCE have developed cancer.
Contaminant Plume	A three-dimensional zone within the ground water that contains contaminants and generally moves in the direction of, and with ground-water flow.
Target Drinking Water Concentrations for TCE	"Target" drinking water concentrations for protection of human health from adverse effects of contaminants were derived for this study based on levels established by U.S. EPA's Cancer Assessment Group. The target concentration sets the cancer risk at 1×10^{-6} or one additional cancer death per 1,000,000 persons that have continually consumed contaminated water over a 70-year life span. This is where the upper limit is set.

MAILING LIST ADDITIONS

To be placed on the mailing list to receive information on St. Anthony municipal wells please fill out and mail this form to:

Judy Beck
Office of Public Affairs
U.S. EPA - Region V
230 South Dearborn St.
Chicago, Illinois 60604

Name: _____

Address: _____

Affiliation: _____

Phone: _____

EPA