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Superfund Record of Decision:

Metaltec/Aerosystem, NJ

50272-101

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 15.3-acre Metaltec/Aerosystems site is a former metal products manufacturing operation in the Borough of Franklin, Sussex County, New Jersey. A marshy wetlands area is southeast of the site, and surrounding land use is primarily semi-rural residential. The Metaltec plant was operated from 1965 to 1980 and the area surrounding the plant included a process well, a wastewater lagoon, a drum storage area, soil saturated with wastewater, and two piles of waste material. In 1980, the State detected VOCs in the wastewater lagoon, surrounding soil, and in onsite ground water. In 1981, the State ordered Metaltec/Aerosystems to remove waste material from the wastewater lagoon, and in 1982 the lagoon was partially excavated and filled. A 1986 Record of Decision (ROD) addressed the remediation of soil, provided an alternate water supply for nearby residents, and required a supplemental remedial investigation/feasibility study to determine the extent of the ground water contamination. This ROD addresses final ground water remediation at the site. The primary contaminants of concern affecting the ground water are VOCs including PCE, TCE, toluene, and xylenes; and metals including chromium and lead.

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Metaltec/Aerosystems, NJ
Second Remedial Action - Final
Contaminated Medium: gw
Key Contaminants: VOCs (PCE, TCE, toluene, xylenes), metals (chromium, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 71
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EPA/ROD/R02-90/116
Metaltec/Aerosystems, NJ
Second Remedial Action - Final

Abstract (Continued)

The selected remedial action for this site includes onsite ground water pumping and treatment using precipitation, air stripping, and carbon adsorption, followed by discharge of the treated water to onsite surface water; disposing of precipitated sludge from the ground water treatment process offsite; regenerating the spent carbon, and disposing of the residual offsite; and ground water monitoring. The estimated present worth cost for this remedial action is $4,348,900, which includes an annual O&M cost of $466,300 for 10 years.

PERFORMANCE STANDARDS OR GOALS: Chemical-specific ground water goals are based on Federal or State MCLs and include PCE 1 ug/l (State MCL), TCE 1 ug/l (State MCL), toluene 2,000 ug/l (MCL), and xylenes 44 ug/l (State MCL).

ROD FACT SHEET

SITE

Name:	Metaltec/Aerosystems
Location/State:	Sussex County, New Jersey
EPA Region:	USEPA Region II
HRS Score (date):	48.95; September 1983
NPL Rank:	182

ROD

Date Signed:	09/27/90
Remedy/ies:	Groundwater extraction and treatment
Capital Cost:	$748,100
O & M/Year:	$466,300
Present Worth:	$4,348,900

LEAD

Remedial/Enforcement:	Remedial
Primary Contact (phone):	Ron Rusin, Project Manager, USEPA, (212) 264-1873
Secondary Contact (phone):	Robert McKnight, Chief NNJRAS, USEPA, (212) 264-7509

WASTE

Type (metals,PCB, &c):	Volatile Organic Compounds and metals
Medium (soil, g.w., &c):	Groundwater
Origin:	Contaminated soil
Est. Quantity cu.yd.:	8,000 cu. yd. soil remaining on site (ROD signed 6/30/86).

DECLARATION STATEMENT

RECORD OF DECISION

METALTEC/AEROSYSTEMS

Site Name and Location

Metaltec/Aerosystems, Franklin Borough, Sussex County, New Jersey

Statement of Basis and Purpose

This decision document presents the selected remedial action for groundwater at the Metaltec/Aerosystems site, in Franklin Borough, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the administrative record for the site.

The State of New Jersey concurs with the selected remedy.

Assessment of the Site

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

The remedy presented in this document addresses the current and future threats to human health and the environment associated with the contaminated groundwater resulting from the Metaltec/ Aerosystems site. A previous Record of Decision, signed on June 30, 1986, selected a remedy for the areas which are the sources of the groundwater contamination. This decision document addresses the groundwater itself.

The major components of the selected remedy include:

- Extraction of contaminated groundwater and restoration of the groundwater to drinking water standards;
- Treatment of extracted groundwater to levels attaining New Jersey surface water discharge limitation requirements;

- Discharge of treated groundwater to a surface water body; and

- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

Statutory Determinations

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Because this remedy will not result in hazardous substances remaining on the site above health-based levels, once fully implemented, the five year review will not apply to this action.

Constantine Sidamon-Eristoff
Regional Administrator

9/27/91
Date

DECISION SUMMARY

RECORD OF DECISION

METALTEC/AEROSYSTEMS

SITE NAME, LOCATION, AND DESCRIPTION

The Metaltec/Aerosystems site is located at the intersection of Maple, Gilson, and Wildcat Roads in the Borough of Franklin, Sussex County, New Jersey. The approximately 15.3-acre site is located about 40 miles northwest of New York City and 12 miles north of Interstate 80. Another major highway, State Highway 23, traverses the area. The site location is shown on Figure 1. The property is shown on the Borough of Franklin tax map as lot 63, block 7, and lot 64, block 1.04. The site currently contains the former Metaltec/Aerosystems plant, several parking areas, and a vacant area from which contaminated soil was excavated in 1988. The surrounding area is semi-rural, and primarily supports residential uses. The nearest residence is located about 600 feet south of the site. A horse farm and agricultural land are located adjacent to the property, to the north and west. A private golf course is located directly northeast of the site. Historically, the area was a major supplier of zinc and iron ore, however, the nearest mine is more than three-quarters of a mile away. A municipal well, which was removed from service because of contamination from the site, is located 400 feet east of the site and is set in the bedrock aquifer. The Borough's main water supply is the Franklin Pond, located three-quarters of a mile to the northeast.

Topography at the site was generally formed by stream erosion, as controlled by bedrock structure and lithology. Topographic relief ranges from steeply sloped to gently rolling hills. The most pronounced ridges are underlain by Precambrian crystalline rock. Less resistant limestones, dolomites, and shales underly the major stream valleys. Within one mile of the Metaltec site, land surface elevations range from 760 feet above the mean sea level (MSL) to less than 500 feet above MSL in the Wallkill River Valley. Elevations at the site range from 512 to 539 feet above MSL.

The Metaltec/Aerosystems site is drained by a small, unnamed tributary to the Wildcat Brook, which flows approximately 2,000 feet to the Wallkill River. Marshy areas exist along portions of the unnamed tributary. Wildcat Brook is located approximately one quarter mile northwest of the site in the middle of a broad flood plain. Surface water in the vicinity of the site is classified by the New Jersey Department of Environmental Protection (NJDEP) as fresh-water number 2, nontrout (FW2-NT). Streams classified as FW2-NT are not used as potable supplies, nor are they maintained as trout fisheries.

The geology of the Metaltec site, as determined during the supplemental remedial investigation and feasibility study (RI/FS), consists of four major lithologic units:

- glacial deposits
- gneiss
- marble
- dolomite

The overburden geology consists of both stratified and unstratified glacial drift, with various mixtures of stiff sandy and silty clay, and sand and gravel deposits. The thickness of the overburden varies greatly across the site, from 15 feet or less beneath the parking lot area (near wells OB-4A and OB-4B), to approximately 100 feet (near the BR-5 well location) to the north of the site.

A three-part aquifer system exists beneath the site, which includes glacial and marsh deposits, granitic gneiss, and dolomite. Although the marble noted above is lithologically different from the granitic gneiss, it is not considered to be a different aquifer system. The overburden aquifer is variable in composition and includes sands, silts, and gravel beneath the parking lot area, and clayey silts to the east and northwest near the BR-5 bedrock well location. Estimated permeabilities of the overburden aquifer range from 10^{-2} to 10^{-7} centimeters per second (cm/sec). Fractures within the bedrock aquifers are the primary pathways for groundwater flow. Fractures are located in the granitic gneiss bedrock, and trend in a northeast to southwest direction, following the granitic gneiss/dolomite contact. A secondary directional component exists in the granitic gneiss trending northwest to southeast. Groundwater in the area of the site is Class IIB, indicating that it is a potential source of drinking water.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Aerosystems Technology Corporation (Aerosystems) and the Metaltec Corporation (Metaltec), a subsidiary to Aerosystems, formerly conducted manufacturing operations at the site. Metaltec/Aerosystems products included metal ballpoint pen parts, paint spraying equipment, lipstick cases, and a variety of other metal products from 1965 until 1980. When active, the site included the Metaltec plant, a process well, a wastewater lagoon, a drum storage area, wastewater-soaked ground, and two piles of waste material.

In 1980, NJDEP conducted an inspection of the site and a subsequent sampling program. The results of the sampling indicated that various volatile organic compounds (VOCs), most significantly trichloroethene (TCE), were present in the facility's wastewater lagoon and surrounding soil. Due to the

presence of VOCs, which were also detected in the groundwater in the vicinity of the site, a well supplying drinking water to Franklin Borough, several area residential wells, and the Metaltec process well, were closed. Area residents and the Metaltec facility were placed on a public surface water supply from a local pond. In 1981, under an administrative order issued by NJDEP, Metaltec/Aerosystems removed some contaminated waste material from the lagoon, including remnants from a 55-gallon drum, metal pen parts, bottles, and other debris. In 1982, Metaltec/Aerosystems partially excavated and filled the wastewater lagoon.

In September 1983, the site was placed on the U.S. Environmental Protection Agency's (EPA's) National Priorities List of Superfund sites. In June 1984, EPA began an RI/FS at the site to determine the nature and extent of contamination, characterize site risks, and develop and evaluate remedial alternatives. The RI determined the following:

- An estimated 10,000 cubic yards (yd^3) of soil were contaminated with various VOCs in an area referred to as Parcel 1.

- An estimated 4,000 yd^3 of soil were contaminated with inorganic compounds and semivolatile organic compounds in areas referred to as Parcels 2, 3, and 4.

- Both the shallow and bedrock aquifers beneath the site were contaminated with elevated levels of the contaminants found in the soil on the site.

Following a public meeting, at which the results of the RI/FS were presented, and a 30-day public comment period, EPA signed a Record of Decision (ROD) on June 30, 1986, which selected necessary remedial actions for the site, the municipal well, and affected or threatened private wells. The remedy selected in the 1986 ROD included:

- Excavation and treatment via heat addition (rotary dryer) of approximately 10,000 yd^3 of contaminated soils within Parcel 1, and off-site disposal at an approved landfill.

- Excavation and off-site disposal at an approved landfill of approximately 4,000 yd^3 of contaminated soils within Parcels 2, 3, and 4.

- Provision of an alternate water supply for affected Borough of Franklin residents by constructing a pipeline connection from new potable water wells to the existing public water supply system.

- Preparation of a supplemental RI/FS to determine the extent of groundwater contamination, and to develop and evaluate appropriate remedial alternatives.

On July 16 and August 20, 1986, EPA wrote to Metaltec/ Aerosystems, requesting that they perform the remediation needed at the site. Four separate meeting were held with corporate representatives to discuss the required work. Neither company indicated a willingness to perform the work.

By a letter, dated January 29, 1988, EPA issued special notice to Metaltec/Aerosystems demanding that they either perform or finance the remedy required for the site. In the fall of 1988, a cost recovery action was filed by the U.S. Department of Justice, on behalf of EPA, in New Jersey District Court.

Between July and November 1988, EPA excavated 4,800 yd^3 of contaminated soil from Parcels 2, 3, and 4, in accordance with the 1986 ROD. The remedy for Parcel 1 has been designed and is presently awaiting funding. Construction of the alternate water supply pipeline began in July 1990, and is planned to be completed in the fall of 1990.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

A Community Relations Plan was developed to ensure the public opportunities for involvement in site-related decisions, including site analysis and characterization, alternatives analysis, and remedy selection; to determine, based on community interviews, activities to ensure public involvement; and to provide opportunities for the community to learn about the site.

On August 4, 1988, EPA conducted a public information meeting at the Franklin Borough Hall. The purpose of the meeting was to provide residents and local officials with an update on past activities conducted by EPA, to describe the soil remediation planned for the near future, and to discuss the upcoming supplemental RI/FS to examine the groundwater contamination.

The supplemental RI and FS reports, which addressed the groundwater contamination, were released to the public in July 1990. A Proposed Plan, that identified EPA's preferred remedial alternative, was released on July 27, 1990. The documents were made available to the public at information repositories maintained at the Franklin Borough Hall and the Sussex County Library. A public comment period was held from July 27 through August 27, 1990. A public meeting was held on August 16, 1990, to present the findings of the study and the Proposed Plan, and to solicit public input. The issues raised at the public meeting and during the public comment period are addressed in the Responsiveness Summary, which is part of this Record of Decision. This decision document presents the selected remedial action for

the Metaltec/Aerosystems site, chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision for this site is based on the administrative record.

SCOPE AND ROLE OF ACTION

This document addresses the requirement of the 1986 ROD which called for the preparation of a supplemental RI/FS, and deals specifically with contamination in the groundwater below and hydraulically downgradient from the site. As noted earlier, the remediation of the sources of the groundwater contamination, namely contaminated soil, were addressed in the 1986 ROD. All remedial actions selected in that ROD, with the exception of the excavation and treatment of Parcel 1, have been completed or are underway. Under this ROD, the contaminated shallow and bedrock groundwater aquifers will be pumped and treated for restoration of the aquifers. This restoration will take an estimated 10 years to complete; however, actual aquifer conditions during remediation may affect this duration. This action will address the remaining potential threat resulting from the site.

SUMMARY OF SITE CHARACTERISTICS

Although the 1986 ROD selected affirmative remedial actions to clean up the site and provide an alternate water supply to properties with contaminated or threatened drinking water, the data obtained during the initial RI/FS were insufficient to fully characterize the groundwater contamination plume. Therefore, it was necessary for EPA to conduct the supplemental study.

Groundwater

To characterize the groundwater contamination, eight groundwater monitoring wells were installed and sampled during the supplemental RI/FS. In addition, groundwater sampling was performed on the 13 wells installed during the first RI/FS. Two rounds of groundwater samples were obtained from three former residential wells, which were converted into monitoring wells during the initial RI, four potable residential wells, the Metaltec plant process well, and the Borough well. Samples taken from the shallow and bedrock aquifers were analyzed, and the results demonstrated that the groundwater is contaminated with volatile and semi-volatile organic compounds, and inorganic compounds, from the water table down into the bedrock as deep as 300 feet. Figure 2 shows the locations of the monitoring wells and the extent of groundwater contamination. Well BR-4 shows the highest contamination.

A pump test conducted in 1989, and the analytical results of the sampling of the granitic gneiss aquifer, suggest that high concentrations of organic and inorganic contaminants at the site are currently confined to the area of wells surrounding the lagoon (e.g., BR-4 and BR-6). These results also showed that wells at the site, in general, have higher levels of contamination relative to those upgradient of the site. Tables 1 through 7 show the maximum concentration of each of the major contaminants found in the groundwater and Table 8 shows the average contamination found during the pump test. The organic contaminants of concern which were found include vinyl chloride, chloroethane, methylene chloride, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, 1,1,1-trichloroethane, TCE, tetrachloroethene, toluene, and total xylenes. The inorganic contaminants of concern include chromium and lead. Manganese, copper, and zinc shown in the tables represent background levels found in the area.

Transport models were used to predict the movement of contaminants in the groundwater. The transport models, which were synthesized from the hydrologic investigation and behavior of specific chemicals, were substantiated by actual site-specific chemical data. It appears that the site-related contaminants are transported through the bedrock aquifers and the adjacent overburden material, with some ultimately discharged to the tributary to Wildcat Brook. The concentrations become undetectable at the confluence with Wildcat Brook.

Of the contamination found in the groundwater, TCE is the most extensive and the slowest moving. The models predict that under natural attenuation processes, it would take an estimated 80 years for the concentration of TCE in the granitic gneiss aquifer, at a concentration of 22,000 parts per billion (ppb), the average value determined during the pump tests, to reach 1 ppb. Estimates show that other organic compounds would require less time than TCE to reach 1 ppb levels. The modelling also shows that metals would require less time than the TCE to reach acceptable levels.

Surface Water

Surface water sampling investigations were also conducted to determine the presence and extent of contamination. Samples of surface water were obtained from nine locations, including areas along the unnamed stream, the confluence of the unnamed stream and Wildcat Brook, and at a spring to the east of the former Metaltec facility.

Site-related contaminants were detected in a number of surface water samples obtained from the spring and the tributary to Wildcat Brook. However, the contamination found in the tributary was determined to be a result of contaminants being transported

through the bedrock aquifer and the adjacent overburden, and finally discharged through a spring which leads to the tributary. Tables 9, 10, and 11 summarize the results of the surface water sampling.

Sediments

Sediment samples were also collected from the surface water sampling locations to more fully characterize the chemical and hydrogeologic processes occurring at the site. Contaminants identified in the sediments provided additional data in developing the RI conclusions, namely that a portion of the contaminated granitic gneiss bedrock aquifer underlying the site discharges to the overburden, which in turn discharges to the tributary to Wildcat Brook.

Sediment samples obtained adjacent to the spring feeding the tributary to Wildcat Brook (at location S-4) yielded higher contaminant concentrations than downstream samples, however, associated risks were considered to be insignificant. The sample collected from Wildcat Brook at the confluence with the unnamed stream, yielded undetectable amounts of contamination. Tables 12, 13, and 14 summarize the results of the sediment sampling.

SUMMARY OF SITE RISKS

EPA conducted an Endangerment Assessment (EA) of the "no action" alternative to evaluate the potential risks to human health and the environment associated with the Metaltec site in its current state. Because the remedy selected in the 1986 ROD included the removal of contaminated soil from the site, potential impacts associated with contaminants in the soil were not assessed during this study. The EA focused on the contaminants which are likely to pose the most significant risks to human health and the environment (chemicals of potential concern). These "chemicals of potential concern" and their concentrations in site media are shown in Table 15.

Chemicals of potential concern were identified in the groundwater, surface water, and sediments. In all media, VOCs (in particular, TCE and 1,2-Dichloroethene) were identified as chemicals of potential concern. In addition, chromium, copper, lead, manganese, and zinc were identified as chemicals of potential concern in groundwater. The highest concentrations of VOCs were detected in wells located near the former wastewater lagoon.

EPA's EA identified several potential exposure pathways by which the public may be exposed to contaminant releases from the Metaltec site. These pathways and the populations potentially affected are shown in Table 16. The potential exposure routes identified in the EA include inhalation of contaminants

volatilized from surface water, direct contact (e.g., dermal contact) with contaminants in the surface water or sediments, and the ingestion of contaminated groundwater under a future land use scenario.

Under current EPA guidelines, the likelihood of carcinogenic (cancer causing) and noncarcinogenic effects due to exposure to site chemicals are considered separately. It was assumed that the toxic effects of the site-related chemicals would be additive. Thus, carcinogenic and noncarcinogenic risks associated with exposures to individual indicator compounds were summed to indicate the potential risks associated with mixtures of potential carcinogens and noncarcinogens, respectively. The Health Effects Criteria for the chemicals of potential concern are presented in Table 17.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference Doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of mg/kg-day, are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared with the RfD to derive the hazard quotient for the contaminant in the particular media. The hazard index is obtained by adding the hazard quotients for all compounds across all media. A hazard index greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

Potential carcinogenic risks were evaluated using the cancer potency factors developed by EPA for the indicator compounds. Cancer potency factors (CPFs) have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CPFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CPF. Use of this approach makes the underestimation of the risk highly unlikely.

For known or suspected carcinogens, EPA considers excess upper-bound individual lifetime cancer risks of between 1×10^{-4} to 1×10^{-6} to be acceptable. This level indicates that an

individual has no greater than a one in ten thousand to one in a million chance of developing cancer as a result of exposure to site conditions.

The hazard indices and cancer risks associated with the potential exposure pathways at the Metaltec site are presented in Table 18. The conclusions of the human health quantitative risk assessment are as follows:

- For potential exposures of residents to chemicals that have volatilized from the tributary to Wildcat Brook, the estimated lifetime upper bound excess cancer risk is less than 1×10^{-6} under the average case and 2×10^{-6} under the plausible maximum case. It should be noted that conservative assumptions were used to estimate exposure and that half of the estimated excess lifetime inhalation cancer risk is due to 1,1-dichloroethene, a Group C carcinogen (limited evidence of carcinogenicity). The hazard index is less than one under the average and plausible maximum case, indicating that residents are unlikely to be at risk of noncarcinogenic effects.

- For potential exposures of children to surface water or sediment contaminants while playing in the tributary to Wildcat Brook, the estimated lifetime upper bound excess cancer risks are less than 1×10^{-5} under the average and plausible maximum cases, respectively. The hazard index is less than one under the average and plausible maximum cases, suggesting that children playing in the tributary are not at risk of noncarcinogenic effects from exposure to chemicals in surface water.

Potential risks associated with hypothetical exposure by ingestion of groundwater from different areas included:

- The estimated lifetime upper bound excess cancer risks associated with downgradient wells located in the granitic gneiss/overburden aquifers, are 3×10^{-4} (average case) and 3×10^{-2} (plausible maximum). For both cases, the risks are due primarily to vinyl chloride, although the mean and maximum concentrations of 1,1-dichloroethane and trichloroethene, and the maximum concentration of bis(2-ethylhexyl)phthalate are associated with risk estimates greater than 1×10^{-6}. It is not known if the presence of bis(2-ethylhexyl)-phthalate in the groundwater is related to the Metaltec site. Similar concentrations in both downgradient and upgradient wells suggest that the source of this

chemical may be unrelated to the site. Further studies will be conducted during remedial design to evaluate the presence of this contaminant.

The hazard index for the wells is less than one under the average case and greater than one (30) under the plausible maximum case. The maximum concentrations of 1,2-dichloroethene (total), trichloroethene, and chromium are each associated with individual CDI:RfD ratios greater than one. The maximum concentrations of each of these chemicals was detected in wells located near the former waste lagoon, suggesting that as the source.

- The estimated lifetime upper bound excess cancer risks associated with wells located in the dolomite/ overburden aquifers, are less than 1×10^{-6} under the average case and 4×10^{-6} under the plausible maximum case. Risks under the plausible maximum case are due primarily to trichloroethene. The hazard index is less than one under the average case, and greater than one (10) under the plausible maximum case. The maximum concentrations of chromium and manganese are each associated with an individual CDI:RfD ratio greater than one. The maximum concentrations of chromium and manganese were detected in well OB-5, along with high concentrations of other inorganic chemicals. It is possible that the concentrations observed in well OB-5 are the result of past dumping in this area, although the presence of naturally occurring deposits of these metals is, again, an additional possibility.

Potential risks associated with exposure to lead in groundwater were not quantitatively evaluated in this assessment because toxicity criteria have not been developed for this chemical. However, lead has been classified by EPA as a Group B2 carcinogen (probable human carcinogen), and also is known to cause other, noncancerous effects. Therefore, exposure to lead could add to the estimated risks.

Environmental Risks

Potential impacts associated with the contaminants of potential concern were also assessed for nonhuman exposures at the Metaltec site. It was determined that aquatic life in Wildcat Brook and its tributary were unlikely to be affected by contaminants released to the surface water.

Uncertainties in the PHE/EA

As in any risk assessment, the estimates of risk for the Metaltec site have many uncertainties. In general, the primary sources of uncertainty identified included the following:

- Environmental chemistry sampling and analysis
- Environmental parameter measurement
- Fate and transport modelling
- Exposure parameter estimation
- Toxicological data

As a result of the uncertainties, the risk assessment should not be construed as presenting an absolute estimate of risks to human or environmental populations. Rather, it is a conservative analysis intended to indicate the potential for adverse impacts to occur.

Conclusion

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

REMEDIAL ACTION OBJECTIVES

The goal for the cleanup of the groundwater contamination at the Metaltec site is to restore the groundwater to the more stringent of the Federal or State Maximum Contaminant Levels (MCLs) which have been devised to protect drinking water. MCLs are enforceable standards based on health risks associated with an individual's consumption of two liters of water per day over a 70-year period. Therefore, health risks associated with the groundwater contamination resulting from the site will be reduced to within the acceptable range of between 1×10^{-4} to 1×10^{-6} for carcinogens, and the Hazard Indices for non-carcinogens will be less than one. The MCLs for the contaminants of concern at the site are shown on Table 19. The area of attainment is the contaminated groundwater plume. Surface water and sediment contamination in the tributary to the Wildcat Brook will not require additional remediation since the tributary is fed by the groundwater, which will be cleaned up.

DESCRIPTION OF ALTERNATIVES

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by SARA, requires that each site remedy be protective of human health and the environment, comply with applicable or relevant and appropriate requirements

(ARARs), utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and be cost effective.

The RI identified the groundwater itself as the principal environmental medium affected by contamination. The source of the groundwater contamination is addressed by the 1986 ROD. Surface water contamination in the tributary to Wildcat Brook will not require additional remediation since the tributary is fed by the groundwater, which will be cleaned up. Sediment contamination is considered insignificant and will not require remediation.

In the FS, three basic alternatives for addressing the groundwater contamination were evaluated in detail: (1) No further action, with monitoring; (2) Pump and treat the shallow and bedrock aquifers using air stripping and carbon adsorption; and (3) Pump and treat the shallow and bedrock aquifers using hydrogen peroxide - ultraviolet photolysis (H_2O_2-UV) oxidation and carbon adsorption. A description of each of the alternatives, as well as an estimate of their cost and implementation timeframe, follows.

Alternative 1: NO FURTHER ACTION, WITH MONITORING

Implementation Period:	Not applicable
Capital Cost:	$ 0
Annual Operation and Maintenance (O&M) Costs:	$ 23,000
Present Worth:	$ 358,200

This alternative would not involve the implementation of specific remedial actions to address groundwater or surface water contamination. Under this alternative, a long-term monitoring program would be implemented to determine whether groundwater and surface water contaminant concentrations are changing with time, and to track the migration of contaminated groundwater. The monitoring program would include sampling the groundwater through the use of existing monitoring wells.

Alternative 2: GROUNDWATER PUMPING/PRECIPITATION/AIR STRIPPING/CARBON ADSORPTION/DISCHARGE

Implementation Period:	10 years
Capital Cost:	$ 748,100
Annual O&M Costs:	$ 466,300
Present Worth:	$4,348,900

The major features of this alternative include groundwater pumping, collection, treatment, and discharge of treated groundwater, and a performance monitoring program. The groundwater cleanup goal under this alternative is the

achievement of MCLs. The alternative involves the use of an existing well on the Metaltec property for groundwater extraction at a total pumping rate of approximately 10 gallons per minute (gpm), an extraction rate shown to be sustainable over an extended period of time. Pumping tests concluded that a 10 gpm pumping rate at BR-4 produces measurable drawdown at most of the wells located in the granitic gneiss aquifer which have been of concern in the site area. At that flow rate, it is estimated that it will take a period of approximately ten years to reduce the TCE levels to 1 ppb, although actual aquifer conditions during remediation may affect this duration. During remedial design, the possibility of using multiple extraction wells to accelerate cleanup will be explored. Studies will also be performed during remedial design to determine the optimum pumping rate to control the groundwater contamination plume. The extracted groundwater would first be treated to remove metals, with the resultant sludge being disposed of off-site. The VOCs present in the extracted groundwater would be removed by air stripping, and any remaining organic contaminants would be removed by carbon adsorption. The spent carbon would be collected by the supplier and taken off-site for disposal or treatment and reuse. The treated groundwater would be discharged to the tributary to Wildcat Brook at levels meeting surface water discharge requirements. Because of the unfavorable characteristics of the site hydrogeology (i.e., a complex bedrock fracture system and its associated hydraulic characteristics), reinjection of treated groundwater was eliminated from consideration as a remedial technology.

Alternative 3: GROUNDWATER PUMPING/PRECIPITATION/H_2O_2-UV OXIDATION/CARBON ADSORPTION/DISCHARGE

Implementation Period:	10 years
Capital Cost:	$ 926,500
Annual O&M Costs:	$ 467,300
Present Worth:	$4,535,000

As in Alternative 2, this alternative involves the use of an existing well on the Metaltec property for groundwater extraction at a total pumping rate of approximately 10 gpm, with remediation to the MCLs. In this alternative, however, the VOCs would be removed through H_2O_2-UV oxidation instead of through air stripping. The other treatment unit operations would remain the same as in Alternative 2. The treated groundwater would also be discharged to the tributary to Wildcat Brook at levels meeting surface water discharge requirements.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

Evaluation Criteria

The three alternatives noted above were evaluated using criteria derived from the NCP (published in the Code of Federal Regulations at 40 CFR Part 300) and SARA. These criteria relate directly to factors mandated by SARA in Section 121, including Section 121 (b)(1)(A-G). The criteria are as follows:

- Overall protection of human health and the environment
- Compliance with ARARs
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost
- State acceptance
- Community acceptance

Comparisons

Table 20 summarizes the relative performance of the three candidate alternatives in relation to the evaluation criteria. A comparative discussion of the major components of the alternatives, using the evaluation criteria, follows.

Overall Protection of Human Health and the Environment

Overall protection of human health and the environment is the central mandate of CERCLA, as amended by SARA. Protection is achieved by reducing health and environmental threats and by taking appropriate action to ensure that, in the future, there would be no unacceptable risks to human health and the environment through any exposure pathway.

The "No Further Action" alternative would not provide any additional protection of human health and the environment than has been provided by the remedy selected in the 1986 ROD. No treatment would be provided, and only natural processes would attenuate groundwater contamination. A long-term monitoring program would be necessary to determine the extent to which

groundwater and surface water contaminant concentrations would change with time, and to track the migration of contaminated groundwater.

Alternatives 2 and 3 would both provide protection of human health by eliminating risks through the extraction and treatment of contaminated groundwater. Alternatives 2 and 3 would reduce the risk associated with use of the groundwater, to within the acceptable range of between 1×10^{-4} to 1×10^{-6}, by reducing the level of contaminants within the affected aquifers. These alternatives would also prevent further migration of contaminants to the tributary to Wildcat Brook. Either of these alternatives would augment the action being taken under the 1986 ROD which directed the provision of an alternate water supply.

Compliance with Applicable or Relevant and Appropriate Requirements

Section 121(d) of CERCLA, as amended by SARA, requires that remedies for Superfund sites comply with Federal and State laws that are directly applicable and, therefore, legally enforceable. Remedies must also comply with the requirements of laws and regulations that are not applicable, but are relevant and appropriate; in other words, requirements that pertain to situations sufficiently similar to those encountered at a Superfund site such that their use is well suited to the site. Combined, these are referred to as "applicable or relevant and appropriate requirements". Primary ARARs for the Metaltec site include the more stringent of the Federal or State MCLs, New Jersey Surface Water Quality Standards, Clean Water Act Ambient Water Quality Criteria, Occupational Safety and Health Administration Standards, the Resource Conservation and Recovery Act, and the Clean Air Act.

Alternative 1 would not comply with the site-specific cleanup goals and, therefore, would not attain ARARs.

Alternatives 2 and 3 are intended to meet the groundwater cleanup ARARs, which are the MCLs, after their estimated 10-year implementation periods are completed. The treated water to be discharged to the tributary to Wildcat Brook will meet New Jersey surface water discharge limitation requirements.

To ensure compliance with the National Historic Preservation Act, a cultural resources survey will be prepared during remedial design.

Waivers from ARARs are not required for Alternatives 2 and 3.

Reduction of Toxicity, Mobility, or Volume

This evaluation criterion relates to the performance of a technology or remedial alternative in terms of eliminating or controlling risks posed by the toxicity, mobility, or volume of hazardous substances.

The "No Action" alternative would not reduce the toxicity, mobility, or volume of contaminants through treatment; only natural processes would attenuate groundwater contamination. This natural attenuation, however, could take an estimated 80 years to reach drinking water standards.

Alternatives 2 and 3 address principal contamination threats, and would reduce the toxicity, mobility, and volume of the contaminated groundwater through the use of extraction and treatment methods. Sludge resulting from treatment for metals removal would be disposed of off-site, and spent carbon from the removal of VOCs would be regenerated or disposed of off-site. It is anticipated that, at the conclusion of the remedial action, the groundwater quality will be within MCLs. The treatment provided under both of these alternatives would be irreversible.

Short-Term Effectiveness

Short-term effectiveness measures how well an alternative is expected to perform, the time to achieve performance, and the potential adverse impacts of its implementation.

The major risk associated with the contaminated groundwater is the use of it for potable purposes. A temporary alternative water supply is currently in use in the affected area, and provision of a permanent alternative water supply is being implemented under the 1986 ROD. Therefore, that risk has already been significantly reduced.

Alternative 1 would provide no short-term effective remediation of the groundwater contamination.

Alternatives 2 and 3 would begin to be effective at the onset of the extraction and treatment of the contaminated groundwater. An assessment would need to be made during the design activities to ensure that any adverse impacts to any wetland areas would be mitigated. Treated water would be monitored prior to its discharge to the tributary to Wildcat Brook to ensure the effectiveness of the treatment system.
Neither of the active pumping alternatives would create any short-term, health-related concerns for the public during construction or the implementation period.

Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence address the long-term protection and reliability that an alternative affords.

Under Alternative 1, the uncontrolled migration of contaminated groundwater would continue for an estimated 80-year period. This would allow the risks to increase as the contamination migrates, with only natural attenuation to decrease the risks. However, long-term monitoring would track the movement and spread of contamination, and could be used in conjunction with institutional controls to reduce the chance of unintentional use of contaminated groundwater.

Alternatives 2 and 3 would provide long-term protection by reducing the groundwater contaminant concentrations to the cleanup goals. Therefore, health risks associated with the groundwater contamination resulting from the site would be reduced to within the acceptable range of between 1×10^{-4} to 1×10^{-6} for carcinogens, and the Hazard Indices for non-carcinogens will be less than one. Once groundwater remediation is complete, no long-term monitoring would be necessary. Alternatives 2 and 3 both provide a permanent remedy.

Implementability

Implementability considerations address how easy or difficult, feasible or infeasible, it would be to carry out a given alternative from design through construction and operation and maintenance.

Implementation of Alternative 1 would be relatively easy. No remedial action would be undertaken which would require special consideration. The groundwater monitoring program would be relatively straightforward, utilizing standard hazardous substance sampling and analytical techniques.

Implementation of Alternatives 2 and 3 is also considered to be relatively easy. No special implementation considerations are anticipated. While it is expected that both Alternatives 2 and 3 would reduce groundwater contamination concentrations to MCLs, the type of treatment system included in Alternative 2 has had previously demonstrated success in treating contaminated groundwater at the Metaltec site. A similar system was used for treating the flow from the dewatering operation during the remedial action at Parcels 2, 3, and 4, and for treating water extracted during the pump test. While the technology included in Alternative 3 has not been used at the Metaltec site, it has been used elsewhere for industrial waste treatment, and could be effectively used for contaminated groundwater treatment. However, the equipment required for Alternative 2 may be more readily available than the equipment required for Alternative 3.

Cost

Costs are evaluated in terms of remedial action capital costs, operation and maintenance costs, and present worth.

The present worth of Alternative 2 is $4,348,900. The lowest cost alternative is Alternative 1, at $358,200. The highest cost alternative is Alternative 3, at $4,535,000.

State Acceptance

The State Acceptance factor addresses whether the State of New Jersey supports, opposes, or has no comment on the preferred alternative.

The State of New Jersey supports the remedial action called for by the selected remedy.

Community Acceptance

This evaluation factor addresses public reaction to the remedial alternatives which were considered, and the preferred alternative.

Issues raised during the public comment period and at the public meeting held on August 16, 1990, are addressed in the Responsiveness Summary section of this ROD.

SELECTED REMEDY

Section 121(b) of CERCLA, as amended, requires EPA to select remedial actions which utilize permanent solutions and alternative treatment technologies or resource recovery options to the maximum extent practicable. In addition, EPA prefers remedial actions that permanently and significantly reduce the mobility, toxicity, or volume of site wastes.

After careful review and evaluation of the alternatives evaluated in detail in the feasibility study, and consideration of all evaluation criteria, EPA presented Alternative 2, Pumping/ Precipitation/Air Stripping/Carbon Adsorption/Discharge, to the public as the preferred remedy for the groundwater contamination at the Metaltec/Aerosystems site.

The input received during the public comment period, consisting primarily of questions and statements submitted at the public meeting held on August 16, 1990, is presented in the attached Responsiveness Summary. Public comments encompassed a range of issues, but did not necessitate any major changes in the preferred alternative for the site. Accordingly, the preferred alternative has been selected by EPA as the remedial solution for the site.

The goal of the remedial action at the Metaltec/Aerosystems site is to restore the groundwater to MCLs. Based on information obtained during the remedial investigation and on a careful analysis of the remedial alternatives, it is expected that the selected remedy will achieve this goal. However, studies suggest that groundwater extraction and treatment remedies are not always completely successful in reducing contaminants to health-based levels in an aquifer. Actual operation of the remedial system may indicate the technical impracticability of reaching health-based water quality standards using this approach. If it becomes apparent, during implementation or operation of the remedial system, that contaminant levels have ceased to decline and are remaining relatively constant at levels higher that the remediation goal, that goal and the remedy may be reevaluated.

The selected remedy will include groundwater extraction for an estimated period of 10 years, during which the remedial system's performance will be carefully monitored on a regular basis and adjusted as warranted by the performance data collected during operation. Modifications may include:

a) installing additional wells, or utilizing other existing wells, for the extraction of groundwater;

b) discontinuing operation of extraction wells, under a multiple-well design, in areas where cleanup goals have been attained;

c) alternating pumping at wells to eliminate stagnation points; and

d) pulse-pumping to allow aquifer equilibration and encourage adsorbed contaminants to partition into the groundwater.

Some additional activities will be performed during the remedial design and remedial action phases for the site. These activities are described below.

The aquifers will be periodically monitored during the remedial design and remedial action phases, as well as following the completion of the remedial action. During the remedial design, studies will be undertaken to further delineate the extent of contamination and groundwater flow patterns, and to determine if the remediation of the groundwater contamination can be accelerated by optimizing the extraction system.

An assessment will be made during the remedial design to ensure that any adverse impacts to any wetland areas will be mitigated.

A cultural resources survey will be prepared to ensure compliance with the National Historic Preservation Act.

STATUTORY DETERMINATIONS

Superfund remedy selection is based on the Superfund Amendments and Reauthorization Act of 1986 and the regulations contained in the NCP. EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. Additionally, several other statutory requirements and preferences have been established. These specify that, when complete, the selected remedy must comply with ARARs, unless a statutory waiver is justified. The remedy must also be cost-effective and utilize permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. Finally, there is a preference for remedies which employ treatment that permanently and significantly reduce the toxicity, mobility, or volume of hazardous wastes as their principal element. The following sections discuss how the remedy selected for the Metaltec/Aerosystems site meets these requirements and preferences.

Protection of Human Health and the Environment

The selected remedy protects human health and the environment through the extraction and treatment of contaminated groundwater.

The extraction and treatment of the contaminated groundwater will significantly reduce the threat of potential exposure to contaminated groundwater. The potential risk estimated under a future use scenario in the PHE, is 3×10^{-2}. The remedy, upon completion, will restore the aquifers to the MCLs. Therefore, health risks associated with the groundwater contamination resulting from the site will be reduced to within the acceptable range of between 1×10^{-4} to 1×10^{-6} for carcinogens, and the Hazard Indices for non-carcinogens will be less than one.

There are no short-term adverse impacts associated with the selected remedy which cannot be readily controlled. In addition, no cross-media impacts are expected from the remedy.

Compliance with Applicable or Relevant and Appropriate Requirements

The selected remedy will comply with all applicable or relevant and appropriate action-, contaminant-, and location-specific requirements. The ARARs are presented below.

Action-Specific

The selected remedy will be in compliance with all Federal and State ARARs. The cleanup goals for the remediation of the groundwater are the MCLs which are standards for drinking water. Discharge of the treated water to the unnamed tributary to Wildcat Brook will attain New Jersey surface water discharge limitations. At present, the discharge limits for the contaminants found at the site have been set at the method detection limits, which are presented in Table 21. During remedial design, ambient surface water sampling will be performed to enable the development of site-specific surface water discharge limits.

Contaminant-Specific

MCLs will be used as cleanup goals for the groundwater remediation.

Location-Specific

The site is not within the coastal zone as defined by the State of New Jersey. Additionally, there are no Federally designated wild and scenic rivers and there are no significant agricultural lands in the vicinity of the site. The project area may be sensitive for the discovery of cultural resources. Therefore, as discussed earlier, a cultural resources survey will be prepared during remedial design. Additionally, a wetlands assessment will be performed at that time to determine the presence of and potential impacts on wetland areas.

Utilization of Permanent Solutions and Alterative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

EPA and the State of New Jersey have determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner for the Metaltec/Aerosystems site. Of the alternatives that are protective of human health and the environment, and comply with ARARs, EPA and the State have determined that the selected remedy provides the best balance of tradeoffs in terms of long-term effectiveness and permanence, reduction in toxicity, mobility, or volume achieved through treatment, short-term effectiveness, implementability, cost, and State and community acceptance.

Alternative 2 reduces the toxicity, mobility, and volume of the contaminants in the groundwater; complies with ARARs; provides both short- and long-term effectiveness; and protects human health and the environment equally as well as Alternative 3. The costs for both of the alternatives is also relatively close. However, Alternative 2 may be more easily implemented than Alternative 3. Alternative 1, while representing the least cost and easiest implementability of all of the alternatives, is evaluated as the worst alternative in terms of the other evaluation criteria. Therefore, the selected remedy is determined to be the most appropriate solution for the contaminated groundwater at the Metaltec/Aerosystems site.

The State of New Jersey is in concurrence with the selected remedy.

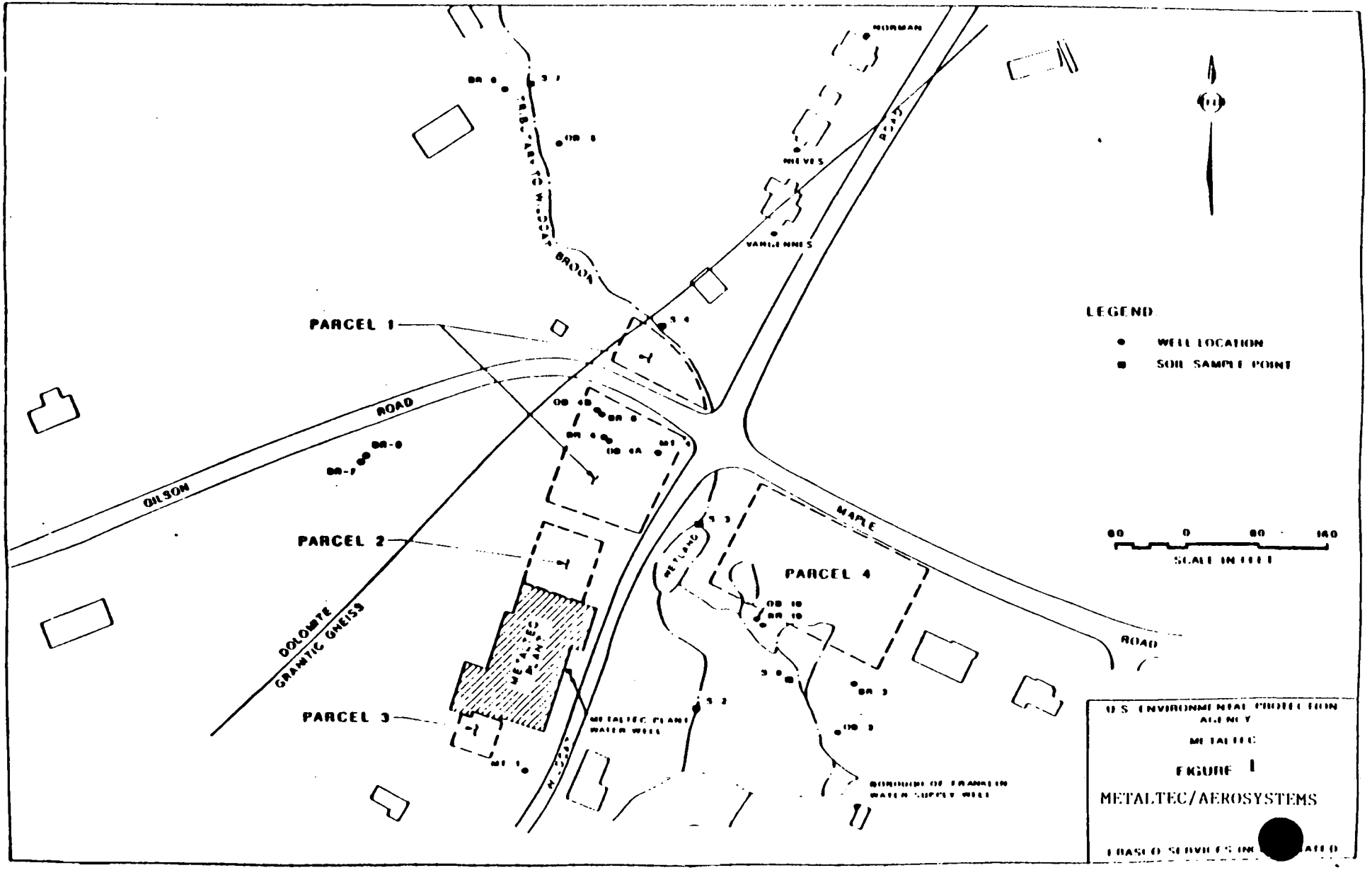
The Proposed Plan for the Metaltec/Aerosystems site was released for public comment on July 27,1990. The Proposed Plan identified Alternative 2 as the preferred alternative, EPA reviewed all written and verbal comments submitted during the public comment period. Upon review of those comments, it was determined that no significant changes to the remedy, as it was originally identified in the Proposed Plan, were necessary.

Cost Effectiveness

Both Alternatives 2 and 3 effectively address the threats posed by the groundwater contamination at the site for relatively close costs. However, the selected alternative affords the higher level of overall effectiveness proportional to its cost. The selected alternative is determined to be cost-effective because it provides the highest degree of protectiveness among the alternatives evaluated, while representing cost value.

Preference for Treatment as a Principal Element

By extracting and treating the contaminated groundwater, the selected remedy addresses the threats posed by the site through the use of treatment technologies. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied by the selected remedy.


PARCEL 1
PARCEL 2
PARCEL 3
PARCEL 4
OILSON
ROAD
MAPLE
ROAD
BROOK
DOLOMITE
GRANITIC GNEISS
METALTEC PLANT
WATER WELL
BOROUGH OF FRANKLIN
WATER SUPPLY WELL
LEGEND
WELL LOCATION
SOIL SAMPLE POINT
SCALE IN FEET
U.S. ENVIRONMENTAL PROTECTION AGENCY
METALTEC
FIGURE 1
METALTEC/AEROSYSTEMS

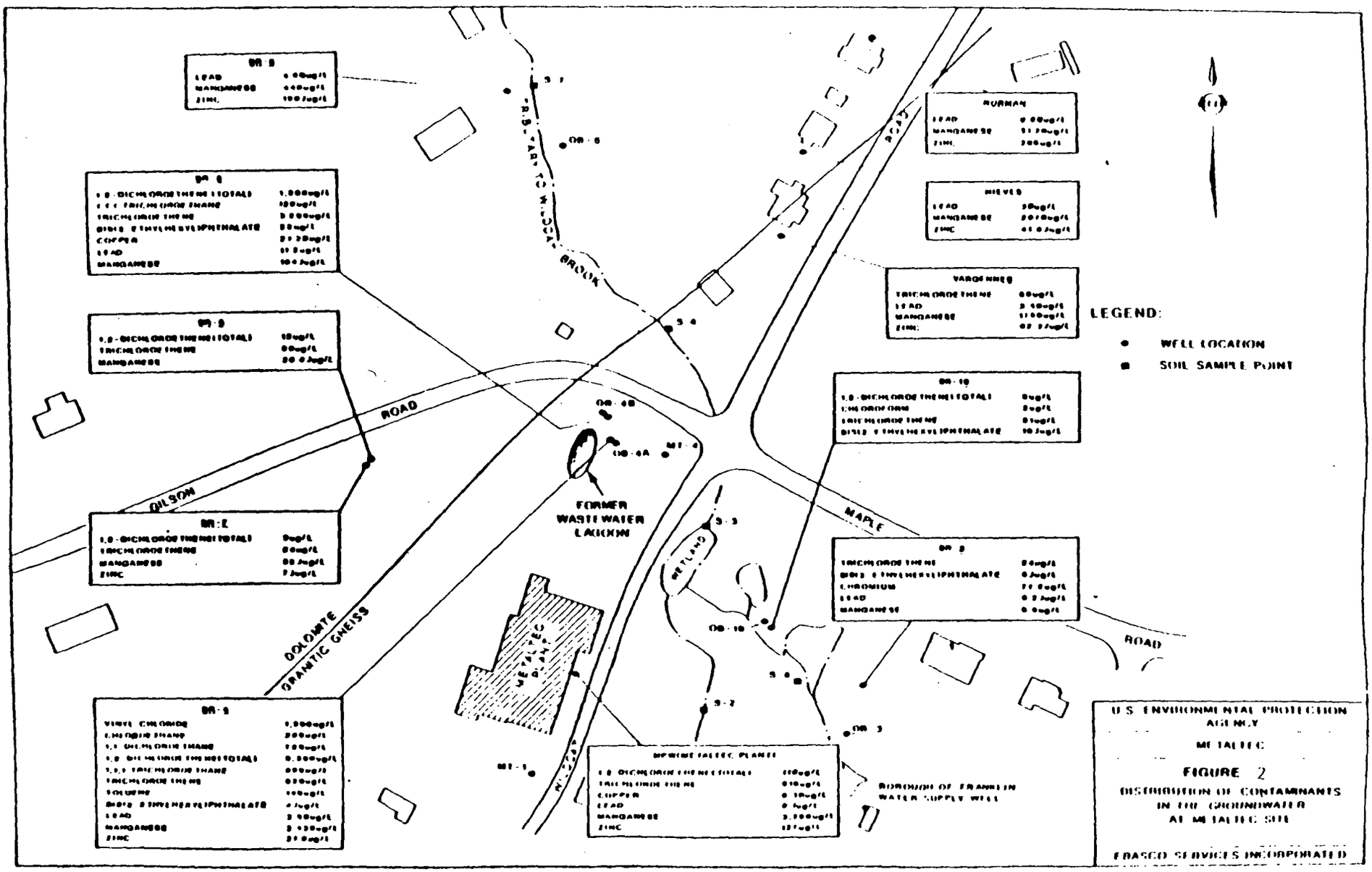

MW-8
LEAD
MANGANESE
ZINC
MW-6
MW-7
MW-9
1,2-DICHLOROETHENE(TOTAL)
TRICHLOROETHENE
MANGANESE
MW-2
1,2-DICHLOROETHENE(TOTAL)
TRICHLOROETHENE
BIS(2-ETHYLHEXYL)PHTHALATE
CHROMIUM
LEAD
MANGANESE
MW-1
VINYL CHLORIDE
1,2-DICHLOROETHENE(TOTAL)
TRICHLOROETHENE
TOLUENE
BIS(2-ETHYLHEXYL)PHTHALATE
LEAD
MANGANESE
ZINC
MW-10
1,2-DICHLOROETHENE(TOTAL)
VINYL CHLORIDE
TRICHLOROETHENE
BIS(2-ETHYLHEXYL)PHTHALATE
MW-3
TRICHLOROETHENE
BIS(2-ETHYLHEXYL)PHTHALATE
CHROMIUM
LEAD
MANGANESE
MW-4
MW-4A
MW-4B
MW-5
MW-11
1,2-DICHLOROETHENE(TOTAL)
TRICHLOROETHENE
COPPER
LEAD
MANGANESE
ZINC
BURMAN
LEAD
MANGANESE
ZINC
MEYER
LEAD
MANGANESE
ZINC
VARGHNEES
TRICHLOROETHENE
LEAD
MANGANESE
ZINC
S-1
S-2
S-3
S-4
S-5
FORMER WASTEWATER LAGOON
METALTEC PLANT
WETLAND
BROOK
ROAD
MAPLE
DOLOMITE
GRANITIC GNEISS
BOROUGH OF FRANKLIN WATER SUPPLY WELL
LEGEND:
WELL LOCATION
SOIL SAMPLE POINT
U.S. ENVIRONMENTAL PROTECTION AGENCY
METALTEC
FIGURE 2
DISTRIBUTION OF CONTAMINANTS IN THE GROUNDWATER AT METALTEC SITE
ERASCO SERVICES INCORPORATED

TABLE 1

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1985
WELLS IN GRANITE KNOBS AND OVERBURDEN UPGRADIENT OF THE SITE [1/]

UNITS: ug/l

Compound	Count of [2/] Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean [3/] of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Methylene Chloride**	3	1	2	2.5*	45	6.552	0	4
Acetone**	7	3	4	5*	2,300	36.09	0	0
1,2-Dichloroethylene (total)	7	3	4	1	12	2.658	0	0
Chloroform**	7	5	2	0.2	5	1.678	0	0
Trichloroethylene	7	3	4	2.5*	140	7.327	0	0
Semivolatiles								
bis(2-Ethylhexyl)phthalate	7	3	4	2	15	5.267	0	0
Inorganics								
Chromium	7	4	3	5*	119	18.60	0	0
Copper	3	2	1	12.5*	38	21.18	0	4
Lead	3	2	1	2.5*	40	14.42	0	4
Manganese	7	7	0	18	11,900	249.67	4	0
Zinc	3	3	0	26	158	49.76	0	4

1/ Wells: OB-1, OB-2, OB-3, BR-1, BR-2, BR-3, Boro Well and Franek.

2/ Valid analyses = occurrences + undetects.

* Half the CLP contract detection limit.

** Not site-related.

3/ Half the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 2

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1988
WELLS IN GRANITE GROUPS AND OVERBURDEN UPGRADIENT OF THE SITE [1/]

UNITS: ug/l

Compound	Count of [2/] Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean [3/] of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Acetone**	15	1	14	5*	550	6.840	0	1
Chloroform**	16	4	12	1	4.2	2.339	0	0
1,2-Dichloroethylene (total)	16	5	11	2	97	3.137	0	0
Trichloroethylene	16	11	5	1	24	4.000	0	0
Semivolatiles								
bis(2-Ethylhexyl)phthalate	16	4	12	5*	43	7.156	1	0
Inorganics								
Chromium	16	12	4	5*	790	33.40	0	0
Copper	16	8	8	6.6	55.9	14.34	0	0
Lead	16	9	8	2.4	36.1	4.488	1	0
Manganese	15	10	5	2.5*	1,380	47.09	1	1
Zinc	12	9	3	10*	229.0	42.24	1	4

1/ Wells: OB-1, OB-2, OB-3, BR-1, BR-2, BR-3, Boro Well and Franek.
2/ Valid analyses = occurrences + undetects.
* Half the CLP contract detection limit.
** Not site-related.
3/ Half the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 3

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1985
WELLS IN GRANITE KNOLLS AND OVERBURDEN ON SITE AND DOWNGRADIENT
OF THE SITE 1/

UNITS: ug/l

Compound	Count of 2/ Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean 3/ of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Vinyl Chloride	4	3	1	5*	3,400	466.88	0	0
Chloroethane	4	3	1	5*	440	127.57	0	0
Methylene chloride**	4	3	1	2.5*	140	20.53	0	0
Acetone**	4	2	2	5*	3,000	57.92	0	0
1,1 Dichloroethylene	4	2	2	2.5*	67	8.590	0	0
1,1-Dichloroethane	4	3	1	2.5*	1,500	226.80	0	0
1,2-Dichloroethylene (total)	4	4	0	21	10,000	1122.8	0	0
1,1,1-Trichloroethane	4	4	0	3.7	2,150	242.24	0	0
Trichloroethylene	4	3	1	2.5*	3,900	229.02	0	0
Toluene	4	3	1	2.5*	285	36.75	0	0
Semivolatiles								
bis(2-Ethylhexyl)phthalate	4	2	2	5*	24	9.898	0	0
Inorganics								
Chromium	4	2	2	5*	26	11.29	1	0
Copper	4	3	1	12.5*	349	58.85	1	0
Lead	3	1	2	2.5*	53	10.28	1	1
Manganese	4	4	0	210	3,100	1218.2	1	0
Zinc	2	2	0	54.5	70	61.76	1	2

1/ Wells OB-4A, OB-4B, OB-10, BR-4, BR-6, BR-8, BR-10, MPW and Vargennes.

2/ Valid analyses = occurrences + undetects.

* Half the amount of the CLP contract detection limit.

** Not site-related.

3/ Half the amount of the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 4

METALLEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1988
WELLS IN GRANITIC GNEISS AND OVERBURDEN ON SITE AND DOWNGRADIENT
OF THE SITE 1/

UNITS: ug/l

Compound	Count of 2/ Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean 3/ of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Vinyl Chloride	14	6	8	5*	1,200	49.74	0	0
Chloroethane	14	3	11	5*	110	11.44	1	0
1,1-Dichloroethane	14	6	8	2.5*	700	25.97	0	0
1,2-Dichloroethylene (total)	14	11	1	2.5*	6,000	201.48	0	0
1,1,1-Trichloroethane	12	7	5	2.5*	1,100	51.81	0	2
Trichloroethylene	14	12	2	2.5*	3,200	141.20	1	0
Toluene	14	2	12	2.5*	135	4.326	0	0
Semivolatiles								
bis(2-Ethylhexyl)phthalate	14	3	11	5*	22	6.091	1	0
Inorganics								
Chromium	14	7	7	5*	269	9.993	1	0
Copper	14	7	7	5*	54.5	12.84	1	0
Lead	12	11	1	2.3*	17.3	4.363	1	2
Manganese	14	12	2	7.5*	3,395	345.942	1	0
Zinc	10	7	2	10*	486	48.44	3	5

1/ Wells: OB-4, OB-4B, OB-10, BR-4, BR-6, BR-8, BR-10, MPW and Vargennes.

2/ Valid analyses = occurrences + undetects.

* Half the CLP contract detection limit.

3/ Half the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 5

METALTEC/AEROSYSTEMS SITE
CHEMICALS DETECTED IN
1988 BACKGROUND WELLS
SCREENED IN DOLOMITE

UNITS: ug/l

Bedrock Well BR-9	
Lead	1.7B
Manganese	61.7
Zinc	35.2

B = compound also detected in Blank.

TABLE 6

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1985
WELLS IN DOLOMITE AND OVERBURDEN DOWNGRADIENT
OF THE SITE 1/

UNITS: mg/l

Compound	Count of 2/ Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean 3/ of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Acetone**	4	2	2	5*	270	35.30	0	2
Chloroform**	6	2	4	0.5	6.65	2.011	0	0
Trichloroethylene	6	1	5	2.5*	3.7	2.669	0	0
Benzene	6	1	5	0.09	2.5	1.436	0	0
Semivolatiles								
Phenol	6	1	5	5*	7	5.288	0	0
Inorganics								
Chromium	6	2	4	5*	91	10.13	0	0
Copper	6	6	0	12.5*	90	20.23	0	0
Manganese	6	4	2	7.5*	2,960	99.49	2	0
Zinc	4	2	2	10*	50	22.36	0	2

1/ Wells: OB-5, BR-5, BR-7, Nieves, Norman, Serin and Wheats.

2/ Valid analyses = occurrences and undetects.

* Half the CLP contract detection limit.

** Not site-related.

3/ Half the the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 7

METALLEZ/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1988
WELLS IN DOLOMITE AND OVERBURDEN DOWNGRADIENT
OF THE SITE 1/

UNITS: ug/l

Compound	Count of 2/ Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean 3/ of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Acetone**	13	1	12	5*	10,000	9.387	0	0
1,2-Dichloroethylene (total)	13	1	12	2.5*	3 0	2.535	0	0
Trichloroethylene	13	1	12	2.5*	26	2.993	0	0
Semivolatile								
bis(2-Ethylhexyl)phthalate	13	1	12	5*	7	5.131	0	0
Inorganics								
Chromium	13	3	10	5*	816	10.427	0	0
Copper	13	13	0	6.8	374	17.96	0	0
Lead	11	6	5	0.8	121	7.631	0	2
Manganese	13	8	5	7.5*	12,800	72.98	1	0
Zinc	10	8	2	7	1,160	64.52	1	3

1/ Wells: OB-5, BR-5, BR-7, Nieves, Norman, Serin and Wheats.

2/ Valid analyses = occurrences and undetects.

* Half the amount of the CLP contract detection limits.

** Not site related.

3/ Half the amount of the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 8

PUMP TEST DATA

AVERAGE GROUNDWATER VOA CONTAMINATION

Compound	Average Contamination
Organic	
Vinyl Chloride	1240 ug/L
Chloroethane	20 ug/L
Methylene Chloride	158 ug/L
1,1 - Dichloroethene	78 ug/L
1,1 - Dichloroethane	117 ug/L
1,2 - Dichloroethene	8750 ug/L
1,1,1 - Trichloroethane	1180 ug/L
Trichloroethene	22000 ug/L
Tetrachloroethane	27 ug/L
Toluene	92 ug/L
Xylenes	2 ug/L
Total	29354 ug/L

Average Groundwater Inorganic Contamination:
1988 Granite Gneiss

Inorganic	
Iron	19 mg/l
Manganese	5 mg/l
Chromium	28 ug/l
Copper	15 ug/l
Zinc	44 ug/l
Lead	5 ug/l

TABLE 9

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1988 AND 1989
SURFACE WATER SAMPLES UPGRADIENT OF THE SITE [1/]

UNITS: ug/l

Compound	Count of [2/] Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean[3/] of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Inorganics								
Manganese	3	3	0	70	691	199.44	3	0
Zinc	3	3	0	10	117	29.07	2	0

1/ Stations: S-1, S-2 and S-8 sampled in 1985, 1988 and 1989.

2/ Valid analyses = occurrences and undetects for the undetects (1989 Metal analyses are not available).

* Half the CLP contract detection limits.

3/ Half the CLP contract detection limits are used.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compound showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 10
METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1988 and 1989
SURFACE WATER SAMPLES ADJACENT TO OR DOWNGRADIENT OF POTENTIAL SOURCES OF CONTAMINATION[1/]

UNITS: ug/l

Compound	Count of [2/] Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean[3/] of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Volatile Organics								
Vinyl chloride	13	5	8	1.4	20	4.697	2	0
1,1-Dichloroethane	13	3	10	2	19	2.913	0	0
1,1 Dichloroethene	13	1	12	2.5*	5.5	2.656	0	0
1,2-Dichloroethylene (total)	13	9	4	2.5*	1150	29.27	0	0
Trichloroethylene	13	11	2	2.5*	790	39.22	0	0
Inorganics								
Chromium	4	4	0	6.2	6.8	6.596	0	0
Manganese	4	4	0	10	199	88.99	4	0
Zinc	4	3	1	7.7	15.1	10.88	3	0

1/ Stations: S-3, S-4, S-5, S-7 and S-9.

2/ Valid analyses = occurrences + undetects (1989 metal analyses are not available).

* Half the CLP contract detection limit.

3/ Half the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compound showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 11

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN 1988 AND 1989
IN WELDON BROOK SURFACE WATER SAMPLES
AT THE CONFLUENCE WITH THE UNNAMED STREAM 1/

UNITS: ug/l

Compound	Count of 2/ Valid Analyses	Count of Occurrences	Count of Undetects	Minimum Concentration	Maximum Concentration	Geometric Mean 3/ of Valid Analyses	Count of Estimated Values	Count of Rejected Values
Inorganics								
Chromium	1	1	0	-	6.4	-	0	0
Manganese	1	1	0	-	48.1	-	0	0
Zinc	1	1	0	-	17.3	-	0	0

1/ Station: S-6 sampled in 1985, 1988, and 1989.

2/ Valid analyses = occurrences + undetects (1989 Metal analyses are not available).

* Half the CLP contract detection limit.

3/ Half the CLP contract detection limits are used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compoun showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 12

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN
SEDIMENT SAMPLES COLLECTED IN POOR UPGRADIENT OF THE SITE. 1/

UNITS: AS INDICATED

COMPOUND	COUNT OF 2/ VALID ANALYSES	COUNT OF OCCURRENCES	COUNT OF UNDETECTS	MINIMUM CONCENTRATION	MAXIMUM CONCENTRATION	GEOMETRIC 3/ MEAN OF VALID ANALYSES	COUNT OF ESTIMATED VALUES	COUNT OF REJECTED VALUES
INORGANICS (mg/kg)								
Chromium	3	3	0	4.3	31.4	11.51	2	0
Copper	3	3	0	4	51.1	16.33	0	0
Lead	3	3	0	5.8	45.7	16.93	2	0
Manganese	3	3	0	256	3080	629.25	0	0
Zinc	3	3	0	0.9	762	43.13	1	0

1/ Stations: S-1, S-2 and S-8.

2/ Valid analyses = occurrences and undetects.

• Half the CLP contract detection limit.

3/ Half the CLP contract detection limits were used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 13

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN POND SEDIMENT SAMPLES ADJACENT TO OR DOWNGRADIENT OF POTENTIAL SOURCES OF CONTAMINATION. 1/

UNITS: AS INDICATED

COMPOUND	COUNT OF 2/ VALID ANALYSES	COUNT OF OCCURRENCES	COUNT OF UNDETECTS	MINIMUM CONCENTRATION	MAXIMUM CONCENTRATION	GEOMETRIC 3/ MEAN OF VALID ANALYSES	COUNT OF ESTIMATED VALUES	COUNT OF REJECTED VALUES
VOLATILE ORGANICS (ug/kg)								
Vinly chloride	4	1	1	5*	270	13.55	0	0
Methylene chloride**	4	2	2	2.5*	7	3.305	2	0
1,1-Dichloroethane	4	1	3	2.5*	25	4.446	1	0
1,2-Dichloroethylene (total)	4	1	3	2.5*	475	9.282	0	0
SEMIVOLATILES (ug/kg)								
bis(2-Ethylhexyl) phthalate	4	1	3	165*	545	222.44	1	0
INORGANICS (mg/kg)								
Chromium	4	4	0	6.7	27	12.03	4	0
Copper	4	4	0	19.8	319	42.14	0	0
Lead	4	4	0	11.1	58.8	26.65	4	0
Manganese	4	4	0	512	2920	889.79	0	0
Zinc	4	2	2	2*	662	18.96	2	0

1/ Stations: S-3, S-4, S-5 and S-7

2/ Valid analyses = occurrences and undetects.

* Half the CLP contract detection limit.

** Not site-related.

3/ Half the CLP contract detection limits were used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compounds showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 14

METALTEC/AEROSYSTEMS SITE
SUMMARY OF CHEMICALS DETECTED IN
WILDCAT BROOK SEDIMENT SAMPLES COLLECTED IN 1988 AT THE CONFLUENCE WITH THE UNNAMED STREAM. 1/

UNITS: AS INDICATED

COMPOUND	COUNT OF 2/ VALID ANALYSES	COUNT OF OCCURRENCES	COUNT OF UNDETECTS	MINIMUM CONCENTRATION	MAXIMUM CONCENTRATION	GEOMETRIC 3/ MEAN OF VALID ANALYSES	COUNT OF ESTIMATED VALUES	COUNT OF REJECTED VALUES
INORGANICS (mg/kg)								
Chromium	1	1	0	-	19.2	-	0	0
Copper	1	1	0	-	76.7	-	0	0
Lead	1	1	0	-	14.9	-	0	0
Manganese	1	1	0	-	285	-	0	0
Zinc	1	1	0	-	267	-	0	0

1/ Stations: S-6

2/ Valid analyses = occurrences and undetects.

* Half the CLP contract detection limit.

3/ Half the CLP contract detection limits were used for the undetects.

"Data are reported only for compounds occurred at least once in concentrations equal to or exceed the CLP contract detection limits, unless the compound showed multiple occurrences in other wells/stations and/or the compounds have high toxicity".

TABLE 15

SUMMARY OF CHEMICALS OF POTENTIAL CONCERN
AND CONCENTRATIONS IN GROUNDWATER,
SURFACE WATER AND SEDIMENTS

	Ground Water						Surface Water		Sediment	
	Granitic Gneiss				Dolomite					
	UG		DG							
Chemical	Avg	Mean	Avg	Mean	AVG	MEAN	Avg	Mean	AVG	MEAN
Organic Chemicals (ug/kg):										
Acetone	6.8	550	ND	ND	9.4	18,000				
Bis(2-ethylhexyl)phthalate	7.2	4	6.1	22	5.1	7			220	550
Chloroethane	ND	ND	11	310						
Chloroform	2.3	4.2	ND	ND						
1,1-Dichloroethane	ND	ND	26	700			2.9	19.0	4.4	25
1,1-Dichlorethene							2.7	5.5		
1,2-Dichlorethene(total)	3.1	97	200	6,000	2.5	3	29	1,200	9.3	480
Methylene chloride									3.4	7
Toluene	ND	ND	4.3	140						
1,1,1-Trichloroethane	ND	ND	54	1,100						
Trichloroethene	4	24	140	3,200	3	26	39	790		
Vinyl chloride	ND	ND	50	1,200			4.7	20	14	270
Inorganic Chemicals (mg/kg):										
Chromium	33	790	10	270	10	820	*6.6	*6.8	*12	*27
Copper	14	56	13	55	18	370			42	320
Lead	4.5	36	4.4	17	7.6	120			27	59
Manganese	47	1,400	350	3,400	73	13,000	*89	*200	*890	*2,900
Zinc	42	230	48	490	65	1,200	*11	*15	*19	*660

UG = Upgradient
DG = Downgradient
ND = Not detected at concentrations above the EPA CLP detection limit.
* = Not selected as a chemical of potential concern. Maximum concentration is within the range of background concentrations.

TABLE 16

SUMMARY OF EXPOSURE PATHWAYS TO BE QUANTITATIVELY EVALUATED FOR THE METALTEC SITE

Potentially Exposed Population	Exposure Pathway
Current Land Use	
Nearby residents	Inhalation of chemicals that have volatilized from surface water.
Children playing in unnamed stream	Dermal absorption of chemicals in surface water.
Children playing in unnamed stream	Dermal absorption of chemicals in sediments.
Hypothetical Future Land Use: *	
Residents	Ingestion of groundwater. (Also, qualitative evaluation of other routes of exposure associated with in-home use of groundwater.)

* Exposure pathways in addition to current-use exposure pathways.

TABLE 17

HEALTH EFFECTS CRITERIA FOR CHEMICALS OF POTENTIAL CONCERN AT THE METALTEC SITE

Chemical	Reference Dose (RfD) (a) (mg/kg/day)	Safety Factor (b)	Source (c)	EPA/CAG Cancer Potency Factor (d) (mg/kg/day)-1	Weight of Evidence (e)
Organic Chemicals					
Acetone	1.0E-01	1,000	IRIS	--	D
Bis(2-ethylhexyl)phthalate	2.0E-02	1,000	IRIS	1.4E-02	B2
Chlorobenzene	--	--	--	--	D
Chloroform	1.0E-02	1,000	IRIS	6.1E-03	B2
1,1-Dichloroethane	1.0E-01	1,000	HEA	9.1E-02	B2/C *
	[1.0E-01](f)	1,000	HEA		
1,1-Dichloroethene	9.0E-03	1,000	IRIS	6.0E-01	C
				[1.2E+00](k)	[C] (l)
1,2-Dichloroethene	1.0E-02 (g)	1,000	HA (h)	--	D
Methylene Chloride	6.0E-02	100	IRIS	7.5E-03	B2
Toluene	3.0E-01	100	IRIS	--	D
1,1,1-Trichloroethane	9.0E-02	1,000	IRIS	--	D
Trichloroethene	7.0E-03 *	1,000	HA (h)	1.1E-02	B2
				[4.6E-03](k)	[B2] (l)
Vinyl Chloride	--	--	--	2.3E+00	A
				[2.9E-01](k)	[A] (l)
Inorganic Chemicals					
Chromium	5.0E-03 (i)	500	IRIS	--	D
Copper	4.0E-02	(j)	(j)	--	D
Lead	--	--	--	--	B2 (m)
Manganese	2.0E-01	100	HEA	--	D
Zinc	2.0E-01	10	HEA	--	D

(a) Oral reference dose (RfD) except as noted.
(b) Safety factors used to develop reference doses are the products of uncertainty and modifying factors. Uncertainty factors consist of multiples of 10, each factor representing a specific area of uncertainty inherent in the data available. The standard uncertainty factors include:
- A 10-fold factor to account for the variation in sensitivity among the members of the human population;
- A 10-fold factor to account for the uncertainty in extrapolating animal data to the case of humans;
- A 10-fold factor to account for uncertainty in extrapolating from less than chronic NOAELs to chronic NOAELs; and
- A 10-fold factor to account for the uncertainty in extrapolating from LOAELs to NOAELs.

(c) Source of Reference Dose: IRIS = chemical files of the Integrated Risk Information System as of 6/1/89, with a Health Effects Assessment (Summary tables, March 1989).
(d) Oral cancer potency factor except as noted.
(e) Weight of evidence classification scheme for carcinogens: A--Human Carcinogen, sufficient evidence from human epidemiological studies; B1--Probably Human Carcinogen, limited evidence form epidemiological studies and adequate evidence from animal studies; B2--Probably Human Carcinogen, inadequate evidence from epidemiological studies and adequate evidence from animal stues; C--Possible Human Carcinogen, limited evidence in animals in the absence of human data; D--Not Classified as to human carcinogenicity; and E--Evidence of Noncarcinogenicity.
(f) Value in brackets is inhalation reference dose.
(g) Value for cis isomer.
(h) RfD derived from health advisory.
(i) Value for Cr(VI).
(j) RfD calculated based on proposed drinking water standard. Not an EPA verified RfD.
(k) Value in brackets is inhalation cancer potency factor.
(l) Weight of evidence classification for potential inhalation carcinogen.
(m) EPA has not developed a potency factor for lead but has classified it as a group B2 carcinogen.

-- = Criterion has not been developed for this chemical.
* = Under review by EPA.

TABLE 18

Hazard Indices (HI) and Cancer Risks Associated with the Potential Exposure Pathways at the Metaltec Site

Exposure Pathway	HI		Upper-Bound Cancer Risk	
	Avg.	Max.	Avg.	Max.
Inhalation of chemicals that have volatilized from surface water	< 1	< 1	$< 1 \times 10^{-6}$	2×10^{-6}
Dermal absorption of chemicals in Surface water	< 1	< 1	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Dermal absorption of chemicals in sediments	< 1	< 1	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Ingestion of groundwater	0.9	30	3×10^{-4}	3×10^{-2}

TABLE 19

FEDERAL AND STATE MCLs FOR CONTAMINANTS OF CONCERN AT METALTEC/AEROSYSTEMS

CONTAMINANT	FED. MCL (µg/l)	N.J. MCL (µg/l)
Vinyl Chloride	2	2
Chloroethane	-	-
1,1-Dichloroethane	-	2
1,1-Dichloroethene	7	2
1,2-Dichloroethene	-	10
1,1,1-Trichloroethane	200	26
Trichloroethene	5	1
Tetrachloroethene	5	1
Toluene	2,000	-
Xylenes	10,000	44
Manganese	-	50

TABLE 20
SUMMARY OF GROUNDWATER ALTERNATIVES ANALYSIS

ASSESSMENT FACTORS	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: PUMPING/PRECIPITATION/ AIR STRIPPING/CARBON ADSORPTION/DISCHARGE	ALTERNATIVE 3: PUMPING/PRECIPITATION/H_2O_2-UV OXIDATION/CARBON ADSORPTION/DISCHARGE
Description	Long-term groundwater monitoring; restrict development of groundwater for potable or municipal water uses. Public Awareness Program. Five year reviews.	Pump and collect groundwater; pretreat by precipitation; treat using air stripper, carbon adsorption; discharge treated water into tributary to Wildcat Brook.	Pump and collect groundwater; pretreat by precipitation; treat using H_2O_2-UV Oxidation and carbon adsorption; discharge treated water into tributary to Wildcat Brook.
Short-Term Effectiveness			
- Time until protection is achieved (after construction contract is awarded)	Could be implemented in 1 to 2 weeks; but will take 80 years to achieve cleanup goals.	Groundwater collection and treatment system would take up to 1 year for design and construction, 10 years for treatment to achieve clean-up goal.	Same as Alternative 2.
- Protection of Community during remedial actions	Restricted access and warning signs will protect against exposure.	Normal construction practices (restricted access, control of fugitive emissions, etc.) will protect against exposure and dermal contact.	Same as Alternative 2.
- Protection of workers during remedial actions	Minimal protection required during sampling and monitoring.	Health and safety protection and air emissions control required.	Health and Safety Protection required.
- Environmental Impacts	Continued migration of groundwater contaminants from the site.	No adverse environmental impacts except site clearing.	Same as Alternative 2.
Long-Term Effectiveness and Permanence			
- Magnitude of Residual Risk	The contamination would remain at the site and migrate off-site.	No residual risks, once remediation is complete.	Same as Alternative 2.
- Adequancy of Controls	Groundwater monitoring will track contaminant migration. Institutional control should restrict the development of groundwater for potable and municipal water uses.	No long-term control required.	Same as Alternative 2.

TABLE 20 (Cont'd)
SUMMARY OF GROUNDWATER ALTERNATIVES ANALYSIS

ASSESSMENT FACTORS	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: PUMPING/PRECIPITATION/ AIR STRIPPING/CARBON ADSORPTION/DISCHARGE	ALTERNATIVE 3: PUMPING/PRECIPITATION/H_2O_2-UV OXIDATION/CARBON ADSORPTION/DISCHARGE
- Reliability of Controls	Groundwater monitoring is reliable for tracking contaminant migration.	No long term control involved.	Same as Alternative 2.
Reduction of Mobility Toxicity or Volume			
- Treatment process and remedy	No treatment provided for groundwater.	Pump and treat system provided as described above	Pump and treat system provided as described above.
- Amount of contaminated material destroyed or treated	None by treatment; natural attenuation would continue to take place.	All significantly contaminated groundwater will be captured; contaminants will be effectively removed by precipitation, air stripping and carbon adsorption and spent carbon will be destroyed during regeneration.	All significant contaminated groundwater will be captured; contaminants will be effectively destroyed by precipitation, oxidation, or removed by carbon and spent carbon will be destroyed during regeneration.
- Reduction of toxicity mobility or volume	None by treatment;	Would achieve significant reduction in toxicity, mobility and volume of contaminants.	Same as Alternative 2.
- Irreversibility of the treatment	No treatment involved.	Irreversible treatment.	Same as Alternative 2.
- Type and quantity of treatment residual	No treatment involved	Spent carbon from liquid and vapor phase adsorbers will be either regenerated or disposed of off-site Sludge produced from precipitation would be disposed off-site	Spent carbon from liquid phase adsorber will be either regenerated or disposed of off-site Sludge produced from precipitation would be disposed off-site
Implementibility			
- Ability to construct technology	No construction involved	Easily implemented.	Easily implemented.
- Reliability of technology	No technology utilized.	All the technologies are reliable	Same as Alternative 2.
- Ease of undertaking additional remedial action, if necessary	Easy to undertake.	Easy to undertake, but none expected.	Same as Alternative 2.
- Monitoring Considerations	Migration or exposure pathways can be monitored	Migration or exposure pathways can be monitored	Same as Alternative 2.

TABLE 20 (Cont'd)
SUMMARY OF GROUNDWATER ALTERNATIVES ANALYSIS

ASSESSMENT FACTORS	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: PUMPING/PRECIPITATION/AIR STRIPPING/CARBON ADSORPTION/DISCHARGE	ALTERNATIVE 3: PUMPING/PRECIPITATION/H2O2-UV OXIDATION/CARBON ADSORPTION/DISCHARGE
Implementibility (Cont'd)			
- Coordination with other agencies	Coordination required with all agencies for long period of time	Coordination required with all agencies but no coordination required after remediation.	Same as Alternative 2.
- Availability of treatment, storage, capacity, and disposal services.	No treatment, storage or disposal services required.	Availability is good for regeneration of spent carbon and disposal of sludge.	Same as Alternative 2.
- Availability of technologies, necessary equipment and specialists	No special equipment or specialists required.	Availability is good.	Limited availability.
Costs			
- Capital Cost ($Million)	0	0.748	0.927
- O&M ($Million)	0.023	0.466	0.467
- Present Worth ($Million)	0.358	4.15	4.54
Compliance with ARARs			
- Compliance with ARARs	Fails to comply with site-specific groundwater cleanup goals.	Complies with site-specific groundwater cleanup goals and all other ARARs.	Same as Alternative 2
- Appropriateness of Waivers	None needed.	Same as Alternative 1.	Same as Alternative 2.
- Compliance with criteria, advisories, and guidance	Does not comply	Complies	Same as Alternative 2.
Overall Protection of Human Health and the Environment			
- How risks are eliminated, reduced or controlled	No treatment is provided, only monitoring; Natural attenuation may reduce toxicity since contaminants continue to migrate from the site to the tributary to the Wildcat Brook and Wallkill River. This alternative will not protect human health and the environment.	Toxicity, mobility and volume of contaminant would be reduced by treatment; this alternative will prevent further migration of contaminants to the tributary to the Wildcat Brook and Wallkill River. This alternative will protect human health and environment.	Same as Alternative 2.

TABLE 21

DETECTION LEVELS FOR POLLUTANTS (all values are in ug/l unless otherwise noted)

PARAMETER	Criteria	EPA Test Method	MDL or PQL	
Volatile Compounds				
Acrolein	320	624	NA	
Acrylonitrile	0.059*	624	NA	
Benzene	0.15	602	0.2	
Bis (Chloromethyl) Ether				
Bromoform	5.6*	601	0.2	
Carbon Tetrachloride	0.382	601	0.13	
Chlorobenzene				
Chlorodibromomethane				
Chloroethane				
2-Chloroethylvinyl Ether				
Chloroform	5.6*	601	0.05	
Dichlorobromomethane				
Dichlorodifluoromethane				
1,1-Dichloroethane				
1,2-Dichloroethane	0.094*	601	0.03	
1,1-Dichloroethylene	4.6*	601	0.13	
1,2-Dichloropropane				
1,3-Dichloropropylene				
Ethylbenzene	3000	602	0.2	
Methyl Bromide	48*	601	1.18	
Methyl Chloride	5.6*	601	0.05	
Methylene Chloride	2.45	601	0.05	
1,1,2,2-Tetrachloroethane	0.17	601	0.03	
Tetrachloroethylene	0.385	601	0.03	
Toluene	9800	602	0.2	
1,2-Trans-Dichloroethylene				
1,1,1-Trichloroethane	187	601	0.03	
1,1,2-Trichloroethane	16.6	601	0.03	
Trichloroethylene	2.69	601	0.12	
Trichlorofluoromethane				
Vinyl Chloride	0.525	601	0.18	
Acid Compounds				
2-Chlorophenol	0.1	625	3.3	
2,4-Dichlorophenol	0.3	625	2.7	
2,4-Dimethylphenol	400	625	2.7	
4,6-Dinitro-O-Cresol	13.4	625	NA	
2,4-Dinitrophenol	69*	625	42	
2-Nitrophenol				
4-Nitrophenol				
P-Chloro-M-Cresol				
Pentachlorophenol	3C	625	3.8	
Phenol	300	625	1.5	
2,4,6-Trichlorophenol	1.2	625	2.7	
Base/Neutral Compounds				
Acenaphthene	20	625	1.5	
Benzidine	0.000128	624	44	
Benzo (a) Anthracene	0.0028	625	7.8	
Benzo (a) Pyrene	0.0028	625	2.5	
Benzo (b) Fluoranthene				
Benzo (g,h,i) Perylene	0.0028	625	4.1	
Benzo (k) Fluoranthene	0.0028	625	2.5	
Bis (2-Chloroethoxy) Methane				

TABLE 21 cont'd

DETECTION LEVELS FOR POLLUTANTS (all values are in ug/l unless otherwise noted)

PARAMETER	Criteria	EPA Test Method	MDL or PQL	
Bis (2-Chloroethyl) Ether		625	5.7	
Bis (2-Chloroisopropyl) Ether		625	5.7	
Bis (2-Ethylhexyl) Phthalate		625	2.5	
4-Bromophenyl Phenyl Ether				
Butyl Benzyl Phthalate		625	2.5	
2-Chloronaphthalene				
4-Chlorophenyl Phenyl Ether				
Chrysene		625	2.5	
Dibenzo (a,h) Anthracene		625	2.5	
1,2-Dichlorobenzene		601	0.15	
1,3-Dichlorobenzene		601	0.32	
1,4-Dichlorobenzene				
3,3'-Dichlorobenzidine		625	16.5	
Diethyl Phthalate		625	1.9	
Dimethyl Phthalate		625	1.6	
Di-n-Butyl Phthalate		625	nc	
2,4-Dinitrotoluene		625	5.7	
2,6-Dinitrotoluene				
Di-n-Octyl Phthalate				
1,2-Diphenylhydrazine				
(as Azobenzene)		nc		
Fluoranthene		625	2.2	
Fluorene		625	1.9	
Hexachlorobenzene		625	1.9	
Hexachlorobutadiene		625	0.9	
Hexachlorocyclopentadiene		625	nc	
Hexachloroethane		625	1.8	
Indeno (1,2,3-cd) Pyrene		625	3.7	
Isophorone		625	2.2	
Naphthalene				
Nitrobenzene		625	1.9	
N-Nitrosodimethylamine		625	nc	
N-Nitrosodi-n-Propylamine		625	1.9	
N-Nitrosodiphenylamine				
Phenanthrene		625	5.4	
Pyrene		625	1.9	
1,2,4-Trichlorobenzene		625	1.9	
Pesticides				
Aldrin		608	0.004	
Alpha-BHC		608	0.003	
Beta-BHC		608	0.005	
Gamma-BHC		608	0.004	
Delta-BHC				
Chlordane		608	0.014	
4,4'-DDT		608	0.012	
4,4'-DDE		608	0.004	
4,4'-DDD		608	0.011	
Dieldrin		608	0.002	
Endosulfan I		608	nc	
Alpha-Endosulfan		608	0.014	
Beta-Endosulfan		608	0.004	
Endosulfan Sulfate		608	0.065	
Endrin		608	0.005	
Endrin Aldehyde				
Heptachlor		608	0.002	

TABLE 21 cont'd

DETECTION LEVELS FOR POLLUTANTS (all values are in ug/l unless otherwise noted)

PARAMETER	Criteria	EPA Test Method	MDL or PQL	
Halogenated Organics				
PCB-1242	0.000044	608	0.065	
PCB-1254	0.000044	608	nc	
PCB-1221	0.000044	608	nc	
PCB-1232	0.000044	608	nc	
PCB-1248	0.000044	608	nc	
PCB-1260	0.000044	608	nc	
PCB-1016	0.000044	608	nc	
Toxaphene	0.00073	608	0.24	
Metals, Cyanide and Total Phenols				
Antimony, total	14	204.2	3	
Arsenic, trivalent				
Arsenic, total	0.018	206.2	1	
Beryllium, total	0.0053	210.2	0.2	
Cadmium, total	10	213.2	0.1	
Chromium, trivalent	4550	nc		
Chromium, hexavalent	50	nc		
Chromium, total				
Copper, total	1300	220.2	3	
Lead, total	50	239.2	1	
Mercury, total	2	245.2	0.2	
Nickel, total	610	249.2	1	
Selenium, total	10	270.2	2	
Silver, total	50	272.2	0.2	
Thallium, total	13	279.2	1	
Zinc, total	5000	289.2	0.05	
Cyanide, total	700	335.3	5	
Total Phenols				
Conventional Pollutants				
Biochemical Oxygen Demand				
Total Suspended Solids - mg/l				
pH - standard units				
Fecal Coliform				
Oil and Grease				
Non-Conventional Pollutants				
Total Organic Nitrogen				
Total Organic Carbon				
Chemical Oxygen Demand				
Dissolved Oxygen - mg/l				
Total Dissolved Solids - mg/l				
Temperature				
Chloride - mg/l				
Bromide				
Chlorine Produced Oxidants				
(Total Residual Chlorine				
Color				
Ammonia (as N)				
Fluoride				
Nitrate-Nitrite (as N)				
Perchlorate (ug/l)				
Total Phosphorus (as P)				
Sulfate (as SO4) - mg/l				

TABLE 21 cont'd

DETECTION LEVELS FOR POLLUTANTS (all values are in ug/l unless otherwise noted)

PARAMETER	Criteria	EPA Test Method	MDL or PQL	
[illegible] S				
[illegible] (SC)				
[illegible]ctions				
[illegible] Aluminum				
[illegible] Barium	1000	208.2	2	
[illegible] Boron				
[illegible] Cobalt		-		
[illegible] Iron				
[illegible] Magnesium				
[illegible] Molybdenum				
[illegible] Manganese				
[illegible] Tin				
[illegible] Titanium				
[illegible] PCB's				
[illegible] PAH's				
[illegible] Nitrobenzene				
[illegible] Isophorone				
[illegible]oxin				
			- -	-
[illegible]-Terphenyl-d14				
[illegible]-Dioxane	[illegible]	nc	nc	

RESPONSIVENESS SUMMARY
FOR THE
METALTEC/AEROSYSTEMS SITE
FRANKLIN BOROUGH
SUSSEX, NEW JERSEY

SEPTEMBER 1990

TABLE OF CONTENTS

RESPONSIVENESS SUMMARY
FOR THE
METALTEC/AEROSYSTEMS SITE
FRANKLIN BOROUGH
SUSSEX, NEW JERSEY

INTRODUCTION

This draft Responsiveness Summary provides a summary of citizen's comments and concerns and the U.S. Environmental Protection Agency's (EPA's) responses to those comments regarding the supplemental remedial investigation and feasibility study (RI/FS) report and Proposed Plan for the Metaltec/Aerosystems (Metaltec) Superfund site. EPA, in consultation with the New Jersey Department of Environmental Protection (NJDEP), will select a final cleanup remedy for the Metaltec site only after reviewing and considering all public comments received during the public comment period.

EPA held a public comment period from July 27, 1990 through August 27, 1990 to provide interested parties with the opportunity to comment on the supplemental RI/FS report and Proposed Plan for the Metaltec site.

EPA held a public information meeting to discuss the remedial alternatives described in the supplemental FS and to present EPA's preferred remedial alternatives for controlling contamination at the Metaltec site. The meeting was held at the Franklin Borough Hall, Sussex County, New Jersey on August 16, 1990 at 7:00 p.m.

In general, the community was responsive to EPA's Proposed Plan. A majority of the local officials and residents recognized the importance of restoring the condition of the aquifers at the Metaltec site. They emphasized that the Borough would like the groundwater remediated so they could reinstate use of the Maple Road well which currently cannot be used as a potable water supply well. However, they expressed concern about the length of time the Superfund process has taken in the past and stressed that they would like EPA to expedite the remediation in order to avoid delay and additional costs that could be incurred as a result of a delay.

I. **RESPONSIVENESS SUMMARY OVERVIEW:** This section briefly describes the site background and outlines the EPA's preferred remedial alternative.

II. **BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS:** This section provides the history of community concerns and interests regarding the Metaltec site.

III. **COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES:** This section summarizes oral and written comments received by EPA at the public meeting and during the public comment period for the Metaltec site.

IV. **APPENDICES:** There are four appendices attached to this report. They are as follows:

Appendix A: This appendix contains the Proposed Plan that was distributed to the public during the public information meeting held on August 16, 1990 at the Franklin Borough Hall;

Appendix B: This appendix contains sign-in sheets from the August 16, 1990 Public Information Meeting held at the Franklin Borough Hall;

Appendix C: This appendix contains the Agenda for the August 16, 1990 Public Information Meeting held at the Franklin Borough Hall;

Appendix D: This appendix contains an updated list of the information repositories designated for the Metaltec site;

Appendix E: This appendix contains the public notice which appeared in the July 29, 1990 issue of the New Jersey Herald; and

Appendix F: This appendix contains the written comment received by EPA during the public comment period and EPA's response.

I. RESPONSIVENESS SUMMARY OVERVIEW

A. SITE DESCRIPTION

The Metaltec Corporation, a subsidiary of Aerosystems Technology Corporation, operated a manufacturing facility at the intersection of Maple and Wildcat Roads, in the Borough of Franklin, Sussex County, New Jersey. The 15.3-acre site is south of Maple Road and both east and west of Wildcat Road. The Metaltec Corporation manufactured a variety of metal products from 1965 until 1980. When active, the site included the Metaltec plant, a process well, a wastewater lagoon, a drum storage area, wastewater-soaked ground, and two piles of waste material. The site is bordered by a golf course, private residences, and an unnamed tributary to Wildcat Brook (a tributary to the Wallkill River).

B. SITE HISTORY

In 1980, NJDEP conducted a site inspection which revealed that various volatile organic compounds (VOCs), most significantly trichloroethene (TCE), were present in the facility's wastewater lagoon and surrounding soil. Due to the presence of VOCs in the area's groundwater, the Franklin Borough water supply well, several area residential wells, and the Metaltec process well were closed. The area residents and the Metaltec facility were hooked up to a public surface water supply from a local pond.

In September 1983, the site was placed on the EPA's National Priorities List of Superfund sites. In June 1984, EPA began an RI/FS at the site to determine the nature and extent of contamination, characterize site risks, and develop and evaluate remedial alternatives. The 1984 RI determined the following:

- An estimated 10,000 cubic yards (cy) of soil were contaminated with various VOCs in an area referred to as Parcel 1.
- An estimated 4,000 cy of soil were contaminated with inorganic compounds and semi-volatile organic compounds in areas referred to as Parcels 2, 3, and 4.
- Both the shallow and bedrock aquifers beneath the site were contaminated with elevated levels of the contaminants found in the soil on the site.

EPA signed a Record of Decision (ROD) on June 30, 1986, which selected remedial actions for the site, municipal well, and affected or threatened private wells.

As a result of the 1986 ROD, a pipeline to provide an alternate water supply for affected Borough of Franklin residents is currently being constructed. In addition, approximately 5,000 cy of contaminated soils were excavated from Parcels 2, 3, and 4, and disposed of off-site at an approved landfill. The remedy for Parcel 1 has been designed and is presently awaiting funding. Although the 1986 ROD selected affirmative remedial actions to clean up the Metaltec site and provide an alternate water supply to residents with contaminated or threatened drinking water, the data obtained during the initial RI/FS were insufficient to fully characterize the groundwater contamination plume. Therefore, it was necessary for EPA to conduct the supplemental RI/FS.

The supplemental RI/FS deals specifically with contamination in the groundwater below the Metaltec site and hydraulically downgradient from the site. The FS evaluated the remedial alternatives for cleaning up the contaminated shallow and bedrock aquifers. To characterize the groundwater contamination, eight groundwater monitoring wells were installed and sampled. In addition, groundwater sampling was performed on the thirteen wells installed during the first RI/FS. Samples taken from the shallow and bedrock aquifers were analyzed and the results demonstrated that the groundwater is contaminated with volatile and semi-volatile organic compounds, and inorganic compounds, from the water table down into the bedrock as deep as 300 feet.

Surface water and sediment sampling investigations were also conducted to determine the presence and extent of contamination. Site-related contaminants were detected in a number of surface water and sediment samples obtained from the tributary to Wildcat Brook. However, the contamination found in the tributary was determined to be the result of contaminants being transported through the bedrock aquifer and the adjacent overburden, and finally discharged through a spring which leads to the tributary.

During the supplemental RI/FS, an analysis was performed to estimate the health and environmental problems associated with the Metaltec site. This analysis, referred to as a baseline risk assessment, was presented in the RI report as the Public Health Evaluation and Environmental Assessment (PHE). While conducting this assessment, the focus was on identifying contaminants of concern in each contaminated media, evaluating pathways of exposure (i.e., ways in which humans and environmental receptors [fish, birds, mammals, etc.] may come in contact with contaminants), and quantifying the degree to which that contact poses a risk to human health and the environment. Because the remedy selected in the 1986 ROD included the removal of contaminated soil from the site, potential impacts associated with contaminants in the soil were not assessed during this study.

Contaminants of potential concern were identified in the groundwater, surface water, and sediments. In all media, VOCs (in particular TCE and 1,2-Dichloroethene) were identified as contaminants of potential concern. In addition, chromium, copper, lead, manganese, and zinc were identified as chemicals of potential concern in groundwater. The highest concentrations of VOCs were detected in wells located near the former wastewater lagoon.

The exposure pathways evaluated in the PHE were those believed to be associated with the greatest potential exposures. The exposure pathways which were evaluated included inhalation of contaminants volatilized from surface water, direct contact (e.g., dermal contact) with contaminants in the surface water or sediments, and the ingestion of contaminated groundwater under a future land use scenario.

C. SUMMARY OF EPA'S PREFERRED ALTERNATIVE

EPA's selection for cleanup of the site is based on the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA). These laws require that a selected site remedy be protective of human health and the environment, cost effective and in accordance with other statutory requirements. SARA also emphasizes permanent solutions incorporating on-site remediation of hazardous contamination whenever possible.

The remediation alternative to control contamination at the site is selected by the EPA Region II Administrator and will be documented in a ROD. The goal for the cleanup of the groundwater contamination at the Metaltec site is to restore the groundwater to the more stringent of the Federal or State Maximum Contaminant Levels (MCLs) which have been devised to protect drinking water. The groundwater would be pumped and treated for restoration of the aquifers. This restoration will take an estimated 10 years to complete; however, actual aquifer conditions during remediation may affect this duration. Surface water and sediment contamination in the tributary to the Wildcat Brook will not require additional remediation since the tributary is fed by the groundwater, which will be cleaned up. After careful consideration of all reasonable alternatives and the evaluation criteria, EPA recommended the alternative described below.

Alternative 2: GROUNDWATER PUMPING/PRECIPITATION/AIR STRIPPING/CARBON ADSORPTION/DISCHARGE

Implementation Period:	10 years
Capital Cost:	$ 748,100
Annual O&M Costs:	$ 466,300
Present Worth:	$4,348,900

The major features of this alternative include groundwater pumping, collection, treatment, and discharge of treated groundwater, and a performance monitoring program. The groundwater cleanup goal under this alternative is the achievement of MCLs. The alternative involves the use of an existing well on the Metaltec property for groundwater extraction at a total pumping rate of approximately 10 gallons per minute (gpm), an extraction rate shown to be sustainable over an extended period of time. Pumping tests concluded that a 10 gpm pumping rate at BR-4 produces measurable drawdown at most of the wells located in the granitic gneiss aquifer which have been of concern in the site area. At that flow rate, it is estimated that it will take a period of approximately ten years to reduce the TCE levels to 1 ppb, although actual aquifer conditions during remediation may affect this duration. During remedial design, the possibility of using multiple extraction wells to accelerate cleanup will be explored. Studies will also be performed during remedial design to determine the optimum pumping rate to control the groundwater contamination plume. The extracted groundwater would first be treated to remove metals, with the resultant sludge being disposed of off-site. The VOCs present in the extracted groundwater would be removed by air stripping, and any remaining organic contaminants would be removed by carbon adsorption. The spent carbon would be collected by the supplier and taken off-site for disposal or treatment and reuse. The treated groundwater would be discharged to the tributary to Wildcat Brook at levels meeting surface water discharge requirements. Because of the unfavorable characteristics of the site hydrogeology (i.e., a complex bedrock fracture system and its associated hydraulic characteristics), reinjection of treated groundwater was eliminated from consideration as a remedial technology.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

Public concern about the site was at its highest in 1980 when VOCs were found by NJDEP in the Borough of Franklin municipal supply well and three residential wells at levels exceeding both federal and state drinking water standards. Community members whose wells were not found contaminated were concerned that the contamination might spread and affect their water supply wells. All residents with contaminated wells were connected to alternate water supplies.

EPA initiated community relations activities in 1984 and developed a Community Relations Plan (CRP) to identify community concerns and address their requests. Following the release of the initial RI/FS, EPA held a public information meeting on June 17, 1986. Approximately 40 residents and local officials attended the meeting. Subsequently, a responsiveness summary was prepared and the ROD was signed. The CRP was updated in 1988 during the supplemental RI/FS activities. The 1988 CRP reflected similar concerns that were previously identified in the 1984 CRP. Residents expressed a continued concern over declining property values and the groundwater contamination in the Franklin Borough.

There has been very little active interest in the Metaltec site. It has declined since the early 1980s. The primary interest currently lies with those residents who live near the site and are directly affected by the contamination.

III. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES

This section summarizes oral comments raised at the public meeting and during the public comment period, and EPA's responses. The comments and corresponding responses are organized in the following categories:

A. Purpose of Groundwater Remediation
B. Technical issues
C. Future of the Maple Road Well
D. Cost and Scheduling Issues
E. Potentially Responsible Party (PRP) Comments and Issues

A. PURPOSE OF GROUNDWATER REMEDIATION

Comment: One resident wanted to know why it was necessary to spend millions of dollars to clean up the groundwater contamination if there is no immediate health threat to the public, and it does not affect the vegetation and wildlife in the area.

EPA Response: In order to fund any cleanup, EPA must determine that the site poses an actual or potential risk to the public and/or to the environment. Although the public is currently using an alternative potable water supply, and there is no immediate risk to public health, the contamination has impacted the environment and created a potential threat. Since groundwater is a potential potable water source, it is critical to protect drinking water resources for the future. The objective of this remedial action is to confine the contamination plume and eventually eliminate it from the groundwater.

Comment: One citizen stated that he is an employee for Webco Industries, a glue backing company that currently leases the Metaltec facility. The commenter reported that Webco uses thousands of gallons of water per day in its cooling process. He suggested that instead of EPA spending millions of dollars to clean up the groundwater, Webco could use the groundwater for its cooling process.

EPA Response: EPA indicated that groundwater quality must be restored because, if left untreated, it could pose a potential risk to the community and the environment. The groundwater to be extracted under the remedy is contaminated and, therefore, requires treatment prior to disposal. The costs for construction and operation of the remedy would be incurred regardless of the disposal scenario.

The possibility of utilizing the treated water for cooling purposes, however, is an issue that EPA will consider during the remedial design of the remedy.

Comment: One citizen wanted to know why it was necessary to clean up the groundwater in 10 years if the groundwater would be remediated in 30 years through natural degradation. The citizen noted that the if EPA selected Alternative 1: No Further Action, With Monitoring, the government and citizens would save $4 million dollars and the groundwater would still be cleaned up.

EPA Response: EPA emphasized that the 30 year time frame identified in Alternative 1, the "No Action" alternative, is a very optimistic estimate and the actual restoration time could be substantially longer. Estimates in the FS report indicate that it could take 80 years for levels of vinyl chloride to reach the cleanup goals through natural attenuation processes.

B. TECHNICAL ISSUES

Comment: An engineer for the Franklin Borough of Public Works asked if the treated water, which will be discharged into Wildcat Brook, will comply with NJDEP's surface water quality requirements. In addition, he requested EPA to forward the Borough a copy of the Discharge Monitoring Reports, a monthly report that states how the treatment system performs during that monitoring period.

EPA Response: Yes, the discharged water will comply with NJDEP surface water criteria. As information from the monitoring program is produced, it will be forwarded to the Borough of Franklin.

Comment: A reporter asked EPA to explain the air stripping process for Alternative 2.

EPA Response: An air stripping unit operation would typically consist of countercurrently contacting heated air with the extracted groundwater (containing VOCs). The heated air (at a temperature above the volatiles' boiling point) is introduced through a distribution plate to ensure uniform air flow through the stripping column. To ensure intimate water/air contact, a large surface area is provided by polypropylene packing (in the shape of pall rings, saddles, etc.) in the column. The volatiles and air from the column are passed through a vapor phase carbon bed unit to remove volatiles prior to air discharge to the atmosphere. The devolatilized water from the column is sent to a liquid phase carbon bed adsorption unit for further treatment. The spent carbon would be collected and taken off-site to an approved disposal facility, or regenerated for future use.

Comment: A local reporter asked when EPA, following the selection of a remedial alternative, plans to implement the remedial action.

EPA Response: Following selection of the remedial alternative, EPA will begin the remedial design phase for the selected treatment process. Once initiated, the remedial design could take approximately one year to complete. Following the remedial design, EPA will initiate construction of the collection and treatment system. However, specific time frames for the start-up of the remedial action can not be developed until the remedial design is complete. Once the treatment system is constructed, it will take approximately ten years to clean up the groundwater to levels which will meet federal and state drinking water standards.

Comment: A local official stated that there are several residents who still use private wells for their water supply. He wanted to know if EPA would provide a potable water alternative for these residents should their wells be adversely affected by either the groundwater contamination in the area, or the draw-down of the aquifer created by the groundwater extraction.

EPA Response: Under Alternative 2, the pumping rate will be relatively low, approximately 10 gallons per minute. This relatively low pumping rate should not create a significant draw-down effect on the aquifer beyond the immediate area of the existing contamination. Further, the extraction and treatment of the groundwater should confine the contamination plume to the

currently affected area. Therefore, EPA does not anticipate private wells, which are currently unaffected by the plume, to become contaminated by the Metaltec site in the future.

In the unlikely event that more residential wells become contaminated, EPA would be likely to institute an action to provide residents with a suitable water supply. EPA is currently constructing a pipeline to provide affected Borough of Franklin residents with an alternate water supply.

C. FUTURE OF THE MAPLE ROAD WELL

Comment: The Borough of Franklin engineer wanted to know if EPA plans to use the Maple Road well during the remedial activities. NJDEP has required the Borough of Franklin to provide it with a notice to seal the well or a justification as to why the well should remain unsealed. EPA was requested to provide the Borough of Franklin with a justification, if any, to keep the well open.

EPA Response: EPA has indicated to the Borough that it plans to use the well for future sampling activities. Other potential uses of the well during remedial action will be determined during the remedial design. EPA will explore the potential of NJDEP allowing the well to remain unsealed.

Comment: Another local resident wanted to know if the well could be used as a potable water source in the future.

EPA Response: The objective of this remedial action is to return the groundwater quality to levels that will meet the current federal and state drinking water standards. If the well is not sealed and the groundwater is remediated, it may be possible to use the well as a potable water source in the future.

Comment: A Borough of Franklin Councilman wanted it on record that the Borough would prefer to leave the well unsealed. He stated that he anticipates the Borough to expand and would like to use the well as an additional water supply once the groundwater is remediated.

EPA Response: EPA acknowledged his request and stated that it was on record with EPA.

D. COST AND SCHEDULING ISSUES

Comment: One resident asked EPA to explain why it was necessary to spend $54,000 to install a fence around the Metaltec site. He stated that when he solicited bids for the same project, he received bids for $8,700, $1,700 and $17,000. He wanted to know why EPA did not hire a contractor that could build the same fence for less.

EPA Response: The installation of this fence was administered by the U.S. Army Corps of Engineers (COE). COE solicits bids from reliable sources and selects the contractor based on the lump sum bid. EPA assured the resident that this overall bid was the lowest bid for the work. The government contracting process is often intricate and can sometimes lead to higher costs. Added factors must be considered including the bidding procedures and liability insurance requirements that are required by Superfund law.

Comment: A newspaper reporter asked if the volume of public acceptance or rejection of EPA's Proposed Plan could alter EPA's decision making process.

EPA Comment: Community acceptance of a cleanup alternative is very important. Under CERCLA and SARA, EPA is required to evaluate community acceptance as one of the nine criteria that EPA uses to select the most suitable remedy. EPA also considers the overall protection of human health and the environment, compliance with federal and state regulations, and cost effectiveness. The preferred alternative is believed to provide the best balance among alternatives with respect to the evaluation criteria. EPA will evaluate all community concerns in the decision-making process.

E. POTENTIALLY RESPONSIBLE PARTY (PRP) COMMENTS AND ISSUES

Comment: The president of Aerosystems Technology Corporation (Aerosystems) stated that he had hired a certified testing company to analyze the groundwater at the Metaltec site. Those results revealed contaminant levels which were significantly less than the analytical results obtained by EPA. EPA values, which were approximately 29,000 parts per billion (ppb), were inflated compared to the testing company values, which were as low as 7 ppb. He asked EPA to explain the disparity between the results.

EPA Response: EPA implements a rigorous quality assurance/ quality control (QA/QC) program to collect and analyze groundwater samples at all Superfund sites. The samples were analyzed through the contract laboratory program (CLP), which follows strict EPA regulations. Since EPA did not regulate or

monitor the sampling performed by Aerosystems' certified testing company, the results were not validated and can not be used for Superfund purposes.

The supplemental RI revealed levels of 29,000 ppb of total organics on the Metaltec site. EPA performed a 14-day pump test, averaging the results of numerous samples which were collected at that time. The BR-4 Boring wells located in the Metaltec parking lot revealed a very high level of VOCs. EPA is confident that the results are an accurate representation of the contamination in the area.

Comment: The same commenter stated several of his monitoring wells were broken into and claimed that the vandals contaminated the wells by pouring benzene around the mouths of those wells. He believes that EPA wells were tampered with as well and wanted to know if the sabotage could have affected the sample results.

EPA Response: Only one well, upgradient of the site and in a residential area, was broken into. Nevertheless, that well did not reveal any significant contamination.

Comment: The commenter also noted that some of the contaminants, which were identified in the supplemental RI report, including zinc, copper, lead, chromium and magnesium, are endemic minerals to the area. A 1963 journal describes that the Borough of Franklin had mines abundant with copper, zinc, chromium, magnesium and lead. The New Jersey Zinc Company operated in the area for approximately 50 years. He wanted to know why EPA needs to clean up these minerals if they are naturally occurring minerals.

Response: The supplemental RI report notes that metals are indigenous to the Franklin Borough area and that this may be a cause for their detection in the groundwater. Nevertheless, in order to efficiently remove the contaminants of concern, VOCs, the groundwater must be pre-treated by removing the metals.

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Appendix A

Proposed Plan
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Appendix B

Public Meeting Sign-in Sheets
****
Appendix C

Public Meeting Agenda
****
Appendix D

List of Information Repositories
****
Appendix E

The Pubic Notice which appeared
in the July 29, 1990 issue of the New Jersey Herald
****
Appendix F

Written Comments and
EPA's Responses to Those Comments
****

LIST OF INFORMATION REPOSITORIES
FOR THE METALTEC/AEROSYSTEMS SITE
SUSSEX COUNTY, NEW JERSEY

1) Franklin Borough Hall
40 Main Street
Franklin, New Jersey,

2) Sussex County Library
RD 3 Box 76
Newton, New Jersey

Appendix F

Written Comments and EPA's Responses to Those Comments

RD #1 Box 21 Ra
Wildcat Rd
Franklin, NJ 07416
Aug 17, 1990

Sandra Rosin
Project Manager, USEPA
Emergency & Remedial Response Division
26 Federal Plaza, Room 750
New York NY 10278

Subject: Superfund Proposed Plan, Metaltech/Aerosystems Site
Franklin Borough, New Jersey - EPA Region 2, July 1990

Dear Sir

I have reviewed your plan to decontaminate groudwater by pumping/precipitation/air stripping/carbon adsorption/discharge methods and I support this approach. Your agency is to be commended for the efforts it is taking to restore the environment.

The only question that I have is: "What effect will this pumping have on private wells in the area?"

Sincerely,

Joseph T. Zontek

SEP 11 1990

Joseph Zoltak
RD #1 217A
Franklin, New Jersey 07416

Dear Mr. Zoltak:

This is in response to your August 17, 1990, letter concerning The U.S. Environmental Protection Agency's (EPA's) Proposed Plan for the Metaltec/Aerosystems site, located in Franklin Borough, New Jersey.

EPA does not anticipate that the groundwater extraction will have a significant effect on the private wells in the area. The relatively low pumping rate planned for the remedy, should not create a significant drawdown on the aquifer in the area. If, however, an adverse impact were encountered, mitigative steps would be initiated.

Your comments are always appreciated. If you have any further questions concerning the above, please do not hesitate to write or call me at (212) 264-1873.

Sincerely yours,

Ronald Rusin, Project Manager
Northern New Jersey Remedial Action Section