STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

REGION 3
ID# 4463

UNIFORM TUBES, INC.

Trappe, PA
(September 30, 1991)

Facility/Unit Type:	**Metal tubing manufacturing facility**
Contaminants:	**TCE, TCA, chromium**
Media:	**groundwater, surface water**
Remedy:	**groundwater pumping and treating with air stripping and ion exchange; pilot in-situ soil vapor extraction system**

FACILITY DESCRIPTION

Uniform Tubes, Inc. (UTI) operates a 40-acre metal tubing manufacturing facility (the Facility) in Trappe, PA. The facility consists of two plants constructed in 1964 and 1973, respectively. Manufacturing processes at the plants include fabricating, cleaning, annealing, pickling, and tumbling metal parts.

The surrounding land use consists of residential properties, agricultural property, and an auto salvage yard. The Facility and surrounding properties are located on former farmland.

Groundwater beneath the Facility flows through a shallow groundwater zone which connects to a deep bedrock aquifer. Public wells connected to the Collegeville-Trappe Joint Water System (CTJWS) and private wells draw water from the deep drinking water aquifer. Groundwater flow in the bedrock is controlled by fractures, displays a downward vertical gradient, and generally flows to the north.

A small topographic swale flows across the Facility into the closest body of surface water, Donny Brook, which is approximately 2,600 feet southeast of the Facility. The swale is adjacent to wastewater settling basins and underground solvent storage. Water leaving the site via the swale passes through an on-site sedimentation basin constructed by UTI. Donny Brook discharges to Perkiomen Creek, a tributary of the Schuylkill and Delaware Rivers, approximately two miles from the Facility.

In previous investigations, monitoring wells were installed in 1977 as part of an initial site assessment of trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA) contamination. The source of this contamination was determined to be three underground solvent storage tanks located beneath the northwest corner of Plant 1. Bottled water was supplied to residents whose wells were affected and who could not be connected to the CTJWS distribution network. In 1978, three underground storage tanks (USTs) were pumped dry and filled with cement in an attempt to prevent continued volatile organic compound (VOC) contamination. The Pennsylvania Department of Environmental Resources (PADER) required UTI to construct a groundwater remediation system which began continuous operation in April 1978. Prior to 1981, the Facility discharged non-contact cooling water into the swale pursuant to a National Pollution Discharge Elimination System permit from PADER. During 1985, UTI began monitoring the perimeter of wastewater treatment surface impoundments and conducted an investigation of soil gas and installed more wells in 1986 and 1987. This investigation confirmed initial findings of TCE and TCA as well as chromium contamination found near on-site wastewater settling basins. On July 12, 1988, EPA and UTI entered into a Consent Order pursuant to Section 3008(h) of RCRA which required UTI to investigate the nature and extent of contamination at the Facility and propose corrective measures.

EXPOSURE PATHWAYS

The nearest human receptors are individuals who ingest drinking water from public and private wells linked to the deep drinking water aquifer beneath the Facility. Workers performing on-site corrective measures may also be exposed by inhaling airborne contaminants if the air stripping procedure does not properly filter emissions. Soil contamination is too deep to threaten human health directly, but may continue to leach contaminants into the groundwater.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminant	Maximum Concentration	Action Level	Cleanup Goal*	Point of Compliance
groundwater (onsite)		TCE	216,000 ppb		5 ppb	Well UTM-1 Well UTM-14
		TCA	1,800,000 ppb[2]		200 ppb	Well UTM-18
		hex. chromium	600 ppb			Well RCRA-2
		total chromium	1000 ppb		100/50 ppb[3]	Plant 1 Sump
(offsite)		TCE	130.0 ppb		5 ppb	Well CT-8
		TCA	120.0 ppb		200 ppb	
		total chromium	22.4 ppb		100 ppb	
surface water (offsite)		TCE	17 ppb			
		TCA	13 ppb			
soil						
swale		Total chromium	502,000 ppb			
UTM-19		Total chromium	47,500 ppb			

[1] Cleanup goals are maximum concentration limits (MCLs) based on a 10^{-6} risk level.

[2] Maximum concentration caused by a pipe leak over the sump. Average concentration for 1988-1990 was 38,000 ppb.

[3] MCL for chromium (total) was 50 ppb and is now 100 ppb.

SELECTED REMEDY

UTI proposed the following seven Corrective Measures Alternatives (CMAs):

1. No action
2. Institutional controls
3. Deep groundwater recovery and air stripping
4. Deep/shallow groundwater recovery and air stripping
5. Alternative 4 with chromium treatment via ion exchange
6. Groundwater recovery at UST source area
7. In-situ volatilization at UST source area.

EPA assessed the alternatives against four general standards (overall protection, attainment of cleanup standards, source control, and compliance) and five remedy decision standards (long term reliability and effectiveness; reduction in toxicity, mobility, and volume; short term effectiveness; implementability; and cost). EPA selected a remedy that combined Alternatives 5 and 7.

Treatment of contaminated groundwater will be accomplished with air-stripping (enhanced volatilization). Inorganic contamination will be removed by using ion exchange treatment. The treated groundwater will be used to flush additional contamination out of a contaminant source area in the vicinity of the drainage swale and former surface impoundments. EPA has indicated that the soils located around the former solvent storage tanks could continue to release VOCs for an extended period of time. Therefore, this potential source area will be further evaluated to determine the feasibility of in-situ soil vapor extraction and/or additional shallow groundwater recovery.

UTI disagrees with EPA's decision to include ion exchange treatment to address chromium contamination in groundwater. UTI believes that chromium contamination can be remedied through air stripping alone. EPA has agreed to test groundwater after initial air stripping before implementing the ion exchange system.

EPA will require a phased remediation approach commencing with the implementation of a substantially expanded groundwater recovery system to control migration, and recover and treat contaminants. The second phase will address residual contamination associated with known source areas in an attempt to accelerate remediation of groundwater and residual soil contamination.

The total estimated capital and operation and maintenance (O&M) costs associated with both existing and additional recovery wells are estimated to be $439,900 and $311,200/year, respectively. Monitoring costs are expected to decrease after the first 2 years and are projected to drop to $212,300/year. Costs associated with the pilot vapor extraction project are estimated to cost $136,200. O&M for the pilot project is estimated to cost $133,000 for the first year and $108,600 thereafter.

PUBLIC PARTICIPATION

EPA established a 45-day public comment period from August 6, 1991 to September 20, 1991 to solicit comments on the Statement of Basis (SB) for the UTI Facility. During the public comment period, EPA held a public meeting on September 5, 1991 that approximately 40 people attended. EPA received 31 comments in response to the SB. Comments addressed a wide range of issues including groundwater depletion of the deep aquifer and public access to the Administrative Record. UTI submitted several comments that expressed disagreement with the selected remedy.

NEXT STEPS

If it is determined by EPA on the basis of the groundwater extraction system performance that portions of the aquifer cannot be restored to their beneficial use, all of the following measures involving long-term management may occur indefinitely as a modification of the existing system:

- Implementing engineering controls and containment measures such as physical barriers and/or long-term gradient control systems
- Maintaining or expanding restrictions on access to the aquifer
- Continuing monitoring activities of specified wells
- Re-evaluating remedial technologies for groundwater restoration.

The decision to invoke any or all of these measures may be made during a review of corrective measures after five years. It is possible that concentrations of VOCs and chromium in the groundwater may reach an equilibrium concentration above the cleanup goals regardless of the pumping and treatment undertaken.

UTI may petition EPA to modify the cleanup goal if an equilibrium concentration is achieved for five consecutive years.

INNOVATIVE TECHNOLOGIES CONSIDERED

- In-situ soil vapor extraction.

KEY WORDS
groundwater, surface water, soil; ingestion; TCE, TCA, chromium; air stripping, ion exchange, pilot in-situ treatment, vapor extraction, pilot treatability test

CONTACT
John G. Nevius
U.S. EPA, Region III
841 Chestnut Building
Philadelphia, PA 19107