

Record of Decision on Removal  
Action - City of New Brighton  
Granular Activated Carbon (GAC)  
System  
May 10, 1988

INSTALLATION RESTORATION PROGRAM - TWIN CITIES ARMY AMMUNITION PLANT

RECORD OF DECISION ON REMOVAL ACTION

City of New Brighton Granular Activated Carbon (GAC) System

SITE: Twin Cities Army Ammunition Plant (TCAAP), New Brighton, Minnesota.

DOCUMENTS REVIEWED:

I am making my decision primarily on the following documents for implementation of the removal action which, at a minimum, will be consistent with the final remedial action selected, following completion of the TCAAP Remedial Investigation (RI) and New Brighton/Arden Hills Feasibility Study (FS) currently being conducted by the Department of the Army (DA) and the New Brighton/Arden Hills RI being conducted by the U.S. Environmental Protection Agency (EPA) and the Minnesota Pollution Control Agency (MPCA).

DOCUMENTS

- Installation Restoration Program  
Twin Cities Army Ammunition Plant  
Groundwater Remediation Program Plan (GRPP) June 1986
  
- Installation Restoration Program  
Twin Cities Army Ammunition Plant  
Groundwater Remediation Program  
Boundary Groundwater Recovery System  
Contract Documents and Specifications August 1986
  
- Installation Restoration Program  
Twin Cities Army Ammunition Plant  
Boundary Groundwater Recovery System (BGRS)  
BGRS Extraction Well Pumping Test Report March 1987
  
- Installation Restoration Program  
Twin Cities Army Ammunition Plant  
Boundary Groundwater Recovery System (BGRS)  
Quality Assurance Project Plan (QAPP)  
BGRS Monitoring Program March 1987
  
- Installation Restoration Program  
Twin Cities Army Ammunition Plant  
Boundary Groundwater Recovery System (BGRS)  
BGRS Monitoring Plan March 1987

- Installation Restoration Program  
Twin Cities Army Ammunition Plant  
Boundary Groundwater Recovery System (BGRS)  
Performance & Evaluation Report March 1988
- Honeywell Off-TCAAP Investigation  
Phase II: Herbst Landfill Site February 1987  
Old Northwest Refinery Site February 1987  
Old Miller Dump Site Data Reports April 1987
- Honeywell Site Investigation  
Trio Solvents  
New Brighton, Minnesota September 1987
- Honeywell Off-TCAAP Investigation  
Phase III: Plume Definition Report  
Volumes 1 & 2 August 1987

DESCRIPTION OF SELECTED ACTION:

The New Brighton GAC systems, both temporary and permanent, are designed to provide potable water to the residents of New Brighton with the added benefit of groundwater remediation to the Prairie du Chien-Jordan Sandstone aquifer.

-- New Brighton GAC (temporary) System consisting of two (2) existing municipal wells with GAC treatment. This system will be operated primarily to meet summertime peak demands (1988 - 1989).

-- New Brighton GAC System (permanent) consisting of four (4) existing municipal wells with GAC treatment with an option to waste treated water in order to maintain pumping rates consistent with mitigating migration of VOCs beyond the New Brighton area.

DECLARATIONS:

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Contingency Plan (40 CFR Part 300), I have determined that the New Brighton GAC system is a cost effective removal action, which at a minimum, will be consistent with the final remedial action selected, following completion of the TCAAP RI and New Brighton/Arden Hills RI, and New Brighton/Arden Hills FS currently being conducted by DA and the EPA/MPCA. It is anticipated that the final remedial action selected will provide adequate protection of public health, welfare, and the environment. The EPA and MPCA have been consulted about the removal action. It has been determined that the treated effluent will

meet all Federal and state promulgated legally applicable or relevant and appropriate requirements. The selected action will require future operation and maintenance activities to ensure the continued effectiveness of the remedy. These activities will be considered part of the approved action and eligible for Department of Defense Environmental Restoration Account monies.

DA is currently implementing the DA/EPA/MPCA Federal Facility Agreement (effective 31 December 1987) in order to complete the RI/FS process. A Record of Decision will be prepared for approval of any future remedial actions selected prior to or after completion of the ongoing RI/FS.

5/10/88

Date

*Lewis D. Walker*

L.D. Walker

Deputy for Environment Safety and  
Occupational Health  
Office of the Assistant Secretary of the Army

Installation Restoration Program  
Twin Cities Army Ammunition Plant

INTERIM RESPONSE DECISION RECORD

City of New Brighton Granular Activated Carbon (GAC) System

TABLE OF CONTENTS

	<u>PAGE</u>
I. DEFINITION OF CONTAMINATION PROBLEM AT THE CITY OF NEW BRIGHTON	1
II. ANALYSIS OF THE GRANULAR ACTIVATED CARBON SYSTEM	3
III. IDENTIFICATION OF LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE (ARARs) REQUIREMENTS FOR THE GRANULATED ACTIVATED CARBON SYSTEM	4
IV. COMPLIANCE WITH IDENTIFIED ARARs	7
V. PUBLIC PARTICIPATION AND INTERIM RECORD OF DECISION	7
APPENDIX A: SITE GEOHYDROLOGY	
APPENDIX B: PUBLIC NOTICE PERIOD	

TABLES

1. Proposed Federal ARARs (Tables 1,2)	7
2. Referenced Reports (Table 3)	9

INSTALLATION RESTORATION PROGRAM  
TWIN CITIES ARMY AMMUNITION PLANT (TCAAP)

Interim Response Decision Record  
Groundwater Remediation Program  
New Brighton Granular Activated Carbon (GAC) System

I. DEFINITION OF CONTAMINATION PROBLEM AT THE CITY OF NEW BRIGHTON

TCAAP is a 2,370-acre Government-owned, contractor-operated plant located in the northern Minneapolis/St. Paul, Minnesota, metropolitan area. It is surrounded by commercial, light industrial and residential property and is bounded by four communities. TCAAP has surface drainage to the Rice Creek Watershed and is underlaid by a glacial outwash and sedimentary bedrock regional groundwater system. The regional groundwater system in the TCAAP area consists of the Hillside Sand & Gravel (unconsolidated), Prairie du Chien Group and Jordan Sandstone (consolidated) units.

TCAAP has been operated for the manufacture of artillery projectiles and small arms and associated munitions during World War II and the Korean and Vietnam Conflicts. In addition, portions of TCAAP have been leased for various manufacturing and storage operations. During the course of TCAAP operations, industrial wastes were generated and were treated and/or disposed onsite at various locations. The Initial Installation Assessment for Twin Cities Army Ammunition Plant, October 1978, Report No. 129, describes the past operational and disposal history for TCAAP.

In June 1981, volatile organic compounds (VOCs) were detected in the groundwater at and in the vicinity of TCAAP. Based on this finding, the Department of the Army (DA) and Honeywell, Inc. (Honeywell) initiated various cooperative studies under the Installation Restoration Program (IRP) in order to define the extent and magnitude of groundwater contamination emanating from the TCAAP. Results of the studies at TCAAP indicated that fourteen (14) potential sites exist within the Plant and that three (3) of the sites; Site D, Site G, and Site I (Building 502) are major contributors to regional groundwater contamination by VOCs. The extent and magnitude of groundwater contamination by VOCs has been defined from TCAAP to the New Brighton area. Response actions have been initiated at each of these sites that address source control utilizing various technologies:

<u>Site</u>	<u>Technology</u>
Site D	Capping/In-Situ Volatization
Site G	Capping/In-Situ Volatization
Site I	Source Removal/Groundwater Extraction/ Air Stripping.

Response actions have also been initiated at other sites within the Plant that have affected perched (localized) groundwater areas, however these sites are not

affecting the regional groundwater system. These actions consist of the following:

Site Technology

Site A	Groundwater Extraction/ Granular Activated Carbon (GAC)
Site J	Sewer Line Cleaning/Rehabilitation
Site K	Groundwater Extraction/ Air Stripping

The U.S. Environmental Protection Agency: Region V (EPA), Minnesota Pollution Control Agency, and DA recently entered into the EPA/MPCA/DA Federal Facility Agreement (FFA) (effective 31 December 1987) in order to coordinate efforts required under CERCLA/SARA. TCAAP is a federal facility located within the New Brighton/Arden Hills National Priority List (NPL) site. The FFA designates DA as the agency responsible for on-TCAAP investigations and EPA/MPCA as the agency for off-TCAAP investigations. A major requirement of the FFA is to define the contaminant plumes emanating from TCAAP beyond the New Brighton area. DA is responsible for remediation of contamination on the TCAAP and contamination which has migrated off the Plant. CERCLA Section 104 and Executive Order 12580 designates DA as responsible for carrying out removal activities with regard to TCAAP, including provisions of alternate water supplies where necessary.

Regional groundwater restoration has been initiated by DA and Honeywell for removal of VOCs through the IRP, TCAAP Groundwater Remediation Program (GRP). This Program is a multiplexed effort designed by DA and Honeywell that addresses contaminants both on and off TCAAP. The GRP is anticipated to consist of the following efforts;

- Phase I: Boundary Groundwater Recovery System (BGRS)
- Phase II: TCAAP Groundwater Recovery System (TGRS)
- Phase III: Plume Groundwater Recovery System (PGRS)

The Phase I: BGRS has been installed and is currently in operation. This system is located on the southwest boundary of TCAAP and is designed to prevent migration of VOCs in the regional groundwater system beyond the Plant boundaries. The Phase II:TGRS will address contaminated groundwater at the major sources on the Plant (Site D, Site G, and Site I) and will result in a centralized on-Plant groundwater recovery system consisting of the BGRS and TGRS. The BGRS/TGRS will result in the cost effective remediation of groundwater at the Plant. The Phase III:PGRS, if required, will be designed to capture and treat groundwater affected by VOCs between TCAAP and the City of New Brighton. Current definition of the contaminant plumes emanating from TCAAP indicates the PGRS may be required.

In July 1981, the City of New Brighton was notified by the Minnesota Department of Health that most of the City's water supply wells were contaminated with



several volatile organic compounds. At the time the contamination was identified, the City was operating seven wells (Wells 3 through 9). The total capacity of those wells (Figure ) at the time was approximately 8,200 gallons per minute (11.9 million gallons per day). As is typical, the capacity was greater than the maximum demand and provided a safety factor in case one or more pumps failed during a high demand period.

The Department of Health ordered the City to replace the contaminated supply as soon as possible. Since that time the City has deepened Wells 8 and 9 to pump from the Mt. Simon/Hinckley aquifer. It has also installed three new wells in that aquifer (Wells 10, 11 and 12). Wells 3, 4, 5 and 6 have been taken out of service due to the presence of volatile organic compounds at those wells in concentrations greater than that allowed for potable water supplies. Well 7 has remained in service, but the increasing concentrations of volatile organic compounds in this well make it unreliable for long-term use.

Accordingly, DA deems it appropriate to perform this removal action in order to provide the City with an alternative water supply.

## II. ANALYSIS OF THE GRANULAR ACTIVATED CARBON SYSTEM (GAC)

DA proposes a temporary treatment system to treat water from wells 5 and 6 to meet New Brighton's short term water needs. This system will be used to meet peak demands during the 1988 summer season (approximately May 15 through September 30) until the permanent system is in operation. Funding for the temporary system will be provided by DA.

DA also proposes to construct a permanent system to treat the water from City Wells 3, 4, 5 and 6. These wells are anticipated to operate on a continuous basis to control the migration of the north contaminant plume in the affected aquifer once a "wasting" mechanism for the excess treated water above City demands is identified and selected in accordance with the requirements of the DA/EPA/MPCA FFA. The water pumped by these wells would be treated and used as part (minimum of 80%) of the City water supply. Funding for the permanent system will be provided by DA.

Alternatives for supplying water to New Brighton were investigated and consisted of the following alternatives:

Alternative	Comment
No action.	Current water supply system obtains water from the Prairie du Chien-Jordan Sandstone aquifer and Mt. Simon-Hinckley Sandstones aquifer. Continued use of Mt. Simon-Hinckley Sandstones aquifers is not consistent with CERCLA/SARA because it adds the potential to spread contamination into that

formation and does nothing to remediate existing contamination in the Prairie du Chien-Jordan aquifer.

Mt. Simon-Hinckley Wells. Municipal water supply from the Mt. Simon-Hinckley aquifer is not desirable because of its high iron content and resulting expensive treatment. In addition, drilling and pumping in this aquifer increases the risk of cross contamination into this deeper formation. This option does nothing to remediate the Prairie du Chien-Jordan aquifer.

Treatment of contaminated wells in the Prairie du Chien-Jordan Sandstone aquifer. Alternative is consistent with CERCLA/SARA in that the contamination is removed from the affected aquifer. Treatment controls are available to safeguard public health and environment.

Outside water supply from sources. Outside water supplies are available to New Brighton, however, these source would have to be purchased from other incorporated areas and have no impact on groundwater remediation.

Treatment of contaminated wells was chosen as the best alternative.

Treatment technologies considered consisted of GAC and air stripping. GAC was chosen as the preferred treatment technology, however, for the following reasons.

First, because of its reliance on blowers for effective treatment, an air stripping facility is inherently more likely to require non scheduled maintenance requiring a system shutdown than a comparable GAC system. This was a high level concern given the fact that New Brighton is ultimately expected to meet at least 80% of its drinking water demand through provision of "treated" water.

Second, both permanent and temporary treatment systems are expected to be constructed adjacent to a City park. Therefore, visual esthetics and noise minimization were priority design considerations best addressed by the use of a GAC system which can be housed in a low silhouette building of comparable design to other City owned buildings already at the site and which operate virtually silently. An air stripping facility, on the other hand, would require at least three sixty-foot stripping towers to treat 4.0 MGD of water and would be intrusively noisy to users of the park.

Finally, air stripping water containing levels of contamination comparable to that which is expected to be treated in New Brighton would not result in air emissions of contaminants or pollutants at levels which exceed existing regulations. However, uncertainty about future ambient air standards for VOC emissions and the relative close proximity of the planned treatment facility to the inhabited areas weighed against choosing air stripping as the preferred

treatment technology. Both technologies can provide adequate cost effective treatment of water for public consumption in a suburban area. GAC was the chosen alternative.

The temporary/permanent GAC treatment facility would be constructed on City owned property near Wells 5 and 6. Water would be piped from Wells 3 and 4 to the GAC treatment system. Design of the permanent system would be scheduled to begin as soon as the temporary system has been designed. The temporary system is required to meet summer 1988 peak demand needs because of the lead time required for design and construction of the permanent facility.

### III. IDENTIFICATION OF LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE (ARARs) REQUIREMENTS FOR THE GRANULATED ACTIVATED CARBON SYSTEM

The purpose of this section is to identify the Federal and promulgated Minnesota legal ARARs which should be applied to the effluents from the Granulated Activated Carbon System pursuant to Section 121 of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

The specific activity under consideration is the initiation and operation of the GAC System as an interim operable unit response action to reduce the human exposure to hazardous substances. At this time there are hazardous substances but no known pollutants or contaminants, as defined by SARA, migrating to the New Brighton area. The U.S. Army in coordination with EPA/MPCA will determine whether there are any pollutants or contaminants migrating beyond New Brighton due to TCAAP activities and will take appropriate action if they present an imminent and substantial danger to public health or the environment.

Establishment of water quality criteria to determine the necessary extent and degree of remediation for groundwater migrating off TCAAP is not part of this Interim ROD. Such determinations will be based on ARARs or a risk based number and will be included in the final RI/FS and ROD. However, a treatment level for the GAC system of 5 ppb for TRCLE was determined to be appropriate as an interim response level. This action is being taken to provide immediate protection to public health pending approval of the final Remedial Action for TCAAP. The U.S. Environmental Protection Agency and the Minnesota Pollution Control Agency have been contacted for input on ARARs for the GAC system.

The initial step in selecting ARARs was to develop a list of Federal and promulgated Minnesota ARARs potentially relevant to the groundwater to be treated by the GAC system. The following factors were applied in selecting ARARs:

- o Any standard, requirement, criteria, or limitation under a Federal environmental law may be an ARAR. SARA 121(d)(2)(A)(i). Nonbinding advisories, goals, and guidelines are not ARARs.
- o Any promulgated standard, requirement, criteria, or limitation under a state environmental law that is more stringent than any Federal standard, of general applicability, enforceable by the state, and has been identified by the state to the Army in a timely manner may be an ARAR.
- o A Maximum Contaminant Level Goal (MCLG) issued under the Safe Drinking Water Act (SDWA) may be considered a potential ARAR given the specific reference to them in SARA 121(d)(2)(A).
- o Only substantive requirements may be ARARs. Procedural requirements such as permits, notice and reporting requirements in Federal and state laws do not apply to CERCLA response actions.

Based on the application of the above factors, the following standards and regulations are applicable Federal and Minnesota ARARs:

FEDERAL ARARs :

1. National Primary Drinking Water Regulations at 40 CFR Parts 141 and 142, issued pursuant to the SDWA, particularly the promulgated and proposed MCLs and MCLGs issued as part of these regulations. These are listed at Table 2.
2. Standards issued pursuant to the Clean Water Act relating to water quality, particularly discharge limitations and ambient water quality criteria (AWQC). These are also listed at Table 2.

MINNESOTA STATE ARARs :

3. Minnesota Water Quality Standards, Minnesota Chapter 7050 and MPCA Underground Waters, Minnesota Chapter 7060.

Discussion of ARARs Selected

New Brighton GAC System (Temporary) :

The GAC system ARARs apply to the operation of the treatment (temporary) system. Treated effluent will be utilized for municipal use and public consumption. Wells 5 & 6 will be used with the temporary GAC system (2.6 MGD treatment capacity).

New Brighton GAC System (Permanent) :

The GAC system ARARs apply to hydraulic extraction of Wells 3,4,5 & 6 and the operation of the treatment (permanent) system (4.0 MGD treatment capacity). Treated effluent will be utilized for municipal use and public consumption. The purpose of the system is to provide potable water to New Brighton.

**IV. COMPLIANCE WITH IDENTIFIED ARARs.**

Based on the above discussion and identification of ARARs, it is concluded that the proposed GAC System as an interim response action, will meet all ARARs. The 5 parts per billion level for TRCLE is a proposed level of performance for the GAC System and is in no way to be construed as an aquifer cleanup level for removing VOCs in place from groundwater for the entire plume emanating from TCAAP. The cleanup levels will be addressed in the TCAAP RI/FS currently being conducted by the U.S. Army. The final level of cleanup will be based upon the selection of the final remedy resulting from the TCAAP RI/FS and approval of the remedy by the U.S. Environmental Protection Agency administrator.

**V. PUBLIC PARTICIPATION AND INTERIM RECORD OF DECISION.**

Attached is an Interim Removal Decision Record on the New Brighton GAC operable unit. Pursuant to CERCLA, Section 113(k), 2 U.S.C. 9613(k) and Section 300.67 of the NCP, the public, local authorities, Region V of the U.S. Environmental Protection Agency, and the State of Minnesota were requested to comment on the Interim Response Decision Record and the proposed Record of Decision.

Notification of Comment Period	March 7, 1988
Public Comment Period Closing	March 27, 1988
Public Meeting	None
No written comments received.	

TABLE 1  
 INSTALLATION RESTORATION PROGRAM  
 TWIN CITIES ARMY AMMUNITION PLANT  
 GROUNDWATER REMEDIATION PROGRAM  
 CITY OF NEW BRIGHTON GRANULAR ACTIVATED CARBON SYSTEM  
 SPECIFICATIONS

CITY OF NEW BRIGHTON GRANULAR ACTIVATED CARBON SYSTEM (Temporary)

MUNICIPAL #	MINNESOTA NUMBER	AQUIFER	TOTAL DEPTH(ft)	SCREEN LENGTH(ft)	PUMPING RATE (gpm)	VOCS REMOVAL (#/day)
5	206796	JRDN	501	71	700	2.1
6	206797	JRDN	522	75	700	2.1

CITY OF NEW BRIGHTON GRANULAR ACTIVATED CARBON SYSTEM (Permanent)

MUNICIPAL #	MINNESOTA NUMBER	AQUIFER	TOTAL DEPTH(ft)	SCREEN LENGTH(ft)	PUMPING RATE (gpm)	VOCS REMOVAL (#/day)
3	206793	PDCJ	493	207	800	2.4
4	206792	PDCJ	499	231	800	2.4
5	206796	JRDN	501	71	700	2.1
6	206797	JRDN	522	75	700	2.1

TABLE 2

Installation Restoration Program - Twin Cities Army Ammunition Plant  
 GROUNDWATER REMEDIATION PLAN  
 PHASE III: PLUME GROUNDWATER RECOVERY SYSTEM  
 Proposed Federal Legally Applicable or Relevant and  
 Appropriate Standard, Requirement, criteria, or Limitation (ARAR)

Chemical Compound (2),(3),(4)	IRDMS Code	DRINKING WATER, ug/l		AMBIENT WATER QUALITY CRITERIA, ug/l (1) (for protection of human health)	
		MCLG	MCL	TOXICITY ingesting organisms only	CARCINOGENICITY ingesting organisms only
<b>purgeable organics</b>					
BENZENE	C6H6	0 (7)	5 (6)		
CHLOROFORM	CHCL3		100 (5)		
CARBON TETRACHLORIDE	CCL4	0 (7)	5 (6)		
1,1-DICHLOROETHANE	11DCLE	None	None		
1,2-DICHLOROETHANE	12DCLE	0 (7)	5 (6)		
1,1-DICHLOROETHYLENE	11DCE	7 (7)	7 (6)		
1,2-DICHLOROETHYLENE	12DCE	70 (10)			
TETRACHLOROETHYLENE	TCLEE				8
1,1,1-TRICHLOROETHANE	111TCE		200 (6)		
1,1,2-TRICHLOROETHANE	112TCE				6
TRICHLOROETHYLENE	TRCLE	0 (7)	5 (6)		
VINYL CHLORIDE	C2H3CL	0 (7)	1 (6)		
<b>metals</b>					
CHROMIUM	CR	120 (11)	50 (8)		
CADMIUM	CD		10 (8)		
LEAD	PB	20 (11)	50 (8)		
MERCURY	HG	3 (11)	2 (8)		
NICKEL	NI				
MANGANESE	MN		50 (9)		

- (1) Based upon  $10.E-05$  Cancer Risk Level.
- (2) Chemical compounds based upon the Installation Restoration Program, Twin Cities Army Ammunition Plant, Groundwater Remediation Program Plan, Table 2.3.
- (3) Vinyl chloride added as suspected degradation product of trichloroethylene.
- (4) Methylene chloride, acetone, and phthalate not included. Suspect laboratory contaminants.
- (5) Maximum Contaminant Level for Organics.  
40 C.F.R. 141.12
- (6) Proposed Maximum Contaminant Levels for Volatile Synthetic Organic Contaminants. 50 Fed Reg 46930, November 13, 1985.
- (7) Maximum Contaminant Level Goals (MCLG) for Organic Contaminants, 40 C.F.R. 141.50 (formerly Recommended Maximum Contaminant Level). Zero Level MCLG have been determined not to be relevant and appropriate requirements.
- (8) Maximum Contaminant Level for Inorganic Chemicals, 40 C.F.R. 141.11.
- (9) Secondary Maximum Contaminant Levels 40 C.F.R. 143.3.
- (10) Proposed Maximum Contaminant Level Goals for Synthetic Organic Chemicals, 50 Fed Reg 47022, November 13, 1985.
- (11) Proposed Maximum Contaminant Level Goals for Inorganic Chemicals, 50 Fed Reg 47022, November 13, 1985.



TABLE 3

INSTALLATION RESTORATION PROGRAM  
TWIN CITIES ARMY AMMUNITION PLANT  
REFERENCED REPORTS

<u>EPA/MPCA</u>	<u>REPORT TITLE</u>	<u>COMPLETION DATE</u>	<u>TRANSMITTED TO</u>
--	Twin Cities Army Ammunition Plant Environmental Contamination Survey Phase I Report	May 1983	X
--	Twin Cities Army Ammunition Plant Environmental Contamination Survey Phase II Report	June 1984	X
--	Honeywell VOC Remedial Investigation Building 502 and Vicinity	March 1985	X
--	Honeywell Off-TCAAP Investigation Phase I: 96-10-B Triangle	September 1985	X
--	Honeywell Off-TCAAP Investigation Phase II: Herbst Landfill Site	February 1987	X
	Old Northwest Refinery Site	February 1987	X
	Old Miller Dump Site Data Reports	April 1987	X
--	Honeywell Site Investigation Trio Solvents New Brighton, Minnesota	September 1987	X
--	Honeywell Off-TCAAP Investigation Phase III: Plume Definition Report Volumes 1 & 2	August 1987	

TABLE 3 (Cont)

INSTALLATION RESTORATION PROGRAM  
TWIN CITIES ARMY AMMUNITION PLANT  
REFERENCED REPORTS

<u>EPA/MPCA</u>	<u>REPORT TITLE</u>	<u>COMPLETION DATE</u>	<u>TRANSMITTED TO</u>
--	Phase I Final Report New Brighton/Arden Hills, Minnesota Multi-Point Source Remedial Investigation	May 1985	X
--	Trio Solvent Site Remedial Investigation Volumes 1, 2 & 3 Hart, Bruner, O'Brien and Thrnton Minneapolis, Minnesota	January 1986	X
--	Final Remedial Investigation Trio Solvent New Brighton, Minnesota Delta No. 10-87-068	October 1987	X

APPENDIX 1

INSTALLATION RESTORATION PROGRAM  
TWIN CITIES ARMY AMMUNITION PLANT  
NEW BRIGHTON GRANULAR ACTIVATED CARBON (GAC) SYSTEM  
GEOHYDROLOGY

1.0 SURFICIAL HYDROLOGY. The topography of the New Brighton quadrangle and occurrence (or absence) of underlying glacial till significantly contribute to the surficial hydrology of the area. In general, surface morphology is composed of various glacial deposits, tills, sands and clays. These include lake, kame, ground moraine, terrace, outwash plain, lake plains and swamps. The two major categories of surface sands found in the area are Arsenal Sand and Turtle Lake Sand. These are medium to coarse and fine to medium respectively. The surficial drainage in the New Brighton area generally flows into Long Lake, which eventually leads to the Mississippi River.

2.0 GEOLOGY. New Brighton is located within a bedrock geologic feature known as the Twin Cities Basin (or Minneapolis Lowland). The area, like most of Minnesota, has been repeatedly glaciated, resulting in the removal of pre-existing overburden and some bedrock formations, the development of bedrock valleys, and the deposition of valley fill, outwash, and till. These materials are frequently overlain by sediments from transitional and postglacial environments; e.g., fluvial, eolian, lacustrine, and swamp. Geological units for the TCAAP/New Brighton area have been broken down into three (3) main unconsolidated categories based upon available data from DA, Honeywell and State of Minnesota sources.

3.0 GROUNDWATER. The major bedrock aquifers in the New Brighton quadrangle are the St. Peter Sandstone, the Prairie du Chien Formation, the Jordan Sandstone, the Franconia Formation, and the sandstones of the Dresbach and Hinckley formations. Major bedrock aquifers for the PGRS consist of the Prairie du Chien Group and Jordan Sandstone. Wherever these units are confined by aquicludes, the contained water is under artesian pressure.

The bedrock aquifers are recharged mainly by the infiltration of water down through the glacial drift into the truncated edges of the units around the periphery of the Twin Cities basin. The upper bedrock units, however, receive a substantial part of their recharge by infiltration from directly above through the glacial drift and one or more bedrock units. Significant amounts of water probably move downward along joints in glacial till and along fractures in the bedrock. (2)

Two aquifer groups are of particular concern in the New Brighton area with respect to regional TRCLE contamination. These are the Prairie du Chien Group and Jordan Sandstone which have been hydrologically combined into the Prairie du Chien - Jordan Aquifer (PDCJ) (consolidated) and the Hillside Sand & Gravel (unconsolidated) formation. These aquifer groups

form the regional groundwater system for the PGRS and have been demonstrated to be hydraulically connected through BGRS operations. Piezometric surfaces for the Hillside and bedrock formations indicate similar flow patterns.

REFERENCE: Stone, John E., "Surficial Geology of the New Brighton Quadrangle, Minnesota. University of Minnesota Press, Minnesota, 1966.

APPENDIX 2

**PUBLIC NOTICE ON NEW BRIGHTON SYSTEM**  
 The U.S. Army announces its intention to conduct removal actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Twin Cities Army Ammunition Plant (TCAAP) Federal Facility Agreement for the purpose of providing the City of New Brighton with an adequate source of potable water. Provision of potable water will be accomplished through implementation of temporary and permanent Granulated Activated Carbon (GAC) systems. The temporary GAC system will consist of the carbon treatment vessels and the use of existing New Brighton wells, No. 5 and No. 6. The permanent GAC system will consist of carbon vessels and the use of four New Brighton municipal wells, Nos. 3, 4, 5, and 6.

The Draft Decision Document is a Record of Decision for these removal activities. Copies of documents relied upon when selecting these removal actions are available for public review at the Twin Cities Army Ammunition Plant (TCAAP), Lobby of Building 105, from 7:30 a.m. to 3:30 p.m. Public comment is invited. All comments on the Decision Document are to be provided in writing no later than 3:30 p.m., March 28, 1988, to: Twin Cities Army Ammunition Plant, ATTN: SMCTC-EV, New Brighton, MN 55112-5000.

Inquiries should be directed to TCAAP Public Affairs Office, telephone: (612) 633-2301, Ext. 669.

Minneapolis  
 Star Tribune  
 March 7, 1988

### Notices

**Public Notice on New Brighton System**  
 The U.S. Army announces its intention to conduct removal actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Twin Cities Army Ammunition Plant (TCAAP) Federal Facility Agreement for the purpose of providing the City of New Brighton with an adequate source of potable water. Provision of potable water will be accomplished through implementation of temporary and permanent Granulated Activated Carbon (GAC) systems. The temporary GAC system will consist of the carbon treatment vessels and the use of existing New Brighton wells, No. 5 and No. 6. The permanent GAC system will consist of carbon vessels and the use of four New Brighton municipal wells, Nos. 3, 4, 5 and 6.

The Draft Decision Document is a Record of Decision for these removal activities. Copies of documents relied upon when selecting these removal actions are available for public review at the Twin Cities Army Ammunition Plant (TCAAP), Lobby of Building 105, from 7:30 a.m. to 3:30 p.m. Public comment is invited. All comments on the Decision Document are to be provided in writing no later than 3:30 p.m., March 28, 1988, to: Twin Cities Army Ammunition Plant, ATTN: SMCTC-EV, New Brighton, MN 55112-5000.

Inquiries should be directed to TCAAP Public Affairs Office, telephone: (612) 633-2301, Ext. 669.

Press Disp. Mar 7 thru Mar 27, No. 899

St. Paul  
 Pioneer Press Dispatch  
 March 7, 1988

### PUBLIC NOTICE ON NEW BRIGHTON SYSTEM

The U.S. Army announces its intention to conduct removal actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Twin Cities Army Ammunition Plant (TCAAP) Federal Facility Agreement for the purpose of providing the City of New Brighton with an adequate source of potable water.

Provision of potable water will be accomplished through implementation of temporary and permanent Granulated Activated Carbon (GAC) systems. The temporary GAC system will consist of the carbon treatment vessels and the use of existing New Brighton wells, No. 5 and No. 6. The permanent GAC system will consist of carbon vessels and the use of four New Brighton municipal wells, Nos. 3, 4, 5 and 6.

The Draft Decision Document is a Record of Decision for these removal activities. Copies of documents relied upon when selecting these removal actions are available for public review at the Twin Cities Army Ammunition Plant (TCAAP), Lobby of Building 105, from 7:30 a.m. to 3:30 p.m. Public comment is invited. All comments on the Decision Document are to be provided in writing no later than 3:30 p.m., March 28, 1988, to: Twin Cities Army Ammunition Plant, ATTN: SMCTC-EV, New Brighton, MN 55112-5000.

Inquiries should be directed to TCAAP Public Affairs Office, telephone: (612) 633-2301, ext. 669.  
 (Bulletin: March 9, 16, 23, 1988)

New Brighton Bulletin  
 March 7, 1988