

INSTALLATION RESTORATION PROGRAM
TWIN CITIES ARMY AMMUNITION PLANT

RECORD OF DECISION ON REMOVAL ACTION

Shoreview/Site A
Groundwater Removal and Treatment

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).

DOCUMENTS

- Installation Restoration Program
Preliminary Assessment of the
Twin Cities Army Ammunition Plant
February 1988
- Installation Restoration Program
Twin Cities Army Ammunition Plant
Site A Interim Response Action Technical Plan
April 19, 1988

DESCRIPTION OF SELECTED ACTION:

An Interim Response Action (IRA) is being undertaken at Site A to treat contaminated groundwater. Contamination of the perched water zone (Unit 1) at the site has been documented through previous investigations. Because of the potential for contamination across the northern boundary of the Twin Cities Army Ammunition Plant (TCAAP), an IRA is desired until the full magnitude and extent of contamination is determined.

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 Shoreview/Site A Granular Activated Carbon

(GAC) and air stripping systems are cost-effective removal actions, which at a minimum, will be consistent with the final remedial action selected, following completion of the TCAAP RI. It is anticipated that the final remedial action selected will provide adequate protection of public health, welfare, and the environment. The Environmental Protection Agency (EPA) and the Minnesota Pollution Control Agency (MPCA) have been consulted about this 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.

Department of Army (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.

7/29/88

Date

Lewis D. Walker

Lewis 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 RECORD OF DECISION

Shoreview/Site A
Groundwater Removal and Treatment

TABLE OF CONTENTS

	<u>PAGE</u>
I. DEFINITION OF CONTAMINATION PROBLEM AT SITE A	1
II. ANALYSIS OF THE TREATMENT SYSTEM	2
III. IDENTIFICATION OF LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) FOR THE TREATMENT	4
IV. COMPLIANCE WITH IDENTIFIED ARARs	5
V. PUBLIC PARTICIPATION AND INTERIM RECORD OF DECISION	6
APPENDIX A: RESPONSE TO PUBLIC COMMENTS (To be added later)	

TABLES

1. Proposed Federal ARARs (Table 1)

INSTALLATION RESTORATION PROGRAM
TWIN CITIES ARMY AMMUNITION PLANT (TCAAP)

Interim Response Record of Decision

Shoreview/Site A Groundwater Removal Treatment

I. DEFINITION OF CONTAMINATION PROBLEM AT SITE A

The Twin Cities Army Ammunition Plant (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 Installation Restoration Program, Preliminary Assessment of the Twin Cities Army Ammunition Plant, February 1988, 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 TCAAP. Results of the studies at TCAAP indicated that fourteen (14) potential sites (Figure 1) 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. 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 Volatilization
Site G	Capping/In-Situ Volatilization
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:

<u>Site</u>	<u>Technology</u>
Site A	Groundwater Extraction and Treatment
Site J	Sewer Line Cleaning/Rehabilitation
Site K	Groundwater Extraction/Air Stripping

The U.S. Environmental Protection Agency (EPA), Region V, Minnesota Pollution Control Agency (MPCA), 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 cleanup of contamination on 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.

An Interim Response Action (IRA) is being undertaken at Site A to treat contaminated groundwater. Contamination of the perched water zone (Unit 1) at the site has been documented through previous investigations. Therefore, DA deems an IRA to be appropriate until the full magnitude and extent of contamination is determined.

II. ANALYSIS OF THE TREATMENT SYSTEM

DA proposes to remove and treat groundwater near the contaminant source at Site A located in the northern area of TCAAP. The area is known to be contaminated with VOCs, primarily trichloroethylene, tetrachloroethylene, and 1,2-dichloroethylenes. The treatment system for water pumped from the well will utilize GAC and possible air stripping technology. The system will consist of a shallow-well jet pump to draw water from the well at a projected rate of 5 to 20 gpm; piping, valving, and flow control for the flow of water from the pump to the carbon system; two carbon adsorbers, with a capacity of 1000 lbs. of carbon each, placed in series; and discharge piping. The adsorber units will be contained in a 10' x 10' insulated, heated building to protect against freezing.

Alternatives for this action were investigated and consisted of the following:

<u>Alternative</u>	<u>Comment</u>
No action	Current private well water supply north of TCAAP would continue to be exposed to possible contamination from the Site A source at TCAAP.
Removal and treatment of groundwater near the Site A source.	Alternative is consistent with CERCLA/SARA in that contamination is removed from the affected aquifer. Treatment controls are available to safeguard public health and the environment.

Groundwater removal and treatment was chosen as the best alternative.

Treatment technologies considered consisted of GAC and air stripping. Both technologies can provide adequate, cost-effective treatment of water for public consumption. GAC was chosen as the preferred treatment technology.

However, air stripping, by spray irrigation is being investigated as an alternative treatment system. It would consist of a capture well for the removal of contaminated groundwater, and a spray irrigation gun(s) for the air-stripping of well effluent. If this proves to be a useable technology, it may augment or replace the GAC system at a later date.

III. IDENTIFICATION OF LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) FOR THE TREATMENT 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 treatment 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 treatment system as an interim operable unit response action to reduce the human exposure to hazardous substances. At this time there are no known hazardous substances, pollutants or contaminants, as defined by SARA, migrating in a northerly direction off TCAAP. The U.S. Army, in conjunction with EPA/MPCA, will continue to monitor whether there are any hazardous substances, pollutants or contaminants migrating beyond the northern TCAAP boundary 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 treatment 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 EPA and MPCA have been contacted for input on ARARs for the treatment 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 treatment system. The following factors were applied to selecting ARARs:

- * Any standard, requirement, criteria, or limitation under a Federal environmental law may be an ARAR. SARA 121(d) (2)(A)(1). Nonbinding advisories, goals, and guidelines are not ARARs.
- * 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.
- * 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).
- * 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 1.

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 1.

MINNESOTA STATE ARARs

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

Discussion of ARARs Selected

Groundwater Removal and Treatment

The above ARARs apply to the operation of the treatment system. Treated effluent will be discharged into surface streams, ultimately terminating at Rice Creek.

IV. COMPLIANCE WITH IDENTIFIED ARARs

Based on the above discussion and identification of ARARs, it is concluded that the proposed 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 treatment 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.

V. PUBLIC PARTICIPATION AND INTERIM RECORD OF DECISION

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 will be requested to comment on the Interim Response Decision Record and the proposed Record of Decision. The U.S. Army will respond to each significant comment, criticism, and new data submitted.

Notification of Comment Period: July 5, 1988
Closing Date of Comment Period: July 25, 1988
Public Meeting: None
No written comments received.

TABLE I

Installation Restoration Program - Twin Cities Army Ammunition Plant

Proposed Federal Legally Applicable or Relevant and Appropriate Standard, Requirement, Criteria, or Limitation (ARAR)

Chemical Compound (2), (3), (4)	DRINKING WATER, ug/l			AMBIENT WATER QUALITY CRITERIA (ug/l) (1) (for protection of human health)			
	IRDMS Code	MCLG	MCL	FRESHWATER AQUATIC LIFE		TOXICITY Ingesting organisms only	CARCINOGENICITY Ingesting organisms only
				CHRONIC	ACUTE		
purgeable organics							
BENZENE	C6H6	0 (7)	5 (8)		5,300		
TRICHALOMETHANES			100 (5)	1,240	20,900		
CARBON TETRACHLORIDE	CCl4	0 (7)	5 (8)				
1,1-DICHLOROETHANE	11DCLE	None	None				
1,2-DICHLOROETHANE	12DCLE	0 (7)	5 (8)	20,000	118,000		
1,1-DICHLOROETHYLENE	11DCE	7 (7)	7 (8)		11,800		
1,2-DICHLOROETHYLENE	12DCE	70 (10)			11,600		
TETRACHLOROETHYLENE	TCLEE			840	5,280		
1,1,1-TRICHLOROETHANE	111TCE		200 (8)	20,000	118,000		89
1,1,2-TRICHLOROETHANE	112TCE				10,000		
TRICHLOROETHYLENE	TRCLE	0 (7)	5 (8)		45,000		418
VINYL CHLORIDE	C2H3CL	0 (7)	2 (8)				
metals							
CHROMIUM	CR	120 (11)	50 (8)				
CADMIUM	CD		10 (8)				
LEAD	PB	20 (11)	50 (8)	(12,13)	(14,15)		
MERCURY	HQ	3 (11)	2 (8)	.012	2.4		
NICKEL	NI			(16)	(17)		
MANGANESE	MN		50 (9)				134

- (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.
- (12) Four-day average concentration not to be exceeded more than once every three years on average.
- (13) $\exp(1.273 [\ln(\text{hardness})] - 4.705)$. For hardness of 100 mg/L, criterion is 3.2 ug/L. Minnesota uses higher values based on adjusting national criterion.
- (14) One-hour average not to be exceeded more than once every three years on average.
- (15) $\exp(1.273 [\ln(\text{hardness})] - 1.460)$. For hardness of 100 mg/L, criterion is 82 ug/L. See comment in footnote 13.
- (16) $\exp(0.76 [\ln(\text{hardness})] + 1.06)$ as a 24-hour average. For hardness of 06 mg/L, criterion is 160 ug/L.
- (17) Should not exceed numerical value given by $\exp(0.76 [\ln(\text{hardness})] + 4.02)$ at any time. For hardness of 100 ug/L, criterion is 1,800 ug/L.