RECORD OF DECISION

Robintech, Inc./National Pipe Co. Site
Vestal, New York

U.S. Environmental Protection Agency
Region II
New York, New York
July 1997

DECLARATION FOR RECORD OF DECISION

SITE NAME AND LOCATION

Robintech, Inc./National Pipe Co. Site, Vestal, New York

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's selection of a source control remedy and amends a previous groundwater remedy for the Robintech, Inc./National Pipe Co. Superfund Site (the Site) in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9601-9675, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300. This decision document explains the factual and legal basis for selecting the remedy for the Site. The attached index (Appendix III) identifies the items that comprise the Administrative Record upon which the selection of the remedial action is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the proposed remedial action in accordance with CERCLA §121(f), 42 U.S.C. §9621(f), and it concurs with the selected remedy (see Appendix IV).

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 ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The major components of the selected remedy include the following:

- Excavation and treatment, using low temperature thermal desorption (LTTD), of unsaturated and saturated soils in two areas of the Site (the PW-2 and Paved Pipe Staging Areas) which exceed the NYSDEC recommended soil cleanup objectives identified in the

Technical and Administrative Guidance Memorandum (TAGM) objectives for VOCs. Post-excavation confirmatory sampling will be conducted to assure that the entire source areas are removed. Treated soils will be backfilled into the excavation from which they were removed after confirmatory sampling indicates that they meet the remediation goals (i.e., TAGM objectives). Treated soil above Toxicity Characteristic Leaching Procedure (TCLP) levels will either undergo additional treatment or be disposed of at an approved off-site facility, as appropriate. Groundwater entering the excavation will be pumped into mobile holding tanks for future testing and treatment, if necessary.

- Extraction of contaminated groundwater from the bedrock aquifer through the existing production well network. Extraction will continue until Maximum Contaminant Levels (MCLs) are achieved. Provisions to periodically evaluate the entire system, and repair or upgrade, as necessary, will be included in an operation and maintenance plan.

- Elimination of any plant-related sources of water to the overburden aquifer in order to further mitigate contaminant mobility.

- Intrinsic remediation of contaminated overburden groundwater (natural attenuation processes, including chemical degradation, dilution, and dispersion) at the Site and in downgradient areas. These natural mechanisms will be monitored regularly to verify that the level and extent of contaminants in the overburden groundwater are declining from baseline conditions and that conditions are protective of human health and the environment.

- Taking steps to secure institutional controls, such as deed restrictions and contractual agreements, as well as local ordinances, laws, or other government action, for the purpose of, among other things, restricting the installation and use of groundwater wells at and downgradient of the Site until groundwater quality has been restored.

- Development of a contingency plan during the remedial design (RD) to ensure the continuation of the pumping of contaminated bedrock groundwater from the existing production well network in the event of temporary or permanent plant closure or to adjust the rate of such pumping in the event that existing pumping rates do not effectively control the migration of contaminated groundwater.

The contingency plan will also address the treatment of the production well network effluent should contaminant levels exceed surface water discharge standards.

- Long-term groundwater and production well effluent discharge monitoring to evaluate the selected remedy's effectiveness. The exact frequency and location of groundwater monitoring will be determined during the RD stage. Monitoring will include a network of groundwater monitoring wells (including the installation of new monitoring wells, as necessary) sampled for volatile organic compounds (VOCs) and intrinsic remediation indicator parameters. The groundwater effluent discharge will be monitored for VOCs. In addition, a monitoring well cluster (one overburden and one bedrock) will be installed downgradient of the PW-2 Area to further assess groundwater quality.

- Reevaluation of Site conditions at least once every five years to determine if a modification to the selected remedy is necessary. This will include all areas of the Site, including the Northeastern Site Boundary Area.

In addition, further investigation will be necessary in an area with elevated groundwater concentrations in the vicinity of the warehouse in order to determine if this area is an additional source area. If such a source area is located, contaminated soil will be excavated and treated along with contaminated soils from the Paved Pipe Staging Area.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA §121, 42 U.S.C. §9621 in that it: (1) is protective of human health and the environment; (2) attains a level or standard of control of the hazardous substances, pollutants and contaminants, which at least attains the legally applicable or relevant and appropriate requirements (ARARs) under federal and state laws; (3) is cost-effective; (4) utilizes alternative treatment (or resource recovery) technologies to the maximum extent practicable; and (5) satisfies the statutory preference for remedies that employ treatment to reduce the toxicity, mobility, or volume of the hazardous substances, pollutants or contaminants at a site.

Because this remedy will result in contaminants remaining on-site above health-based limits until the contaminant levels in the aquifer are reduced below MCLs, a review of the remedial action pursuant to CERCLA §121(c), 42 U.S.C. §9621(c), will be conducted five years after the commencement of the remedial action, and every five years thereafter, to ensure that the remedy continues to provide adequate protection to human health and the environment.

Jeanne M. Fox
Regional Administrator

7/25/97
Date

DECISION SUMMARY

Robintech, Inc./National Pipe Co. Site
Vestal, New York

U.S. Environmental Protection Agency
Region II
New York, New York

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SITE LOCATION AND DESCRIPTION

The Robintech, Inc./National Pipe Co. Site (the Site) is located at 3421 Old Vestal Road in the Town of Vestal, Broome County, New York (see Figure 1). Vestal is located within a regionally important industrial center adjacent to Binghamton, New York in the Susquehanna River basin. An estimated 5,350 people live within a one mile radius of the Site.

The Site, which occupies 12.7 acres, is bordered by Commerce Road and several warehouses and light industrial buildings to the east, Old Vestal Road and several residences to the south, an amusement facility (known as the Skate Estate) and fuel storage tanks (Mobil Tank Farm) to the west, and by Conrail railroad tracks and Parkway Vending Inc. to the north (see Figure 2). The Site is located approximately half-way down the westerly face of a hill that slopes gently toward the Susquehanna River. Consistent with this, EPA field observations and examination of topographic contours indicate that the superficial (overland) flow of surface water across the Site is to the west, controlled by a series of conduits and drainage ditches which direct the flow to the river, located approximately a half mile to the north and west.

The area has two distinct aquifers which are sources of drinking water. The upper aquifer is comprised of overburden material consisting mainly of gray and brown till which becomes harder with depth. In addition, fill material associated with extensive grading on-site for storage and parking space ranges from 0-6 feet. Groundwater was encountered within the upper aquifer unit 6-20 feet below the ground surface. The lower aquifer is shale bedrock with a weathered zone 7-10 feet thick. The primary permeability of this material is low, but the secondary permeability is much higher. Fractures along the horizontal bedding planes and vertical joints in the shale allow for groundwater flow. Groundwater was encountered in this zone 10-60 feet below the ground surface.

Groundwater flow in the study area is primarily toward the west, with minor components trending to the northwest and southwest, and is recharged from rainfall. There are no private drinking water wells in the vicinity of the Site. All residents are supplied with drinking water by the Vestal well fields. One of these well fields is located downgradient of the Site near the river. Several investigations in the area have indicated that groundwater contamination from the Site is not impacting this area.

The area where the Site is located is not known to contain any ecologically significant habitat, wetlands, agricultural land, or historic or landmark sites which are impacted by the Site.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

In 1966, Robinson Technical Products constructed the main building that currently exists at the Site. The first floor of the building was used for the manufacture of aircraft engine mounts and automobile accelerator control cables. The second floor was used for the assembly of electronic cable. In 1970, Robinson Technical Products was renamed Robintech, and first floor production activities were replaced with PVC pipe extrusion operations. Between 1966 and 1979 the present pipe staging area was paved in four successive stages to the north. The warehouse was constructed in 1974.

The Site was bought by Buffton Corporation, the current owner, in 1982, and was occupied by its subsidiaries National Pipe Company ("National Pipe") and Electro-Mech, Inc. ("Electro-Mech"). Electro-Mech, which has since ceased operations at the Site, assembled electronic cable on the second floor of the main building. National Pipe conducted PVC pipe manufacturing operations on the first floor of the main building. Currently, National Pipe & Plastics, Inc., which is owned by Japanese corporations, conducts the PVC pipe manufacturing operations at the Site.

Ten production wells (labeled PW-1 through PW-10) were drilled on-site between 1983 and 1984. These six-inch diameter production wells were installed with steel casing through the overburden formation and then finished as open bedrock holes down to an average of 200 feet below ground surface. One well (PW-7) was abandoned and grouted to the surface with cement due to poor yield. Production well PW-10 was screened within the overburden aquifer, but has been removed from operation, also due to low yield. The eight remaining wells derive water from fractures in the shale bedrock aquifer. These wells discharge into a distribution tank located near the rear of the production facility and are automatically activated and deactivated in response to plant demand. Water from the distribution tank is used as both contact and noncontact cooling water in the pipe production process, then discharged to surface water at the permitted effluent discharge point. The production wells currently extract approximately 250,000 gallons of water per day.

An NYSDEC effluent sample collected at the Site in 1984 to verify discharge permit compliance found certain organic constituents that were not covered under the existing permit. Further investigation resulted in the conclusion that the source of contamination was coming from the groundwater beneath the Site. The Site was placed on the EPA National Priorities List (NPL) in 1986. An Administrative Order on Consent under Sections 104 and 122 of CERCLA, 42 U.S.C. §§9604, 9622 for the performance of a Remedial Investigation and Feasibility Study (RI/FS) was issued by EPA in 1987 to General Indicator Group, Inc. (a successor of Robintech), Buffton, Buffton Electronics (now named Electro-Mech, Inc.), and National Pipe Company. General Indicator Group, Inc. subsequently changed its name to CompuDyne, Inc. All of the above parties have been identified as Potentially Responsible Parties (PRPs) pursuant to CERCLA.

McLaren/Hart, retained by Buffton, implemented the EPA-approved RI/FS work plan. Following the completion of the RI/FS, a ROD was signed (on March 30, 1992), selecting pumping and treatment of the contaminated bedrock and overburden groundwater in three areas of the Site (discussed in more detail below). In September 1992, a Unilateral Administrative Order was issued by EPA to the PRPs to design and implement the selected remedy. Pre-RD-related field work, to collect additional data for the design of the selected remedy, was completed in December 1995. Based upon the results of this investigation, a Remedial Design Investigation Report (RDIR) was submitted to EPA in August 1996.

Soil and sediment investigations in order to assess suspected elevated lead concentrations on both the Site and Skate Estate properties were the subject of a second operable unit. These investigations did not reveal any potential health threats. Consequently, a no action ROD was signed for the second operable unit in March 1993.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI report, dated September 1991, which describes the nature and extent of the contamination at and emanating from the Site, the Risk Assessment, dated February 1992, which discusses the risks associated with the Site, the FS report, dated December 1991, which identifies and evaluates various remedial alternatives, the 1992 ROD, the August 1996 RDIR, and the April 1997 Proposed Plan were made available to the public in both the Administrative Record and information repositories maintained at the EPA Docket Room in the Region II New York City office and at the Town of Vestal Public Library located at 320 Vestal Parkway East, Vestal, New York. The notices of availability for these documents were published in the *Binghamton Press & Sun Bulletin* on April 25, 1997. A public comment period was held from April 25 through May 25, 1997. A public meeting was held on May 14, 1997 at the Vestal Public Library in Vestal, New York. At this meeting, representatives from EPA presented the findings of the RDIR and answered questions from the public about the Site and the remedial alternatives under consideration.

Responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see Appendix V).

SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

Information gathered during the design of the 1992 remedy (operable unit 1) made it apparent that the geology of the overburden was unsuitable for the implementation of a groundwater extraction system. Further, design data indicated the presence of definable sources of groundwater contamination within the overburden. Consequently, it became necessary to consider reevaluating the 1992 remedy and providing modifications, as appropriate. The primary objectives of this action (the final action for the Site) are to control the source of contamination at the Site, to reduce and minimize the downward migration of contaminants to the bedrock aquifer, and to minimize any potential future health and environmental impacts.

Soil and sediment investigations in order to assess suspected elevated lead concentrations on both the Site and Skate Estate properties were the subject of a second operable unit. These investigations did not reveal any potential health threats. Consequently, a no action ROD was signed for the second operable unit in March 1993.

SUMMARY OF SITE CHARACTERISTICS

Results of the 1991 Remedial Investigation

The topography in the vicinity of the Site slopes primarily to the west and to a lesser extent to the north. Surficial geology (hereinafter referred to as "overburden") is comprised of glacial till overlain by fill. Typically, fill materials were encountered to a maximum depth of 6 feet below ground surface.

The area has two distinct water-bearing zones. The upper zone is comprised of overburden soils above bedrock. The lower zone is shale bedrock. The average depth to water encountered in the overburden was 12 feet below the ground surface. The glacial till overburden appears to restrict the downward movement of water to the bedrock aquifer. The movement of groundwater in the bedrock aquifer is controlled primarily by the fractures in the shale bedrock. Water levels measured in bedrock monitoring wells and production wells during static (nonpumping) conditions averaged approximately 34 feet below ground surface.

The overburden groundwater flows predominantly toward the west; minor flow components to the northwest and southwest are also possible. The direction of groundwater flow is generally consistent with the topography, i.e., both tend toward the Susquehanna River.

Groundwater in the bedrock aquifer flows predominantly to the north-northwest. Westerly and southerly groundwater flow components within the southern one-third section of the Site indicate an apparent groundwater divide trending east-west in this portion of the Site.

During the RI, air, surface water, sediment, groundwater, surface soils, and subsurface soils were sampled; however, only the groundwater was found to be adversely affected. Concentrations of VOCs exceeding federal and/or state MCLs were detected in both the overburden and bedrock groundwater. Impacted areas include the "Northeastern Site Boundary Area," the "Paved Pipe Staging Area," and the "Production Well No. 2 Area" (hereinafter called the "PW-2 Area"). Figure 3 identifies each of these areas.

The RI identified elevated concentrations of trichloroethene (TCE) (54 micrograms per liter [μg/l]) in overburden groundwater samples near the Northeastern Site Boundary Area. No other VOCs were detected in this area.

Overburden groundwater samples collected from the Paved Pipe Staging Area during the RI showed concentrations of 1,1,1-trichloroethane (TCA) up to 760 μg/l. No other VOCs were detected in this area.

The majority of contamination was found in the PW-2 Area. Groundwater samples collected during the RI contained TCA concentrations up to 1,100 μg/l in the overburden and up to 8,800 μg/l in the bedrock. Other VOCs were also detected at elevated levels. Since the level of VOC contamination detected in bedrock groundwater in the PW-2 Area was not detected in downgradient monitoring well locations, it appears that the constant pumping of the production wells is likely curtailing the migration of groundwater contamination. Figures 4 and 5 display the distribution of 1,1,1-TCA concentrations in the overburden.

The RI data, along with the attendant risk assessment and FS, ultimately led to the selection of pumping and treatment of the contaminated overburden and bedrock aquifers in the Northeastern Site Boundary, Paved Pipe Staging, and PW-2 Areas.

Results of the Pre-Remedial Design Investigation

Pre-RD activities included investigations of the Northeastern Site Boundary, Paved Pipe Staging, and PW-2 Areas to provide data sufficient to design the ROD-selected remedy.

Northeastern Site Boundary Area Investigation

The results of the RI identified low-level concentrations of TCE in overburden groundwater samples near the Northeastern Site Boundary Area. On-site levels of TCE at this location ranged from 14 to 54 μg/l. TCE was not detected in on-site soil samples from this area. Upgradient groundwater samples exhibited higher concentrations of TCE than were detected at this portion of the Site (up to 1,410 μg/l), indicating the probability of an off-site source of TCE contamination. NYSDEC is currently overseeing an investigation related to this potential off-site source of contamination (a non-NPL site). As a result, this area is not currently being considered for remediation by EPA. Remediation of this area may be considered in the future based upon the results of the ongoing investigation related to the potential off-site source or upon the results of any long-term monitoring conducted at the Site.

Paved Pipe Staging Area Investigation

During the pre-RD sampling, TCA concentrations were found exceeding 13,000 μg/l in the overburden groundwater in the vicinity of the entrance to the gravel lot area (as compared to 760 μg/l found during the RI) and exceeding 6,000 μg/l near the warehouse (see Figure 5).

The data also indicated that subsurface soils in the vicinity of the entrance to the gravel lot area are contaminated with TCA (concentrations up to 6,900 μg/kg). A source area of VOCs in subsurface soils was delineated here consistent with the location of the highest levels of VOCs in overburden groundwater (see Figure 6). Soil samples collected near the warehouse were inconclusive as to the existence of a source area associated with the elevated overburden groundwater concentrations there. Tables 1 and 2 summarize the pre-RD soil and groundwater data, respectively, for the Paved Pipe Staging Area.

The results of a slug test and step-drawdown test in an extraction well identified the presence of a relatively low permeability overburden formation with extremely low groundwater yield in the Paved Pipe Staging Area, which apparently has limited the migration of dissolved organic constituents in overburden groundwater.

PW-2 Area Investigation

Pre-RD sampling results revealed the presence of a localized source of TCA (concentrations up to 222,000 μg/l) and other VOCs in the overburden of the PW-2 Area. Concentrations up to 1,100 μg/l were detected during the RI.

The data also revealed that subsurface soils in the area are contaminated with TCA (concentrations up to 2,800,000 μg/kg) and other VOCs. A source area of VOCs in subsurface soils was delineated in the PW-2 Area consistent with the location of the highest levels of VOCs in overburden groundwater (see Figure 7). Tables 3 and 4 summarize the pre-RD groundwater and soil data for the PW-2 Area. Additionally, within this area of high contamination was discovered a small area of groundwater much closer to the ground surface than that for the remainder of the PW-2 area. The source of this groundwater could not be determined at the time of this investigation, but may be related to plant operations.

As in the Paved Pipe Staging Area, the results of a slug test and step-drawdown test in an extraction well indicated the presence of low permeability soils with extremely low groundwater yield; this appears to have limited the migration of VOCs in the overburden.

While the data collected during the RI exhibited higher concentrations of VOCs in the bedrock than in the overburden, the more extensive pre-RD data indicated far more significant contamination in the overburden than in the bedrock, and far more significant contamination in the overburden than was exhibited during the RI.

Packer testing revealed that contaminated groundwater was moving downward from the overburden into PW-2 via an artificial conduit created when the unsealed casing of the production well was installed through the overburden formation into the upper level of bedrock. Figure 8 shows 1,1,1-TCA concentrations in bedrock. Table 5 presents groundwater sampling data from the bedrock groundwater. In response, EPA authorized Buffton to replace this well with a new, properly-sealed production well similar in diameter and depth to PW-2, followed by the sealing and abandonment of PW-2. Construction and abandonment work was completed in December 1996, effectively eliminating a groundwater migration pathway which allowed contaminated groundwater to enter the bedrock from the overburden.

In summary, the results of the pre-RD investigation indicated that overburden groundwater and subsurface soils were contaminated at levels much greater than those detected during the RI. In addition, the pre-RD investigation identified the presence of a relatively low permeability overburden formation with extremely low groundwater yield. Therefore, the extraction of contaminated groundwater from the overburden formation (the remedy selected for the overburden formation in the 1992 ROD) was determined not to be feasible.

SUMMARY OF SITE RISKS

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with current and future Site conditions. The baseline risk assessment estimates the human health and ecological risks which could result from exposure to the contamination at the Site, if no remedial action were taken.

Human Health Risk Assessment

A four-step process is utilized for assessing Site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*--identifies the contaminants of concern at the Site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment*—estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. *Toxicity Assessment*—determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization*—summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of Site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of Site risks. Contaminants were identified based on factors such as potential for exposure to receptors, toxicity, concentration, and frequency of occurrence (see Table 6). Several of the VOCs, including TCE and vinyl chloride, are known to cause cancer in laboratory animals and are suspected or known to be human carcinogens. The baseline risk assessment evaluated the health effects which could result from exposure to contaminated or potentially contaminated groundwater. Table 7 shows the potential exposure pathways. As there is not a completed exposure pathway under either current or reasonably anticipated future land use scenarios, risks due to VOC levels in subsurface soil were not evaluated.

The results of the Risk Assessment indicate that contaminated groundwater at the Site poses an unacceptable risk to human health due to the presence of VOCs above MCLs.

The results of the baseline risk assessment are contained in the *Draft Final Risk Assessment, Robintech, Inc./National Pipe Co. Site*, dated November 4, 1991, prepared by Alliance Technologies Corporation under contract with EPA. This document is included in the Administrative Record file for the Site.

Non-carcinogenic 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 medium. The hazard index is obtained by adding the hazard quotients for all compounds across all media that impact a particular receptor population. The RfDs for the compounds of concern are presented in Table 8.

Potential carcinogenic risks were evaluated using the cancer slope factors developed by EPA for the contaminants of concern. Cancer slope factors (SFs) have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of (mg/kg-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 SF. Use of this approach makes the underestimation of the risk highly unlikely. The SFs for the compounds of concern are presented in Table 8.

Current federal guidelines for acceptable exposures are an individual excess lifetime carcinogenic risk in the range of 10^{-4} to 10^{6} (i.e., a one-in-ten-thousand to a one-in-a-million excess cancer risk) and a maximum health Hazard Index (HI)(which reflects noncarcinogenic effects for a human receptor) equal to 1.0. (An HI greater than 1.0 indicates a potential of noncarcinogenic health effects.)

Because the overburden till is tightly packed such that resulting groundwater yields are extremely low (approximately 0.1 gallons per minute), the overburden aquifer is not usable. Hence, no current or future overburden groundwater exposure is possible. The greatest carcinogenic risk value at the Site is associated with the future-use bedrock groundwater ingestion scenario (4.1×10^{-3}). Significant risk was also associated with the inhalation of VOCs from groundwater while showering under a future-use scenario. A summary of the carcinogenic risks is provided in Table 9. The HI is 1.4 when the maximum VOC contaminant concentrations in groundwater samples are evaluated. Table 10 summarizes the non-carcinogenic risks. While these risk values do not take into consideration the pre-RD data, the inclusion of these data in risk calculations would lead to equal or greater risks.

The ecological risk assessment concluded that no habitats or species of special concern would likely be affected by Site-related contaminants.

In summary, actual or threatened releases of hazardous substances from this Site, if not addressed by the selected remedy or one of the other active measures considered, may present a current or potential threat to public health, welfare, and the environment.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry analysis uncertainty can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual will actually come in contact with the chemicals of concern, the period of time over which such exposure will occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the Risk Assessment provides upper bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as ARARs and risk-based levels established in the risk assessment. The results of the pre-RD investigation identified the need to re-evaluate the ROD-selected remedy and establish new remedial action objectives for the Site.

The results of aquifer testing in the Paved Pipe Staging Area identified the presence of a relatively low permeability overburden formation with extremely low groundwater yield, apparently limiting the migration of dissolved organic constituents in overburden groundwater. The aquifer testing also raised a question as to the ability of sustaining a groundwater flow rate in the overburden necessary to implement the pumping remedy selected in the 1992 ROD in this area.

An alternative approach to address overburden contamination was determined to be necessary. Considering the aforementioned findings, the following remedial action objectives were established:

1. Mitigate the potential for contaminants to migrate from the soil into the overburden aquifer and reduce soil contamination to meet the NYSDEC recommended soil cleanup objectives identified in the Technical and Administrative Guidance Memorandum (TAGM).

2. Mitigate the potential for contaminants to migrate from the overburden aquifer into the bedrock aquifer.

3. Reduce or eliminate the threat to public health and the environment posed by groundwater contamination by remediating groundwater to MCLs for VOCs.

4. Reduce or eliminate the potential for off-site migration of contaminants.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost-effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

While the bedrock groundwater is contaminated to varying degrees, it appears that the pumping of the groundwater from the facility's eight active production wells, in combination with losses through the plant's storage and distribution system, has resulted in the effluent discharge being in conformance with NYSDEC State Pollutant Discharge Elimination System (SPDES) standards for VOCs since 1984. Therefore, while the treatment of the extracted bedrock groundwater is a viable alternative, it was eliminated from further consideration, since treatment is unnecessary to meet surface water discharge requirements.

As discussed above, investigations have shown significant VOC contamination in subsurface soils that act as a source of contamination to overburden groundwater, and, to a lesser extent, the bedrock groundwater. This ROD evaluates, in detail, remedial alternatives for addressing the contamination in the various media.

The operation and maintenance costs reflect the annual costs to operate, monitor, and maintain the remedy for 10 years, as preliminary findings indicate that this is a reasonable time frame for cleanup. The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with the responsible parties, or procure contracts for design and construction.

The alternatives are:

Alternative 1: No Action

Capital Cost:	$ 0
Operation and Maintenance Cost:	$114,125
Present-Worth Cost:	$935,870
Construction Time:	1 month

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative does not include any physical remedial measures that address the problem of contamination at the Site and would rely solely on intrinsic remediation (natural attenuation processes, including chemical degradation, dilution, and dispersion) and production well pumping to address the contaminated groundwater in the overburden and bedrock aquifers, respectively.

This alternative would, however, include a long-term groundwater monitoring program. Under the monitoring program, water quality samples would be collected seasonally from upgradient, on-site, and downgradient groundwater monitoring wells. The specifics of monitoring locations, frequency, and parameters would be determined during the remedial design.

The no-action response also would include the development and implementation of a public awareness and education program for the residents in the area surrounding the Site. This program would include the preparation and distribution of informational press releases and circulars and convening public meetings. These activities would serve to enhance the public's knowledge of the conditions existing at the Site. This alternative would also require the involvement of local government, various health departments, and environmental agencies.

Under this alternative, the existing production well network would continue to extract contaminated bedrock groundwater for use in plant operations. Sampling at the effluent discharge point would be conducted to confirm that concentrations continue to meet permit specifications.

Because this alternative would result in contaminants remaining on-site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the contamination.

Alternative 2: Excavation of Contaminated Unsaturated Soils, Treatment via Low Temperature Thermal Desorption (LTTD), and Redeposition

Capital Cost:	$1,171,584
Operation and Maintenance Cost:	$ 114,125
Present-Worth Cost:	$2,107,454
Construction Time:	1 year

This alternative would include the excavation of unsaturated soils in the PW-2 and Paved Pipe Staging Areas which exceed NYSDEC's soil TAGM objectives for VOCs (estimated at approximately 1,000 cubic yards).

The actual extent of the excavations and the volume of the excavated material would be based on post-excavation confirmatory sampling. Shoring of the excavations and extraction and treatment of any water that enters the trench would be necessary. The excavated soil would be fed to a mobile LTTD unit brought to the Site, where hot air injected at a temperature above the boiling points of the organic contaminants of concern would allow them to be volatilized into gases and escape from the soil. The organic vapors extracted from the soil would then be either condensed, transferred to another medium (such as activated carbon), or thermally treated in an afterburner operated to ensure complete destruction of the volatile organics. The off-gases would be filtered through a carbon vessel. Once the treated soil achieved soil TAGM objectives, it would be tested in accordance with the Toxicity Characteristic Leaching Procedure (TCLP) to determine whether it constitutes a Resource Conservation and Recovery Act hazardous waste and, provided that it passes the test, it would be used as backfill material for the excavated area. Soil above TCLP levels would either undergo additional treatment or be disposed of at an approved off-Site facility, as appropriate.

Under this alternative, intrinsic remediation would address the contamination in the overburden groundwater in downgradient areas. Water quality samples would be collected from upgradient, on-site, and downgradient groundwater monitoring wells to verify that the level and extent of contaminants in overburden groundwater are declining from baseline conditions and that conditions are protective of human health and the environment. The specifics of monitoring locations, frequency, and parameters would be determined during the design of the selected remedy.

This alternative would also include taking steps to secure institutional controls, such as the placement of restrictions on the installation and use of groundwater wells at and downgradient of the Site.

Under this alternative, the existing production well network would continue to extract contaminated bedrock groundwater for use in plant operations. Sampling at the effluent discharge point would be conducted to confirm that concentrations continue to meet permit specifications. This alternative would also include the development of a contingency plan for the pumping and treatment of contaminated bedrock groundwater from the existing production well network in the event of temporary or permanent plant closure. The contingency plan would also address the treatment of the production well network effluent should contaminant levels exceed discharge standards.

Alternative 3: Excavation of Contaminated Unsaturated and Saturated Soils, Treatment Via LTTD, and Redeposition

Capital Cost:	$2,101,054
Operation and Maintenance Cost:	$ 114,125
Present-Worth Cost:	$3,036,924
Construction Time:	1 year

This alternative is identical to Alternative 2, except that it would also include the excavation of the impacted saturated soils below the water table which exceed NYSDEC's soil TAGM objectives for VOCs (estimated at approximately 2,000 cubic yards). The actual extent of the excavations and volume of excavated material would be based on post-excavation confirmatory sampling data. Groundwater entering the excavation would be pumped into mobile holding tanks for future testing and treatment, if necessary.

Although the overburden groundwater cannot be effectively extracted, it is expected that the excavation of saturated soils will result in the removal of a significant portion of the overburden groundwater contamination. Intrinsic remediation would address the contamination in the overburden that has migrated downgradient from the source areas. Similar to Alternative 2, Alternative 3 would also include long-term groundwater monitoring, use of the existing production well network to continue extracting contaminated bedrock groundwater, development of a contingency plan, and taking steps to secure institutional controls until the groundwater quality has been restored.

Alternative 4: Dual-Phase Extraction

Capital Cost:	$ 967,998
Operation and Maintenance Cost:	$ 218,818
Present-Worth Cost:	$2,504,884
Construction Time:	2 years

Under this alternative, a dual-phase high-vacuum extraction system would be used to address contaminated overburden soils in the PW-2 and Paved Pipe Staging Areas. A series of extraction wells would be installed in these areas and a strong vacuum applied to the extraction wells would draw in contaminated groundwater from the saturated zone and contaminated soil vapor from the unsaturated zone. As groundwater is removed, soil vapors in the previously saturated soil would be extracted by the vacuum as well. Contaminated soil vapors and groundwater would be piped to an on-site carbon adsorption treatment system. The treated groundwater would be discharged to surface water. The soil vapor and groundwater treatment residues would be sent to an off-site treatment/disposal facility.

Intrinsic remediation would address the contamination in the overburden that has migrated downgradient from the source areas. Similar to Alternative 2, Alternative 4 would also include long-term groundwater monitoring, use of the existing production well network to continue extracting contaminated bedrock groundwater, and development of a contingency plan.

This alternative would also include taking steps to secure institutional controls, such as the placement of restrictions on the installation and use of groundwater wells at and downgradient of the Site.

COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, overall protection of human health and the environment, compliance with applicable or relevant and appropriate requirements, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost, and state and community acceptance.

The evaluation criteria are described below.

- *Overall protection of human health and the environment* addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
- *Compliance with ARARs* addresses whether or not a remedy would meet all of the applicable or relevant and appropriate

requirements of other federal and state environmental statutes and requirements or provide grounds for invoking a waiver.

- *Long-term effectiveness and permanence* refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

- *Reduction of toxicity, mobility, or volume through treatment* is the anticipated performance of the treatment technologies, with respect to these parameters, a remedy may employ.

- *Short-term effectiveness* addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

- *Implementability* is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

- *Cost* includes estimated capital and operation and maintenance costs, and net present-worth costs.

- *State acceptance* indicates whether, based on its review of the RI/FS reports, RDIR, and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the selected alternative.

- *Community acceptance* refers to the public's general response to the alternatives described in the Proposed Plan. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Under Alternative 1 (No Action), contaminants would continue to leach from the soil into the groundwater and continued off-site migration of contaminants would occur. Alternative 1 would rely solely on intrinsic remediation to address the contaminated overburden groundwater. Consequently, this alternative would not address the remedial action objectives established for the Site and would, therefore, be the least protective of human health and the environment.

Alternative 2 (Excavation and Treatment of Contaminated Unsaturated Soils) and Alternative 3 (Excavation and Treatment of Contaminated Saturated and Unsaturated Soils) would both be protective by removing the primary source of contamination to the overburden and bedrock aquifers, although Alternative 3 would be considered more protective because it would result in the removal of contaminated soils both above and below the water table. Theoretically, Alternative 4 (Dual-phase Extraction) would also be protective, although its effectiveness would need to be demonstrated through treatability studies and would require several years or more to reach the remediation goals.

Further, as discussed above, no current or future overburden groundwater exposure is possible because the overburden is not usable. Hence human health and environmental receptors are not threatened by exposure to overburden groundwater.

Since the groundwater from the production well network is in conformance with SPDES effluent permit requirements, continued bedrock groundwater extraction would be protective of public health and the environment. All of the alternatives, including No Action, would include the extraction of contaminated groundwater from the bedrock aquifer, thereby reducing and minimizing the downgradient migration of contaminants within that aquifer, and minimizing any potential future health and environmental impacts. In contrast with the other alternatives, however, Alternative 1 would not address the overburden source of the contamination to the bedrock aquifer.

With Alternatives 2, 3, and 4, it is anticipated that the remediation of the source areas, the elimination of the PW-2 conduit, the continued extraction of contaminated groundwater from the production well network, and intrinsic remediation of the overburden groundwater would reduce the downward migration of contaminants from the overburden aquifer into the bedrock aquifer and would lead to the cleanup of the bedrock aquifer within a reasonable time frame. Since it would not address the source of the contamination, Alternative 1 would not result in the cleanup of the bedrock aquifer within a reasonable time frame. Under Alternatives 2, 3, and 4, institutional controls would limit the intrusiveness of future activity that could occur until the groundwater quality has been restored.

Compliance with ARARs

While there are no federal or New York State soil ARARs for VOCs, one of the remedial action goals is to meet TAGM objectives. Alternative 1 (No Action) would not be effective in meeting these objectives. While it is anticipated that Alternative 2 (Excavation and Treatment of Contaminated Unsaturated Soils) would meet soil TAGM objectives through the excavation and treatment of the unsaturated soils in the overburden aquifer, Alternative 3 (Excavation and Treatment of Contaminated Saturated and Unsaturated Soils) would meet soil TAGM objectives in the unsaturated *and* saturated soils. Alternative 4 (Dual-phase Extraction) should also be able to meet these values, although this would need to be demonstrated through treatability testing.

Federal MCLs are not ARARs with respect to the overburden aquifer as no current or future overburden groundwater exposure is possible because that aquifer is not usable. In addition, NYSDEC has indicated that since the overburden is of such low permeability, making the overburden groundwater unusable, achievement of the state drinking water standards in this aquifer is not considered to be practical at the Site.

As the bedrock aquifer is usable, federal MCLs and state drinking water standards are ARARs with respect to that aquifer. It is anticipated that all of the alternatives would be effective in meeting these ARARs, since they all include the extraction of contaminated bedrock groundwater until such time as the ARARs are achieved.

It is anticipated that surface water discharge requirements would be met for the overburden groundwater treated under Alternatives 3 (groundwater entering the excavation and pumped into mobile holding tanks) and 4 (groundwater from the dual-phase extraction system). For all of the alternatives, it is anticipated that surface water discharge requirements would continue to be met for the extracted bedrock groundwater.

All of the technologies that would be used in Alternatives 2, 3, and 4 would be designed and implemented to satisfy all action-specific requirements, including air emission standards.

Long-Term Effectiveness and Permanence

With regard to the overburden aquifer, Alternative 1 (No Action) would not maintain reliable long-term effectiveness and permanence, since the contaminants in the soil would be left untreated and contaminated groundwater would continue to migrate unabated.

Alternative 2 (Excavation and Treatment of Contaminated Unsaturated Soils) would effectively treat the contaminated unsaturated overburden soils, thus, reducing the hazards posed by these soils and permanently removing a major source of groundwater contamination. It is anticipated that Alternative 4 (Dual-phase Extraction) would be more effective than Alternative 2 (depending on the results of treatability studies), since it would also address contaminants in the saturated zone. Alternative 3 (Excavation and Treatment of Contaminated Saturated and Unsaturated Soils) would be the most effective, since it includes complete removal of the contaminated saturated and unsaturated overburden soils. Alternative 3 also includes the pumping of contaminated groundwater from the excavation, an element which would provide an added level of contaminant removal. The institutional controls associated with Alternatives 2, 3, and 4 would provide an additional element of effectiveness in preventing exposure of on-site and downgradient receptors to contaminated groundwater.

The treatment of the contaminated soils (Alternatives 2, 3, and 4) in conjunction with the sealing of the PW-2 conduit and intrinsic remediation of the overburden groundwater is expected to, over time, result in the overburden aquifer being remediated and is expected to prevent the downward migration of contaminants from the overburden aquifer into the bedrock aquifer.

All of the alternatives, including No Action, would be effective with regard to the bedrock aquifer, since they all include the extraction of contaminated bedrock groundwater until such time as MCLs are achieved.

Sludges and residuals from the treatment processes for Alternatives 2, 3, and 4 would be collected and disposed of off-site.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 (No Action) would not actively reduce the toxicity, mobility, or volume of contaminants through treatment. Under this alternative, contaminant migration in the overburden aquifer would continue.

Alternative 2 (Excavation and Treatment of Contaminated Unsaturated Soils) and Alternative 3 (Excavation and Treatment of Contaminated Saturated and Unsaturated Soils) with identical soil treatment approaches, would reduce the toxicity, mobility, and volume permanently through the excavation of source soils and treatment using LTTD. Alternative 3 would, however, be more effective because the excavation of the contaminated soil would extend into the saturated zone and would include the pumping of contaminated groundwater from the excavation (an element which would provide an added level of contaminant removal). It is anticipated that Alternative 4 (Dual-phase Extraction) would reduce the toxicity, mobility, and volume more than Alternative 2 (depending on the results of treatability studies), since it would also address contaminants in the saturated zone. All of the alternatives would reduce the toxicity, mobility, and volume of contaminants in the bedrock aquifer by providing for the extraction of contaminated bedrock groundwater.

Short-Term Effectiveness

Since Alternative 1 (No Action) does not include physical construction measures, it would not present a risk to on-site workers or the community as a result of its implementation. Alternative 2 (Excavation and Treatment of Contaminated Unsaturated Soils) and Alternative 3 (Excavation and Treatment of Contaminated Saturated and Unsaturated Soils) would include activities such as contaminated soil excavation and transport that could result in potential worker exposure to volatilized contaminants and contaminated dust. However, mitigative measures to reduce the possibility of exposure would be implemented. The installation of the extraction system associated with Alternative 4 (Dual-phase Extraction) might include activities that could result in potential exposure of workers to volatilized contaminants during construction; however, mitigative measures to reduce the possibility of exposure would be implemented. Alternatives 2, 3, and 4 would generate quantities of treatment byproducts that would have to be handled by on-site workers and removed off-site for treatment/disposal.

All of the alternatives might present some risk to on-site workers through dermal contact and inhalation related to groundwater sampling activities. These can, however, be minimized by utilizing proper protective equipment.

It is estimated that Alternative 1 would require one month to implement, since developing a long-term groundwater monitoring program would be the only activity required. Alternatives 2 and 3 could each be implemented in about one year. Alternative 4 would take an estimated two or more years to implement.

For the bedrock aquifer, continued contaminated bedrock groundwater extraction would not present any short-term adverse impacts on human health and the environment. Since the bedrock extraction system is already in place, there would be no implementation time.

Implementability

The technologies proposed for use in all of the alternatives are proven and reliable in achieving the specified process efficiencies and performance goals.

Alternative 1 (No Action) would be the easiest to implement in that it would require only monitoring. LTTD (Alternatives 2 and 3) has been successfully performed on a full-scale basis with similar contaminants. Pumping groundwater entering the excavation into mobile holding tanks under Alternative 3 is easily implemented. A dual-phase extraction system (Alternative 4) would be relatively easy to implement and has been successfully performed on a full-scale basis with similar contaminants, although treatability testing would be required to verify its effectiveness in this particular geologic setting. In addition, the air stripping and carbon adsorption technologies that may be used for Alternative 4 are proven and reliable in achieving the specified performance goals and are readily available. The air stripping and carbon adsorption technologies that would be utilized for the contaminated groundwater under Alternative 4 are proven treatment methods. The continued extraction of contaminated bedrock groundwater is easily implemented.

All of the alternatives are technically and administratively feasible and require readily available materials and services. Effecting institutional controls until groundwater quality has been restored under Alternatives 2, 3, and 4 can be readily implemented.

Cost

The present-worth costs are calculated using a discount rate of 7 percent and a 10-year time interval. The estimated capital, annual operation and maintenance, and present-worth costs for each of the alternatives are presented below.

Alternative No.	Capital Cost	Operation and Maintenance Cost	Present-Worth Cost
1	$0	$114,125	$935,870
2	$1,171,584	$114,125	$2,107,454
3	$2,101,054	$114,125	$3,036,924
4	$967,998	$218,818	$2,504,884

As can be seen by the cost estimates, Alternative 1 (No Action) is the least costly remedy with a present-worth cost of $935,870. Alternative 3 (Excavation and Treatment of Contaminated Saturated and Unsaturated Soils) is the most costly remedy at $3,036,924.

State Acceptance

NYSDEC concurs with the selected remedy.

Community Acceptance

Comments received during the public comment period indicate that the public generally supports the selected remedy. Comments received during the public comment period are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V to this document.

DESCRIPTION OF THE SELECTED REMEDY

Based upon an evaluation of the various alternatives, EPA and NYSDEC have determined that Alternative 3 (Excavation of Contaminated Unsaturated and Saturated Soils, Treatment via LTTD, and Redeposition) is an appropriate remedy for the Site. Specifically, this will involve the following:

- Excavation and treatment, using LTTD of unsaturated and saturated soils in the PW-2 and Paved Pipe Staging Areas which exceed NYSDEC's soil TAGM objectives for VOCs. Post-excavation confirmatory sampling will be conducted to assure that the entire source areas are removed. Treated soils will be backfilled into the excavation from which they were removed after confirmatory sampling indicates that they meet the remediation goals (i.e., TAGM objectives). Treated soil above TCLP levels will either undergo additional treatment or be disposed of at an approved off-Site facility, as appropriate. Groundwater entering the excavation will be pumped into mobile holding tanks for future testing and treatment, if necessary.

- Extraction of contaminated groundwater from the bedrock aquifer through the existing production well network will continue until MCLs are achieved. Provisions to periodically evaluate the entire system, and repair or upgrade, as necessary, will be included in an operation and maintenance plan.

- Elimination of any plant-related sources of water to the overburden aquifer (as described in the "Results of the Pre-Remedial Design Investigation" section, above) in order to further mitigate contaminant mobility.

- Intrinsic remediation of contaminated overburden groundwater (natural attenuation processes, including chemical degradation, dilution, and dispersion) at the Site and in downgradient areas. These natural mechanisms will be monitored regularly to verify that the level and extent of contaminants in overburden groundwater are declining from baseline conditions and that conditions are protective of human health and the environment.

- Taking steps to secure institutional controls, such as deed restrictions and contractual agreements, as well as local ordinances, laws, or other government action, for the purpose of, among other things, restricting the installation and use of groundwater wells at and downgradient of the Site until groundwater quality has been restored.

- Development of a contingency plan during the RD to ensure the continuation of the pumping of contaminated bedrock groundwater from the existing production well network in the event of temporary or permanent plant closure or to adjust the rate of such pumping in the event that existing pumping rates do not effectively control the migration of contaminated groundwater. The contingency plan will also address the treatment of the production well network effluent should contaminant levels exceed surface water discharge standards.

- Long-term groundwater and production well effluent discharge monitoring to evaluate the remedy's effectiveness. The exact frequency and location of groundwater monitoring will be determined during the RD stage. Monitoring will include a network of groundwater monitoring wells (including the installation of new monitoring wells, as necessary) sampled for VOCs and intrinsic remediation indicator parameters. The groundwater effluent discharge will be monitored for VOCs. In addition, a monitoring well cluster (one overburden and one bedrock) will be installed downgradient of the PW-2 Area to further assess groundwater quality.

- Reevaluation of Site conditions at least once every five years to determine if a modification to the selected remedy is necessary. This will include all areas of the Site, including the Northeastern Site Boundary Area.

In addition, further investigation will be necessary in an area with elevated groundwater concentrations in the vicinity of the warehouse in order to determine if this area is an additional source area. If such a source area is located, contaminated soil will be excavated and treated along with contaminated soils from the Paved Pipe Staging Area.

It is believed that the sealing of the PW-2 conduit, in conjunction with the remediation of the contaminated overburden soils (which will result in the removal of a significant portion of the overburden groundwater contamination and reduce the downward migration of contaminants from the overburden aquifer into the bedrock aquifer), intrinsic remediation of the overburden aquifer, and the continued extraction of the contaminated bedrock groundwater will result in the bedrock groundwater meeting the remediation goals in a reasonable time frame.

The selected remedy is believed to achieve the ARARs more quickly, or as quickly, as the other alternatives, and is cost-effective. Therefore, the selected remedy will provide the best balance of trade-offs among alternatives with respect to the evaluating criteria. EPA and NYSDEC believe that the selected remedy will treat principle threats, be protective of human health and the environment, comply with ARARs, be cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The selected remedy also will meet the statutory preference for the use of treatment as a principle element (i.e., the soil).

STATUTORY DETERMINATIONS

As was previously noted, CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

For the reasons discussed below, EPA has determined that the selected remedy meets the requirements of CERCLA §121, 42 U.S.C. §9621.

Protection of Human Health and the Environment

The selected remedy protects human health and the environment by reducing levels of contaminants in the groundwater and soil through extraction and treatment, respectively, as well as through the implementation of institutional controls. The selected remedy will provide overall protection by reducing the toxicity, mobility, and volume of contamination permanently, through treatment of the contaminated soil and by meeting federal and state MCLs in the bedrock aquifer.

Compliance with Applicable or Relevant and Appropriate Requirements of Environmental Laws

While there are no federal or New York State soil ARARs for VOCs, one of the remedial action goals is to meet TAGM objectives. The selected remedy will meet soil TAGM objectives in the unsaturated and saturated soils.

Federal MCLs are not ARARs with respect to the overburden aquifer as no current or future overburden groundwater exposure is possible because that aquifer is not usable. In addition, NYSDEC has indicated that since the overburden is of such low permeability, making the overburden groundwater unusable, achievement of the state drinking water standards in this aquifer is not considered to be practical at the Site.

As the bedrock aquifer is usable, federal MCLs and state drinking water standards are ARARs with respect to that aquifer. The selected remedy would be effective in meeting these ARARs, since it includes the extraction of contaminated bedrock groundwater until such time as the ARARs are achieved.

It is anticipated that surface water discharge requirements will be met for the overburden groundwater treated under the selected remedy (groundwater entering the excavation and pumped into mobile holding tanks) and that they will continue to be met for the extracted bedrock groundwater.

A summary of action-specific, chemical-specific, and location-specific ARARs which will be complied with during implementation is presented below. A listing of the chemical-specific ARARs is presented in Tables 11 and 12.

Action-specific ARARs:

- National Emissions Standards for Hazardous Air Pollutants
- 6 NYCRR Part 257, Air Quality Standards
- 6 NYCRR Part 212, Air Emission Standards
- 6 NYCRR Part 373, Fugitive Dusts
- 40 CFR 50, Air Quality Standards
- State Permit Discharge Elimination System
- Resource Conservation and Recovery Act

Chemical-specific ARARs:

- Safe Drinking Water Act (SDWA) MCLs and MCL Goals (MCLGs) 40 CFR Part 141
- 6 NYCRR Parts 700-705 Groundwater and Surface Water Quality Regulations
- 10 NYCRR Part 5 State Sanitary Code

Location-specific ARARs:

- Clean Water Act Section 404, 33 U.S.C. 1344

Other Criteria, Advisories, or Guidance To Be Considered:

- New York Guidelines for Soil Erosion and Sediment Control
- New York State Air Cleanup Criteria, January 1990
- New York State Technical and Administrative Guidance Memorandum (TAGM)
- New York State Air Guide-1

Cost-Effectiveness

The selected remedy provides for overall effectiveness in proportion to its cost and in mitigating the principal risk posed by contaminated groundwater. The estimated cost for the selected remedy has a capital cost of $2,101,054, annual operation and maintenance of $114,125, and a 10-year present-worth cost of $3,036,924.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable by employing LTTD to treat source area soils and a groundwater extraction system to remove contaminated groundwater from the bedrock aquifer.

Preference for Treatment as a Principal Element

The selected remedy's utilization of LTTD to treat source area soils satisfies the statutory preference for remedies employing treatment that permanently and significantly reduces the toxicity, mobility, or volume of hazardous substances.

DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes from the selected alternative presented in the Proposed Plan.

FIGURES

FIGURE 1 SITE LOCATION MAP
FIGURE 2 SITE LAYOUT MAP WITH MONITORING WELL LOCATIONS
FIGURE 3 AREAS OF CONCERN
FIGURE 4 DISTRIBUTION OF 1,1,1-TCA IN OVERBURDEN GROUNDWATER (PW-2 AREA)
FIGURE 5 DISTRIBUTION OF 1,1,1-TCA IN OVERBURDEN GROUNDWATER (PPS AREA)
FIGURE 6 DISTRIBUTION OF 1,1,1-TCA IN OVERBURDEN SOIL (PPS AREA)
FIGURE 7 DISTRIBUTION OF 1,1,1-TCA IN OVERBURDEN SOIL (PW-2 AREA)
FIGURE 8 DISTRIBUTION OF 1,1,1-TCA IN BEDROCK WELLS

Site Location Map

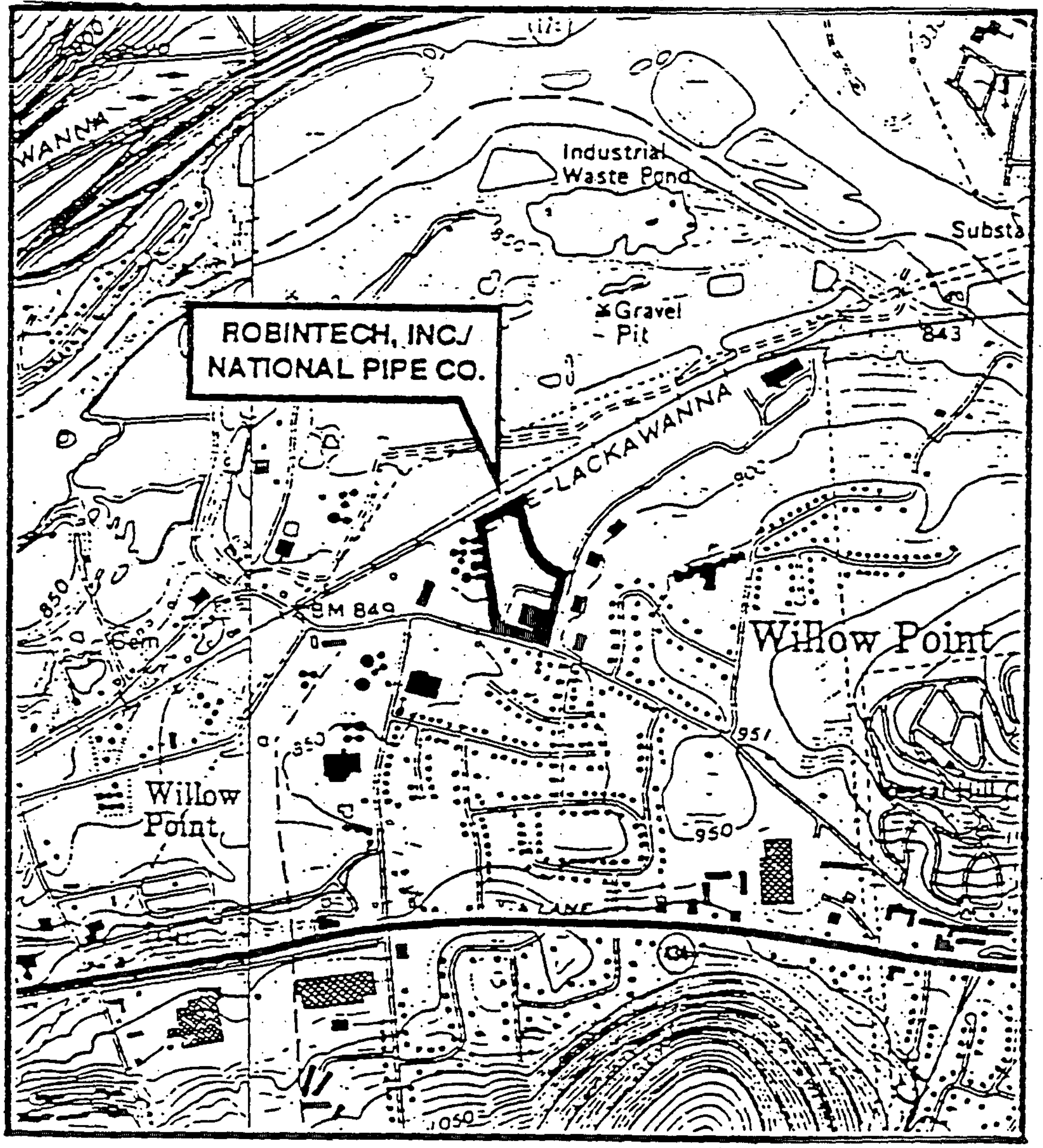


Figure 1

Current Site Layout

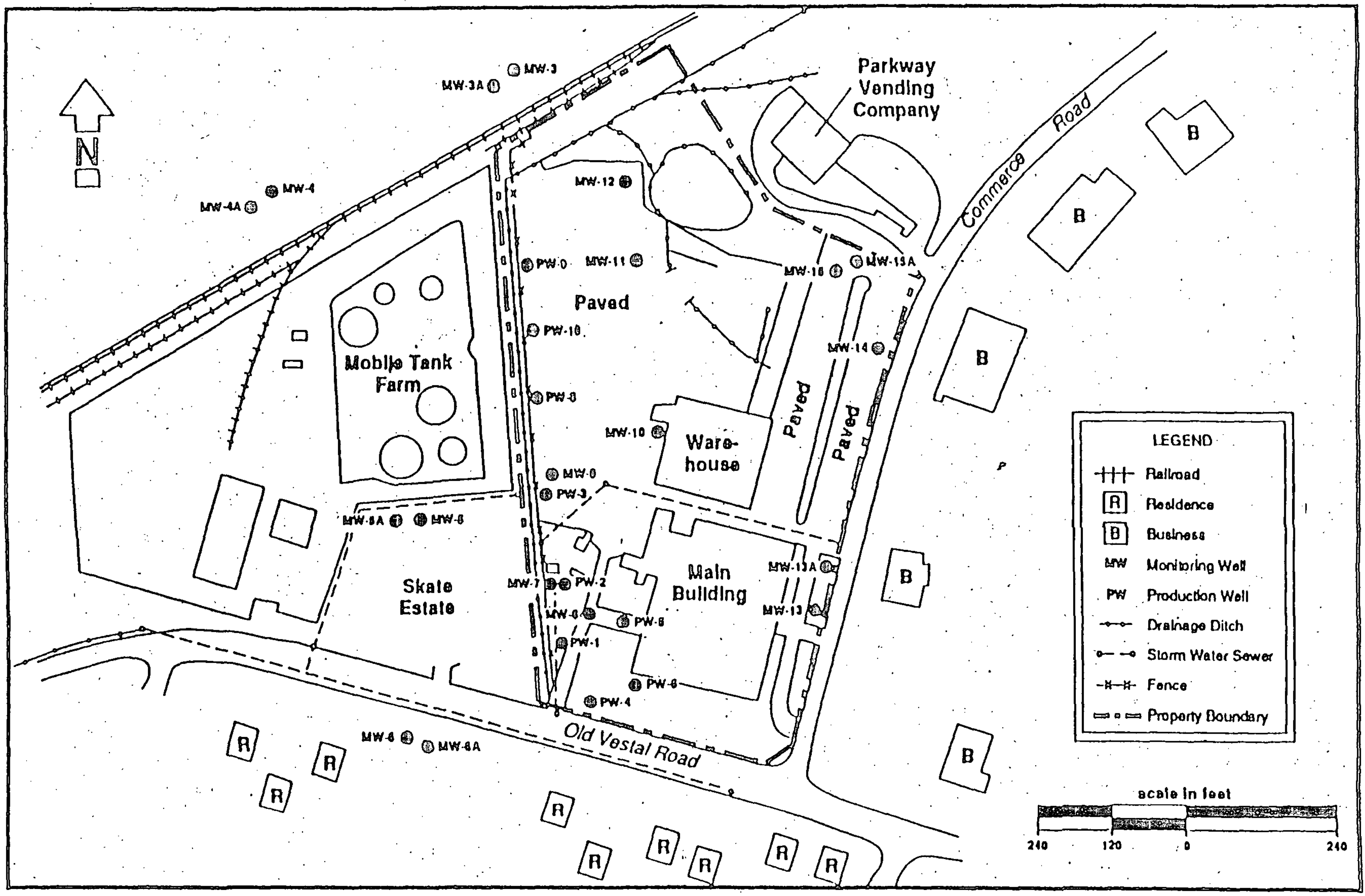
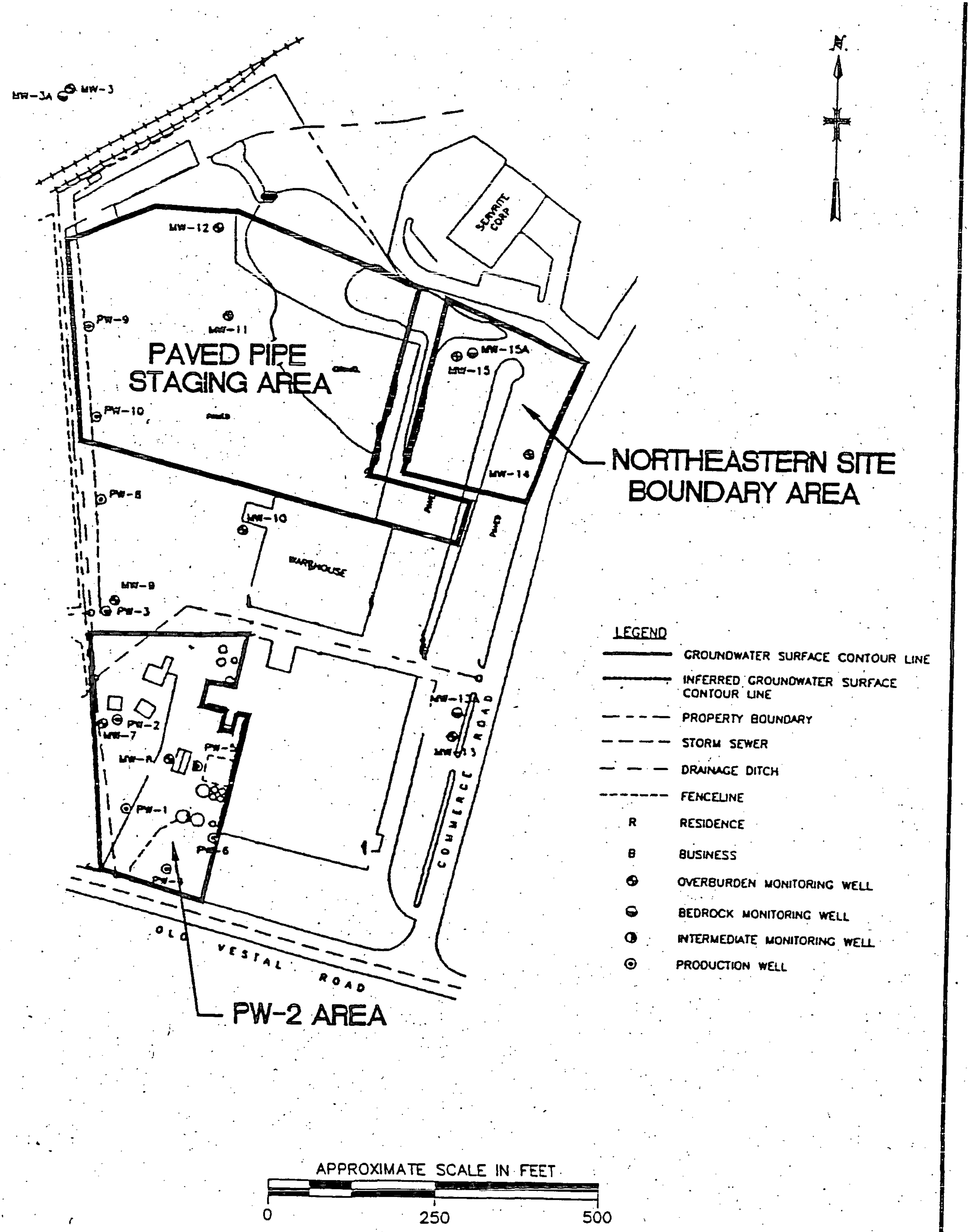


Figure 2



U.S.E.P.A. REGION II
ROBINTECH/NATIONAL PIPE

APPROXIMATE BOUNDARIES OF AREAS OF CONCERN

FIGURE 3

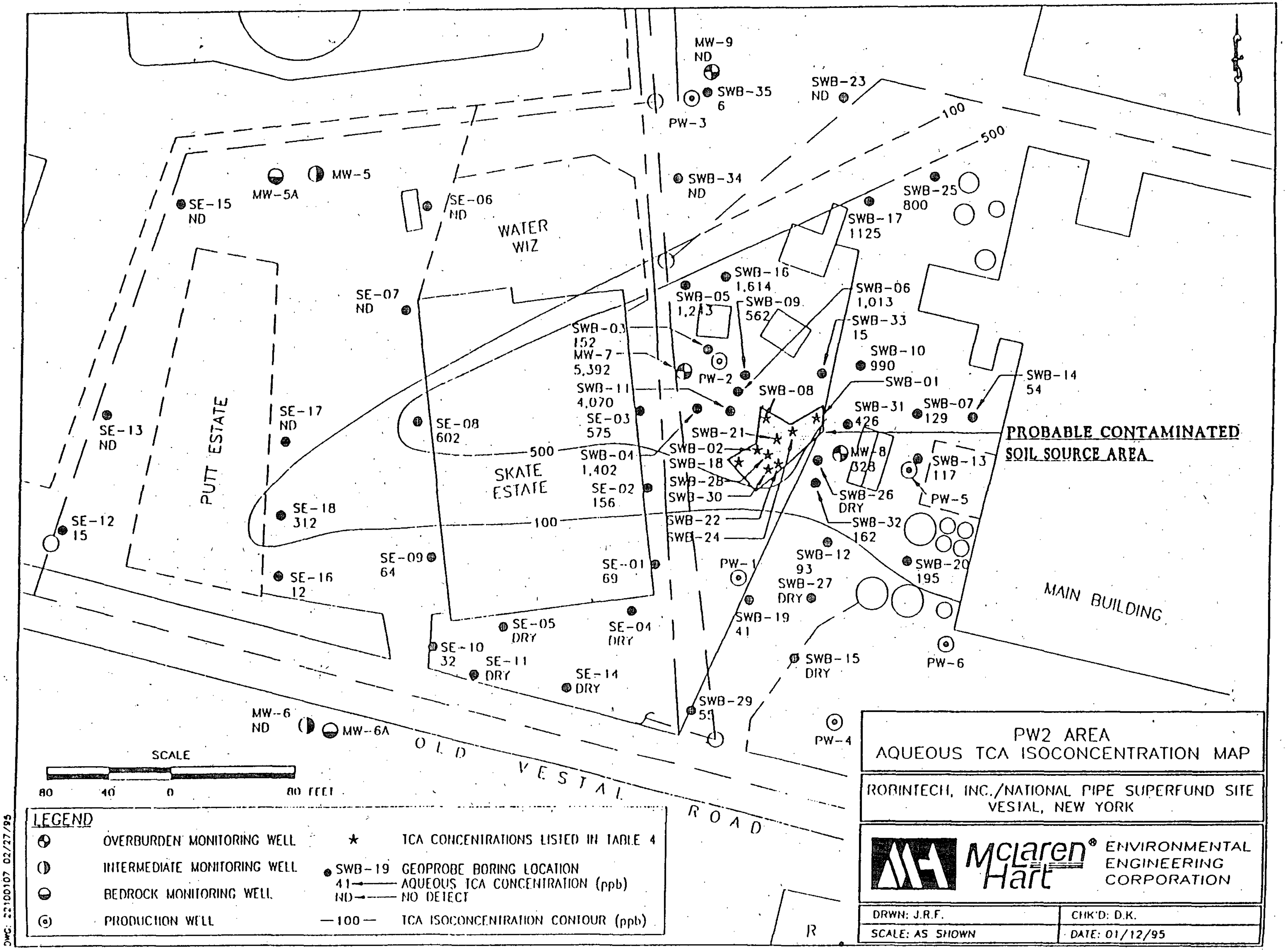

MW-9
ND
SWB-35
6
PW-3
SWB-23
ND
100
500
MW-5
MW-5A
SE-15
ND
SE-06
ND
WATER
WIZ
SWB-34
ND
SWB-25
800
SWB-17
1125
SWB-16
1,614
SWB-05
1,213
SWB-09
562
SWB-06
1,013
SWB-33
15
SWB-03
152
MW-7
5,392
PW-2
SWB-10
990
SE-07
ND
SWB-11
4,070
SWB-08
SWB-01
SWB-14
54
SE-03
575
SWB-31
426
SWB-07
129
PROBABLE CONTAMINATED
SOIL SOURCE AREA
SE-13
ND
PUTT ESTATE
SE-17
ND
SE-08
602
500
SKATE
ESTATE
SWB-04
1,402
SWB-21
SWB-02
SWB-18
SWB-28
SWB-30
MW-8
328
SWB-13
117
SWB-26
DRY
PW-5
SE-02
156
SE-18
312
SE-12
15
100
SWB-22
SWB-24
SWB-32
162
SWB-12
93
SWB-20
195
SE-09
64
SE-01
69
PW-1
SWB-27
DRY
SE-16
12
MAIN BUILDING
SE-05
DRY
SE-04
DRY
SWB-19
41
SE-10
32
SE-11
DRY
SE-14
DRY
SWB-15
DRY
PW-6
MW-6
ND
MW-6A
SWB-29
55
PW-4
OLD VESTAL ROAD
SCALE
80
40
0
80 FEET
LEGEND
OVERBURDEN MONITORING WELL
INTERMEDIATE MONITORING WELL
BEDROCK MONITORING WELL
PRODUCTION WELL
★ TCA CONCENTRATIONS LISTED IN TABLE 4
SWB-19 GEOPROBE BORING LOCATION
41 ← AQUEOUS TCA CONCENTRATION (ppb)
ND ← NO DETECT
—100— TCA ISOCONCENTRATION CONTOUR (ppb)
PW2 AREA
AQUEOUS TCA ISOCONCENTRATION MAP
ROBINTECH, INC./NATIONAL PIPE SUPERFUND SITE
VESTAL, NEW YORK
McLaren Hart®
ENVIRONMENTAL
ENGINEERING
CORPORATION
DRWN: J.R.F.
CHK'D: D.K.
SCALE: AS SHOWN
DATE: 01/12/95
DWG: 22100107 02/27/95

FIGURE 4

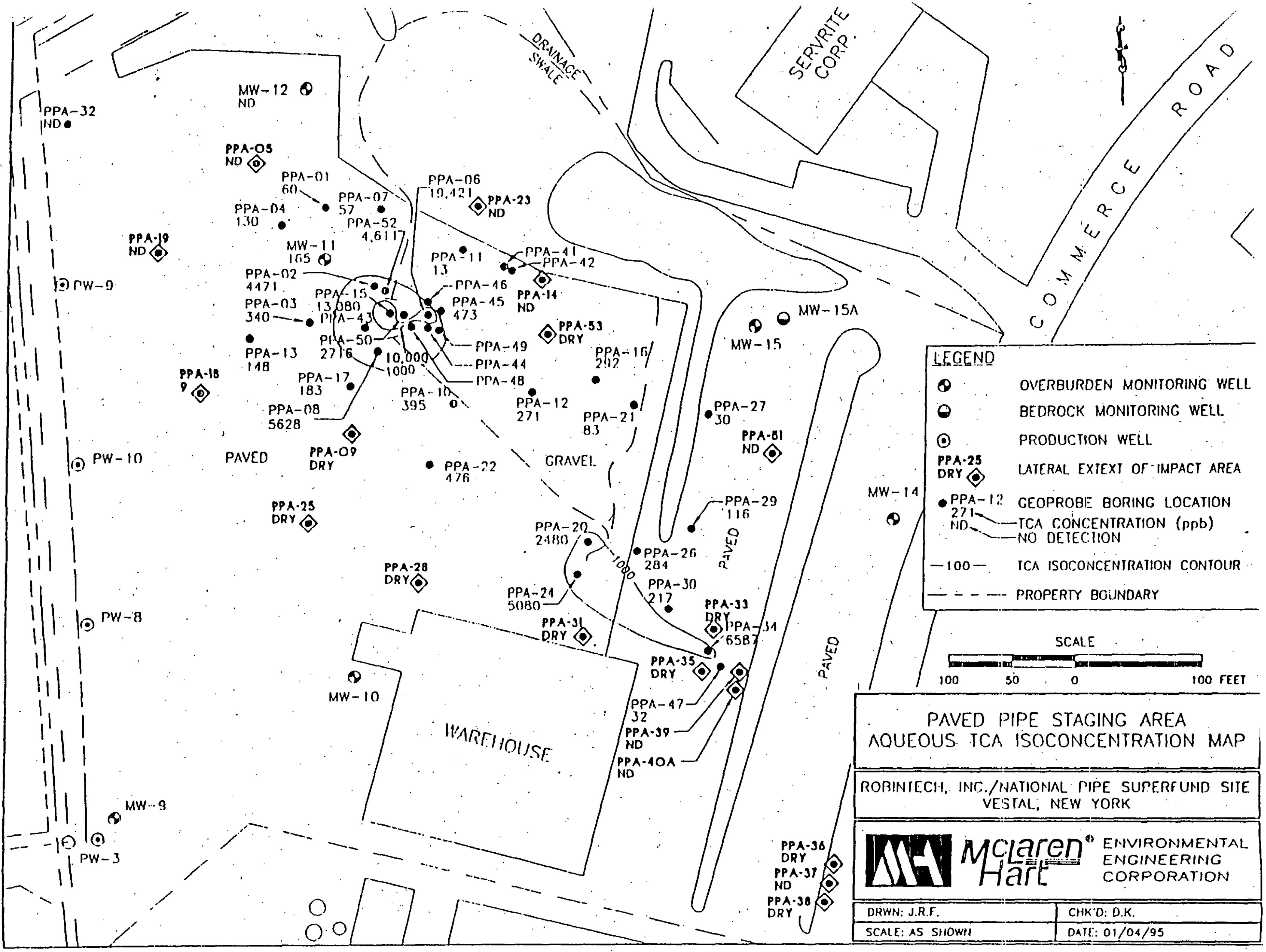

SERVRITE CORP.
COMMERCE ROAD
DRAINAGE SWALE
MW-12 ND
PPA-32 ND
PPA-05 ND
PPA-01 60
PPA-07 57
PPA-06 19,421
PPA-23 ND
PPA-04 130
PPA-52 4,6117
PPA-19 ND
MW-11 165
PPA-11 13
PPA-41
PPA-42
PW-9
PPA-02 4471
PPA-15 13,080
PPA-46
PPA-14 ND
PPA-03 340
PPA-43
PPA-45 473
MW-15A
MW-15
PPA-53 DRY
PPA-50 2716
PPA-49
PPA-13 148
10,000
PPA-44
PPA-16 292
1000
PPA-18 9
PPA-17 183
PPA-48
PPA-10 395
PPA-12 271
PPA-27 30
PPA-08 5628
PPA-21 83
PPA-81 ND
PW-10
PAVED
PPA-09 DRY
PPA-22 476
GRAVEL
PPA-25 DRY
MW-14
PPA-29 116
PPA-20 2480
PAVED
PPA-26 284
1000
PPA-28 DRY
PPA-24 5080
PPA-30 217
PW-8
PPA-31 DRY
PPA-33 DRY
PPA-34 6587
PAVED
PPA-35 DRY
MW-10
PPA-47 32
PPA-39 ND
WAREHOUSE
PPA-40A ND
MW-9
PW-3
PPA-36 DRY
PPA-37 ND
PPA-38 DRY
LEGEND
OVERBURDEN MONITORING WELL
BEDROCK MONITORING WELL
PRODUCTION WELL
PPA-25 DRY LATERAL EXTEXT OF IMPACT AREA
PPA-12 GEOPROBE BORING LOCATION
271 TCA CONCENTRATION (ppb)
ND NO DETECTION
—100— TCA ISOCONCENTRATION CONTOUR
PROPERTY BOUNDARY
SCALE
100 50 0 100 FEET
PAVED PIPE STAGING AREA
AQUEOUS TCA ISOCONCENTRATION MAP
ROBINTECH, INC./NATIONAL PIPE SUPERFUND SITE
VESTAL, NEW YORK
McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION
DRWN: J.R.F.
CHK'D: D.K.
SCALE: AS SHOWN
DATE: 01/04/95
DWG: 22100102 02/27/95

FIGURE 5

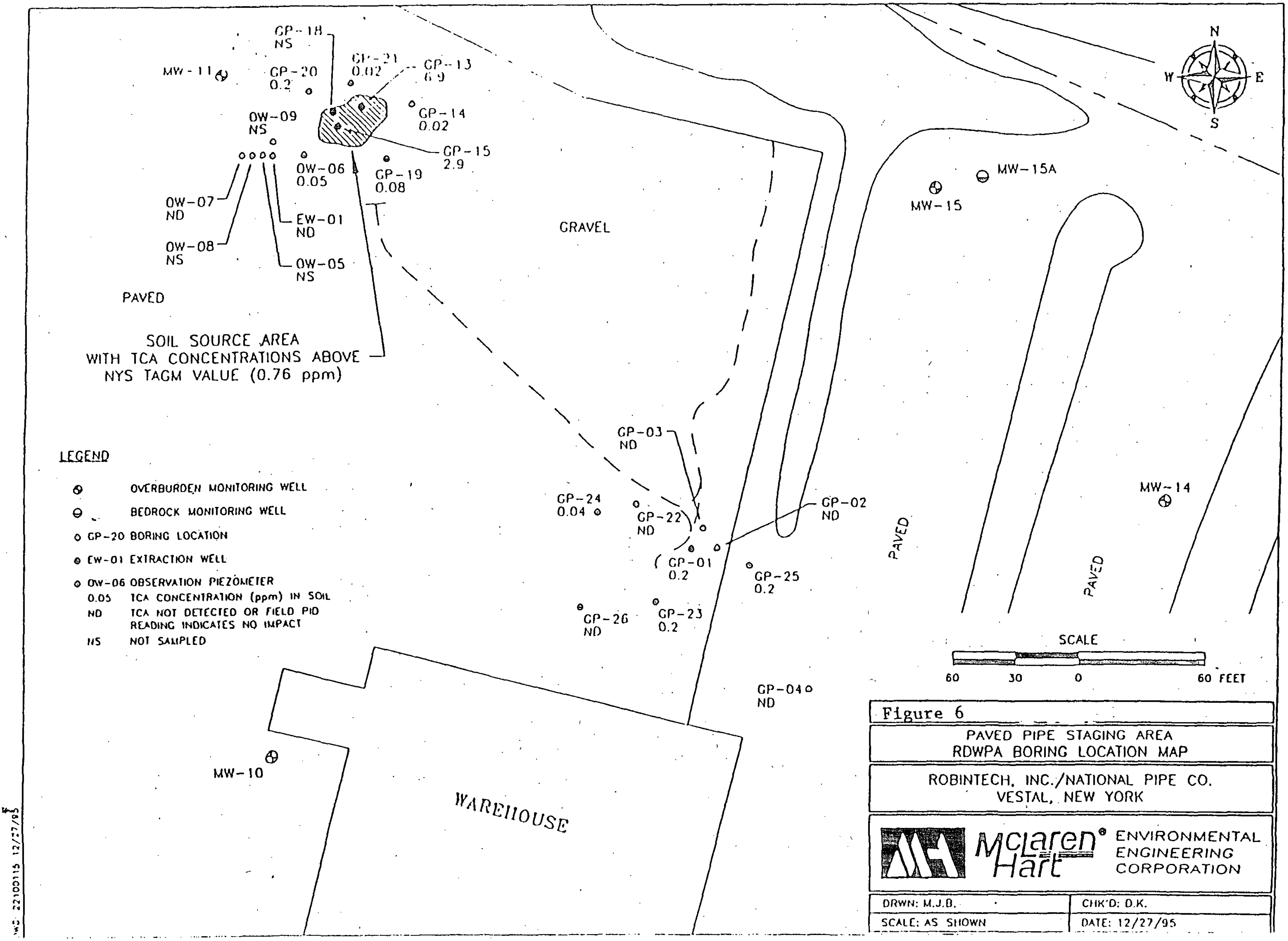


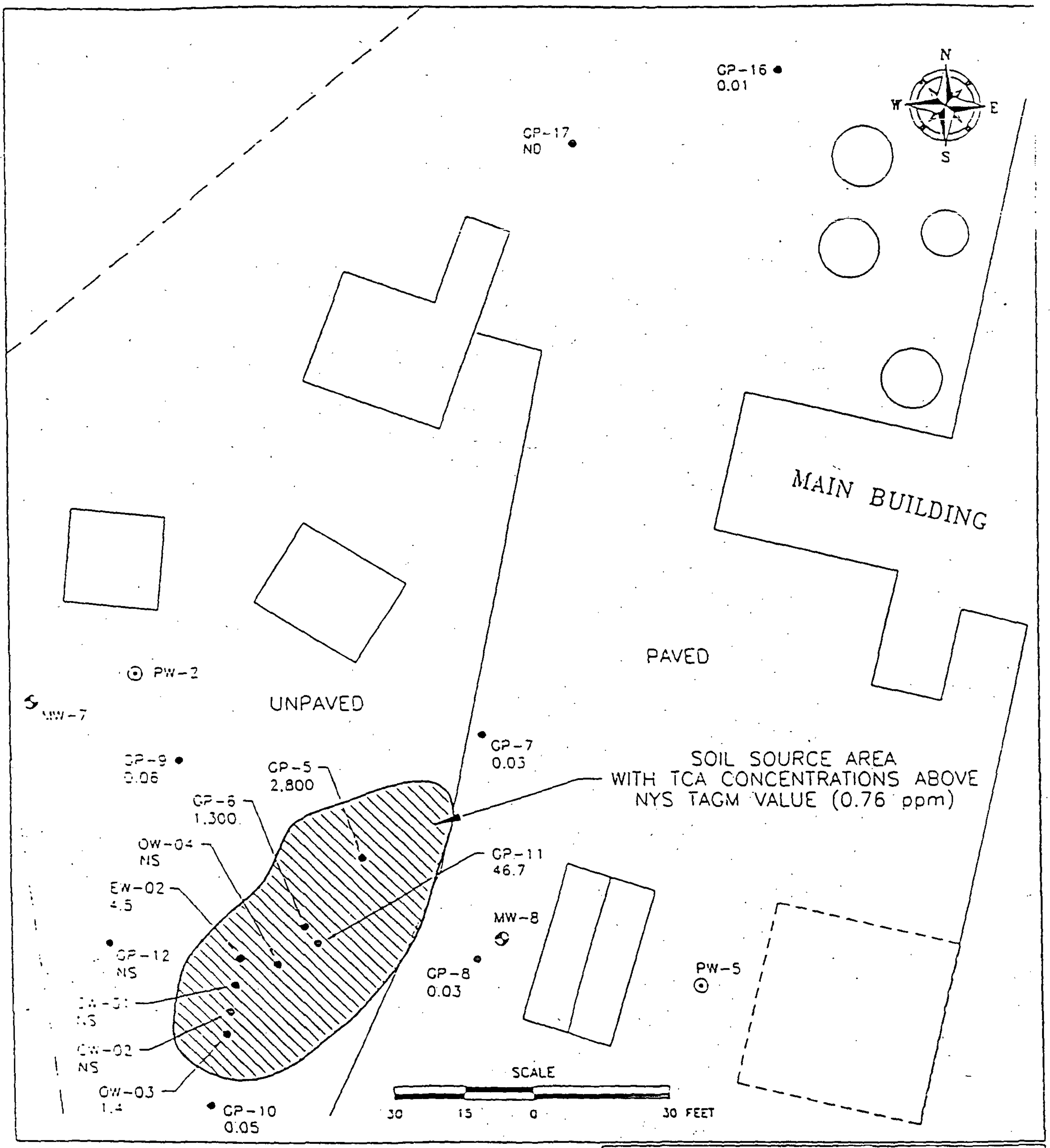
Figure 6

PAVED PIPE STAGING AREA
RDWPA BORING LOCATION MAP

ROBINTECH, INC./NATIONAL PIPE CO.
VESTAL, NEW YORK

McLaren Hart® ENVIRONMENTAL ENGINEERING CORPORATION

DRWN: M.J.B.
CHK'D: D.K.
SCALE: AS SHOWN
DATE: 12/27/95



LEGEND

ϟ	OVERBURDEN MONITORING WELL
⊙	PRODUCTION WELL
● GP-9	BORING LOCATION
● EW-02	EXTRACTION WELL
● OW-01	OBSERVATION PIEZOMETER
1.4	TCA CONCENTRATION (ppm) IN SOIL
ND	TCA NOT DETECTED OR FIELD PID READING INDICATES NO IMPACT
NS	NOT SAMPLED

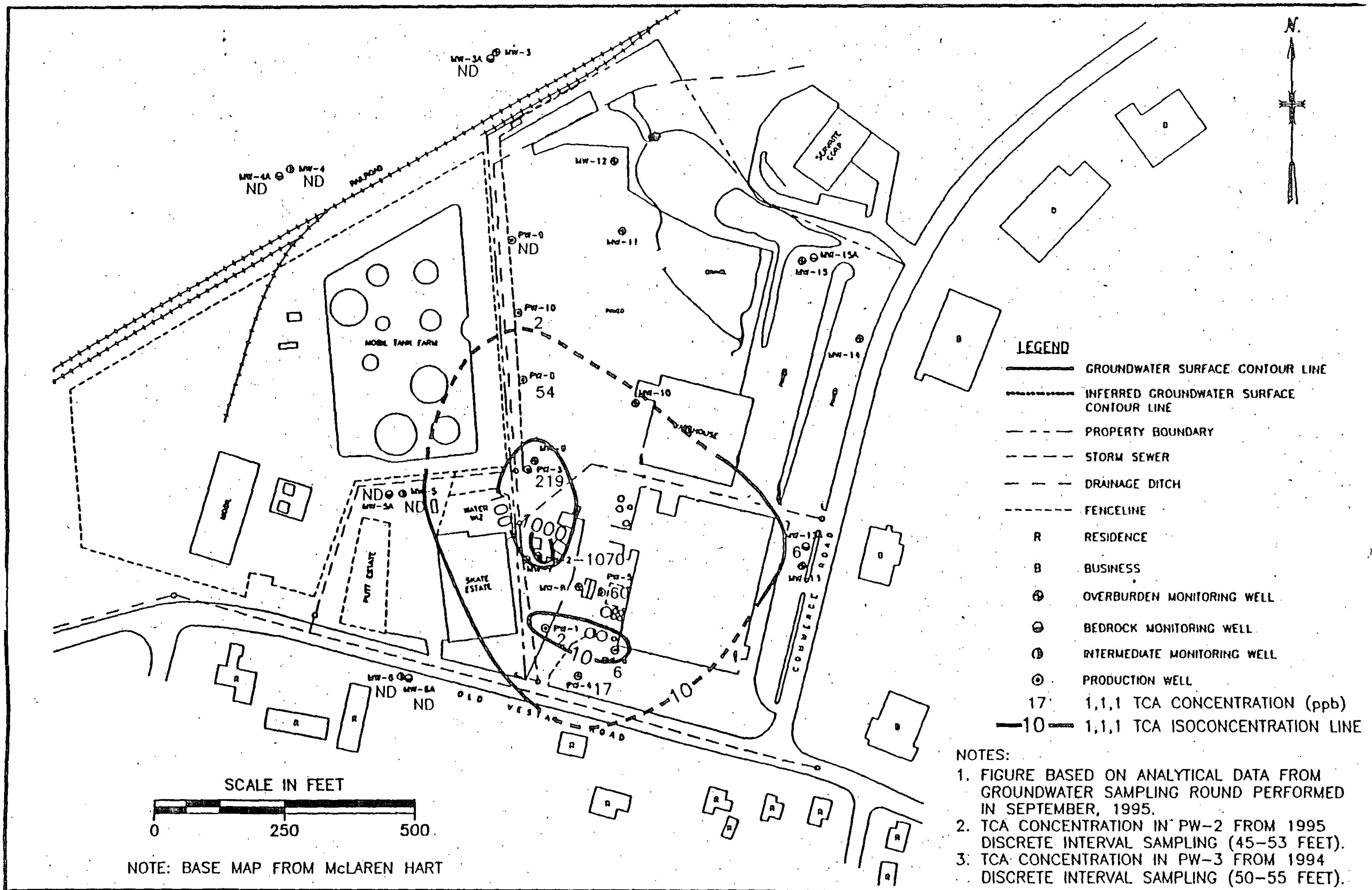
Figure 7

PW-2 AREA
RDWPA BORING & WELL PLOT LOCATION MAP

ROBINTECH, INC./NATIONAL PIPE CO.
VESTAL, NEW YORK

McLaren Hart® ENVIRONMENTAL ENGINEERING CORPORATION

DRWN: M.J.B.	CHK'D: D.X.
SCALE: AS SHOWN	DATE: 12/27/95



NOTE: BASE MAP FROM McLAREN HART

NOTES:

1. FIGURE BASED ON ANALYTICAL DATA FROM GROUNDWATER SAMPLING ROUND PERFORMED IN SEPTEMBER, 1995.
2. TCA CONCENTRATION IN PW-2 FROM 1995 DISCRETE INTERVAL SAMPLING (45-53 FEET).
3. TCA CONCENTRATION IN PW-3 FROM 1994 DISCRETE INTERVAL SAMPLING (50-55 FEET).

MALCOLM PIRNIE

U.S.E.P.A. REGION II (ARCS)
ROBINTECH/NATIONAL PIPE RD/RA

AQUEOUS TCA ISOCONCENTRATION MAP- BEDROCK

FIGURE 8

APPENDIX II

TABLES

TABLES

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TABLE 2 OVERBURDEN GROUNDWATER SAMPLING DATA, ORGANIC PARAMETERS (PPS AREA)
TABLE 3 OVERBURDEN GROUNDWATER SAMPLING DATA, ORGANIC PARAMETERS (PW-2 AREA)
TABLE 4 SOIL SAMPLING DATA, ORGANIC PARAMETERS (PW-2 AREA)
TABLE 5 BEDROCK GROUNDWATER SAMPLING DATA, ORGANIC PARAMETERS
TABLE 6 CONTAMINANTS OF CONCERN
TABLE 7 SUMMARY OF EXPOSURE PATHWAYS
TABLE 8 TOXICITY VALUES
TABLE 9 SUMMARY OF CARCINOGENIC RISKS
TABLE 10 SUMMARY OF NON-CARCINOGENIC RISKS
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Table 1

Robintech, Inc./National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PAVED PIPE STAGING AREA - SOIL SAMPLING
RDWP / RDWPA

Sample ID	GP-01	GP-01	GP-02	GP-13	GP-13	GP-13	GP-13	GP-14	GP-15
Dilution Factor	1 X	10 X	1 X	100 X	100 X	200 X	200 X	2 X	100 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Interval (feet)	5 - 7	9 - 10	6 - 7	6 - 6.5	6.5 - 7	10.5 - 11	12.5 - 13	7 - 8	5 - 7
Sample Date	10/11/95	10/11/95	10/12/95	10/16/95	10/16/95	10/16/95	10/16/95	10/16/95	10/16/95
Analysis Date	10/12/95	10/13/95	10/12/95	10/16/95	10/16/95	10/16/95	10/16/95	10/16/95	10/16/95

Volitale Organic Compounds (ppm)

1,1,1-Trichloroethane	0.023	0.189	0.005 U	1.138	1.135	6.876	4.231	0.027	2.927
Trichloroethene	0.005 U	0.005 U	0.021	0.005 U	0.005 U	1.000 U	1.000 U	0.010 U	0.005 U
Toluene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	1.000 U	1.000 U	0.010 U	0.005 U
Tetrachloroethene	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.000 U	1.000 U	0.010 U	0.500 U

Sample ID	GP-15	GP-19	GP-19	GP-20	GP-20	GP-21	GP-23	GP-23	GP-24
Dilution Factor	50 X	1 X	5 X	2 X	10 X	1 X	1 X	5 X	1 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Interval (feet)	8.5 - 9	0 - 4	10 - 12	3 - 4	6 - 7	0 - 1	7 - 8	10 - 12	4 - 4.5
Sample Date	10/16/95	10/17/95	10/17/95	10/17/95	10/17/95	10/17/95	10/17/95	10/17/95	10/18/95
Analysis Date	10/17/95	10/17/95	10/17/95	10/17/95	10/17/95	10/17/95	10/18/95	10/18/95	10/18/95

Volitale Organic Compounds (ppm)

1,1,1-Trichloroethane	0.584	0.048	0.078	0.074	0.225	0.024	0.023	0.153	0.015
Trichloroethene	0.025 U	0.011	0.025 U	0.010 U	0.050 U	0.005 U	0.005 U	0.025 U	0.005 U
Toluene	0.025 U	0.048	0.025 U	0.010 U	0.050 U	0.005 U	.0025 J	0.025 U	0.005 U
Tetrachloroethene	0.025 U	0.005 U	0.025 U	0.010 U	0.050 U	0.005 U	0.005 U	0.025 U	0.005 U

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits
NA = Not Analyzed

Table 1

Robintech, Inc./National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PAVED PIPE STAGING AREA - SOIL SAMPLING
RDWP / RDWPA

Sample ID	GP-24	GP-25	GP-25	OW-06	PPA-06	PPA-06	PPA-06	PPA-15	PPA-15
Dilution Factor	5 X	2.5 X	2 X	1 X	10 X	10 X	10 X	1 X	12.5 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Interval (feet)	12- 14	0 - 4	11.5 - 12	8 - 9	1.5-2.0	2.5-3.0	3.0-3.5	1-3	3-5
Sample Date	10/18/95	10/18/95	10/18/95	10/12/95	12/9/94	12/9/94	12/9/94	12/8/94	12/8/94
Analysis Date	10/18/95	10/18/95	10/18/95	10/16/95	12/9/94	12/9/94	12/9/94	12/8/94	12/8/94

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	0.046	0.0125 U	0.16	0.048	0.050 U	0.050 U	0.107	.109 E	0.501
Trichloroethene	0.025 U	0.0125 U	0.010 U	0.025 U	NA	NA	NA	NA	NA
Toluene	0.025 U	0.0125 U	0.010 U	0.025 U	NA	NA	NA	NA	NA
Tetrachloroethene	0.025 U	0.0125 U	0.010 U	0.025 U	NA	NA	NA	NA	NA

Sample ID	PPA-28	PPA-31	PPA-32	PPA-44
Dilution Factor	5 X	5 X	5 X	10 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL
Sample Interval (feet)	0-2	6-8'	0-2	4-6
Sample Date	12/14/94	12/14/94	12/14/94	12/21/94
Analysis Date	12/20/94	12/15/94	12/15/94	12/21/94

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	0.025 U	0.0748	0.025 U	0.1497
Trichloroethene	NA	NA	NA	NA
Toluene	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA

NOTES

J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits
NA = Not Analyzed

Table 2

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PAVED PIPE STAGING AREA - GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP

Sample ID	PPA-01	PPA-02	PPA-03	PPA-04	PPA-05	PPA-06	PPA-07	PPA-08
Dilution Factor	1 X	50 X	10 X	4 X	1X	250	5 X	100 X
Sample Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Sample Interval (feet)	8-9	8-9	7.5-8.5	7-8	6-7	9-11	6-9	7-9
Sample Date	12/6/94	12/6/94	12/6/94	12/6/94	12/7/94	12/7/94	12/7/94	12/7/94
Analysis Date	12/6/94	12/6/94	12/6/94	12/6/94	12/7/94	12/7/94	12/7/94	12/7/94

1,1,1-Trichloroethane (ppb)	60	4,471	340	130	5 U	19,421	57	5,628

Sample ID	PPA-09	PPA-10	PPA-11	PPA-12	PPA-13	PPA-14	PPA-15	PPA-16
Dilution Factor	-	20 X	1 X	16.66	1 X	5 X	250 X	10 X
Sample Matrix	DRY	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Sample Interval (feet)	11-12	11-12	7-9	10.5-12.5	8-10	11-12	5-7	9.5-10.5
Sample Date	12/7/94	12/7/94	12/7/94	12/7/94	12/8/94	12/9/94	12/8/94	12/9/94
Analysis Date	-	12/7/94	12/7/94	12/7/94	12/8/94	12/9/94	12/8/94	12/9/94

1,1,1-Trichloroethane (ppb)	DRY	395	13	271	148	25 J	13,080	292

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 2

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS

PAVED PIPE STAGING AREA - GROUNDWATER SAMPLES

TEMPORARY WELL POINTS

RDWP

Sample ID	PPA-17	PPA-18	PPA-19	PPA-20	PPA-21	PPA-22	PPA-23	PPA-24
Dilution Factor	1 X	10 X	1 X	50 X	5 X	10 X	1 X	25 X
Sample Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Sample Interval (feet)	11-12	8-9	11-12	11-12	8-9	11-12	7-8	11-12
Sample Date	12/9/94	12/9/94	12/12/94	12/13/94	12/13/94	12/14/94	12/14/94	12/14/94
Analysis Date	12/9/94	12/9/94	12/14/94	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94

1,1,1-Trichloroethane (ppb)	183	9	5 U	2,480	83	476	5 U	5,080 E

Sample ID	PPA-25	PPA-26	PPA-27	PPA-28	PPA-29	PPA-30	PPA-31	PPA-32
Dilution Factor	-	20 X	1 X	-	5 X	10 X	5 X	1 X
Sample Matrix	DRY	WATER	WATER	DRY	WATER	WATER	DRY	WATER
Sample Interval (feet)	7-8	12-14	10-12	11-12	12-14	10-12	11-12	11-12
Sample Date	12/14/94	12/14/94	12/14/94	12/14/94	12/14/94	12/14/94	12/14/94	12/14/94
Analysis Date	-	12/15/94	12/15/94	-	12/15/94	12/15/94	12/15/94	12/15/94

1,1,1-Trichloroethane (ppb)	DRY	284	30	DRY	116	217	DRY	5 U

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 2

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PAVED PIPE STAGING AREA - GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP

Sample ID	PPA-33	PPA-34	PPA-35	PPA-36	PPA-37	PPA-38	PPA-39	PPA-40A
Dilution Factor	-	250 X	-	-	1 X	-	1 X	1 X
Sample Matrix	DRY	WATER	DRY	DRY	WATER	DRY	WATER	WATER
Sample Interval (feet)	10-12	9-11	10-12	11.5-13.5	12-14	12-14	14-16	8-10
Sample Date	12/14/94	12/14/94	12/14/94	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94
Analysis Date	-	12/15/94	-	-	12/15/94	-	12/15/94	12/15/94

1,1,1-Trichloroethane (ppb)	DRY	6,587	DRY	DRY	5 U	DRY	5 U	5 U

Sample ID	PPA-41	PPA-42	PPA-43*	PPA-44	PPA-45	PPA-46	PPA-47	PPA-48
Dilution Factor	-	-	-		50 X	-	1 X	-
Sample Matrix	REFUSAL	REFUSAL	NOT SAMPLED	REFUSAL	WATER	REFUSAL	WATER	NOT SAMPLED
Sample Interval (feet)	-	-		-	10-12	-	11-13	
Sample Date	12/19/94	12/19/94	-	12/21/94	12/21/94	12/21/94	12/21/94	-
Analysis Date	-	-	-	-	12/21/94	-	12/24/94	-

1,1,1-Trichloroethane (ppb)	-	-	-	-	473	-	32	-

NOTES

* PPA-43 was drilled for lithologic determination only; no samples were collected from the boring.

J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 2

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PAVED PIPE STAGING AREA - GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP

Sample ID	PPA-49	PPA-50	PPA-51	PPA-52	PPA-53
Dilution Factor	-	50 X	1 X	250 X	-
Sample Matrix	DRY	WATER	WATER	WATER	DRY
Sample Interval (feet)	13-15	10-12	6.5-8.5	7-9	7.5-9.5
Sample Date	12/21/94	12/21/94	12/21/94	12/22/94	12/8/94
Analysis Date	-	12/24/94	12/24/94	12/24/94	-

1,1,1-Trichloroethane (ppb)	DRY	2,176	5 U	4,611	DRY

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 2

Robintech, Inc. / National Pipe Co. Superfund Site
Vestal, New York

ANALYTICAL RESULTS
PAVED PIPE STAGING AREA - GROUNDWATER SAMPLES
MONITORING WELLS
RDWP

Sample ID	MW-11	MW-12
Dilution Factor	10 X	1X
Sample Matrix	WATER	WATER
Sample Interval (feet)	8-18	10-20
Sample Date	12/6/94	12/12/94
Analysis Date	12/7/94	12/12/94

1,1,1-Trichloroethane (ppb)	165 E	5 U

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - ON-SITE GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP / RDWPA

Sample ID	SWB-01	SWB-02	SWB-03	SWB-04	SWB-05	SWB-06	SWB-07	SWB-08
Dilution Factor	500 X	500 X	20 X	100 X	100 X	100 X	5 X	500 X
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Sample Interval (feet)	18-20	18-20	17	16.5	18	14-16	19-21	14-16
Sample Date	12/6/94	12/7/94	12/9/94	12/9/94	12/9/94	12/12/94	12/12/94	12/12/94
Analysis Date	12/7/94	12/7/94	12/9/94	12/9/94	12/9/94	12/15/94	12/12/94	12/12/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	**24733**	**25368**	**152**	**1402**	**1243**	**1013**	**129**	**13943**
1,1-Dichloroethane	**29433 E**	**8910**	90 J	**1002**	**1676**	**1255**	25 U	**8132**
1,1-Dichloroethene	**17782**	**3429**	100 U	500 U	**556**	500 U	**51**	**2974**
Chloroform	2500 U	2500 U	52 J	500 U	**1067**	500 U	25 U	2500 U
Tetrachloroethene	2500 U	2500 U	57 J	429 J	500 U	**891**	25 U	2500 U
Toluene	2500 U	4222	100 U	500 U	500 U	500 U	25 U	2500 U
Trichloroethene	2500 U	2500 U	272	399 J	500 U	500 U	25 U	2500 U
Vinyl Chloride	2500 U	5379	100 U	500 U	500 U	500 U	25 U	2500 U

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - ON-SITE GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP / RDWPA

Sample ID	SWB-09	SWB-10	SWB-11	SWB-12	SWB-13	SWB-14	SWB-15	SWB-16
Dilution Factor	50 X	20 X	250 X	5 X	5 X	5 X	-	20 X
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	DRY	WATER
Sample Interval (feet)	14-16	17-19	11-13	19-21	19-21	18-20	24	18.5
Sample Date	12/12/94	12/13/94	12/13/94	12/13/94	12/13/94	12/13/94	12/15/94	12/15/94
Analysis Date	12/14/94	12/15/94	12/14/94	12/15/94	12/15/94	12/14/94	-	12/19/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	562	990	4070	93	117	54	-	1614
1,1-Dichloroethane	132 J	113	2891	25 U	20 J	25 U	-	1750
1,1-Dichloroethene	250 U	159	1250 U	15 J	15 J	25 U	-	771
Chloroform	250 U	100 U	1250 U	25 U	25 U	25 U	-	100 U
Tetrachloroethene	250 U	100 U	1250 U	22 J	25 U	25 U	-	100 U
Toluene	250 U	100 U	1250 U	25 U	25 U	25 U	-	100 U
Trichloroethene	859	111	1250 U	101	104	65	-	208
Vinyl Chloride	250 U	100 U	1250 U	25 U	25 U	25 U	-	100 U

NOTES

J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
B = Compound Found in Method Blank
U = Below Method Quantitation Limits

Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - ON-SITE GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP / RDWPA

Sample ID	SWB-17	SWB-18	SWB-19	SWB-20	SWB 21	SWB-21	SWB-21A	SWB 22
Dilution Factor	100 X	500 X	1 X	5 X	2500 X	500 X	17 X	250 X
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Sample Interval (feet)	18.5	18-20	20	19	18-20	18-20	17	17-19
Sample Date	12/15/94	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94	12/19/94
Analysis Date	12/19/94	12/19/94	12/19/94	12/19/94	12/16/94	12/19/94	12/19/94	12/19/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	**1125**	**3683**	**41**	**195**	**180005**	**222129 E**	**1288 E**	**104192 E**
1,1-Dichloroethane	**1543**	2129 J	**8**	**65**	**49465**	**53166**	85 U	**60232**
1,1-Dichloroethene	**869**	2500 U	**13**	**29**	**73669**	**60052**	**230**	**34568 E**
Chloroform	500U	2500 U	5 U	25 U	12250 U	**2500**	85 U	1250 U
Tetrachloroethene	500U	2500 U	5 U	**65**	12250 U	**2500**	54 J	1250 U
Toluene	500U	2500 U	5 U	25 U	**175218**	**2500**	**4587 E**	**2920**
Trichloroethene	**2517**	1706 J	**27**	**209**	**34326**	**15565**	85 U	**10929**
Vinyl Chloride	500U	2500 U	5 U	25 U	12250 U	**2500**	85 U	1250 U

NOTES
J = Outside Linear Working Range (Low)
E = Outside Linear Working Range (High)
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U Below Method Quantitation Limits

Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - ON-SITE GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP / RDWPA

Sample ID	SWB-22	SWB-23	SWB 24	SWB-25	SWB-26	SWB-27	SWB-28	SWB-29
Dilution Factor	50 X	0.5 X	2500 X	20 X	-	-	250 X	5 X
Matrix	WATER	WATER	WATER	WATER	DRY	DRY	WATER	WATER
Sample Interval (feet)	17-19	18	19-21	14.5-16.5	15	19.6	17-19	14.5-16.5
Sample Date	12/19/94	12/20/94	12/20/94	12/20/94	12/20/94	12/20/94	12/20/94	12/20/94
Analysis Date	12/19/94	12/21/94	12/20/94	12/20/94	-	-	12/20/94	12/20/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	**18457 E**	2.5 U	**101279**	**800**	-	-	**39565**	**55**
1,1-Dichloroethane	**6741 E**	2.5 U	**15405**	**262**	-	-	**18249**	25 U
1,1-Dichloroethene	**3269 E**	2.5 U	**14168**	**214**	-	-	**14766**	20 J
Chloroform	250 U	2.5 U	12250 U	100 U	-	-	1250 U	25 U
Tetrachloroethene	250 U	2.5 U	12250 U	100 U	-	-	1250 U	25 U
Toluene	250 U	2.5 U	**116800**	100 U	-	-	1250 U	25 U
Trichloroethene	**878**	2.5 U	12250 U	75 J	-	-	1250 U	24 J
Vinyl Chloride	250 U	2.5 U	12250 U	100 U	-	-	1250 U	25 U

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Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - ON-SITE GROUNDWATER SAMPLES
TEMPORARY WELL POINTS
RDWP / RDWPA

Sample ID	SWB-30	SWB-31	SWB-32	SWB-33	SWB-34	SWB-35
Dilution Factor	250 X	20 X	20 X	1 X	1 X	1 X
Matrix	WATER	WATER	WATER	WATER	WATER	WATER
Sample Interval (feet)	6-8	19-21	21-23	16-18	16-18	7-9
Sample Date	12/20/94	12/20/94	12/20/94	12/20/94	12/21/94	12/21/94
Analysis Date	12/20/94	12/21/94	12/21/94	12/20/94	12/21/94	12/21/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	**1546**	**426**	**162**	**15**	5U	**6**
1,1-Dichloroethane	967 J	**1064**	**487**	5U	5U	**5**
1,1-Dichloroethene	334 J	**202**	**61J**	5U	5U	5 U
Chloroform	1250 U	100 U	100 U	5U	5U	5 U
Tetrachloroethene	**1299**	100 U	100 U	5U	5U	5 U
Toluene	1250 U	100 U	100 U	5U	5U	5 U
Trichloroethene	1250 U	**208**	**256**	**5**	5U	5 U
Vinyl Chloride	1250 U	100 U	100 U	5U	5U	5 U

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Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS

PW-2 AREA - ON-SITE GROUNDWATER SAMPLES

TEMPORARY WELL POINTS

RDWP / RDWPA

Sample ID	GP-05	GP-05	GP - 06	GP - 06
Dilution Factor	500 X	5,000 X	500 X	10,000 X
Matrix	WATER	WATER	WATER	WATER
Sample Interval (feet)	22 - 24	22 - 24	15 - 17	15 - 17
Sample Date	10/12/95	10/12/95	10/12/95	10/12/95
Analysis Date	10/13/95	12/161/94	10/13/95	10/18/95

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	**44,288E**	**66,275**	**196,869E**	**376,030**
1,1-Dichloroethane	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA
Tetrachloroethene	2,500 U	NA	2,500 U	NA
Toluene	**9,781**	NA	**155,152E**	**191,090**
Trichloroethene	2,500 U	NA	14,000	NA
Vinyl Chloride	NA	NA	NA	NA

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Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - OFF-SITE SAMPLES
TEMPORARY WELL POINTS
RDWP

Sample ID	SE-01	SE-02	SE-03	SE-04	SE-05	SE-06	SE-07	SE-08	SE-09
Dilution Factor	5 X	25 X	100 X	-	-	1 X	1 X	50 X	5 X
Matrix	WATER	WATER	WATER	REFUSAL	REFUSAL	WATER	WATER	WATER	WATER
Sample Interval (feet)	7-9	7-9	9-11	8'	7'	8-10	10-12	12-14	12-14
Sample Date	12/13/94	12/13/94	12/13/94	12/19/94	12/19/94	12/21/94	12/21/94	12/21/94	12/21/94
Analysis Date	12/13/94	12/13/94	12/13/94	-	-	12/21/94	12/21/94	12/21/94	12/23/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	69	156	575	-	-	5 U	5 U	602	64
1,1-Dichloroethane	25 U	125 U	398 J	-	-	5 U	5 U	4604	227
1,1-Dichloroethene	25 U	125 U	500 U	-	-	5 U	5 U	250 U	25 U
Chloroform	25 U	125 U	500 U	-	-	5 U	5 U	250 U	25 U
Tetrachloroethene	25 U	100 J	500 U	-	-	5 U	5 U	250 U	25 U
Toluene	25 U	125 U	500 U	-	-	5 U	5 U	250 U	25 U
Trichloroethene	199	532	500 U	-	-	5 U	5 U	250 U	25 U
Vinyl Chloride	25 U	125 U	500 U	-	-	5 U	5 U	250 U	25 U

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Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - OFF-SITE SAMPLES
TEMPORARY WELL POINTS
RDWP

Sample ID	SE-10	SE-11	SE-12	SE-13	SE-14	SE-15	SE-16	SE-17	SE-18
Dilution Factor	1 X	-	1 X	1 X	-	1 X	1 X	1 X	10 X
Matrix	WATER	REFUSAL	WATER	WATER	REFUSAL	WATER	WATER	WATER	WATER
Sample Interval (feet)	13-15	8	10-12	10-12	8	14-16	12-14	12-14	11-13
Sample Date	12/21/94	12/21/94	12/21/94	12/21/94	12/21/94	12/21/94	12/22/94	12/22/94	12/22/94
Analysis Date	12/23/94	DRY	12/23/94	12/23/94	DRY	12/23/94	12/23/94	12/23/94	12/23/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	32	-	15	5 U	-	5 U	12	5 U	312
1,1-Dichloroethane	11	-	51	4 J	-	5 U	140 E	5 U	208
1,1-Dichloroethene	4 J	-	4 J	5 U	-	5 U	5 U	5 U	54
Chloroform	5 U	-	5 U	5 U	-	5 U	5 U	5 U	50 U
Tetrachloroethene	5 U	-	5 U	5 U	-	5 U	5 U	5 U	50 U
Toluene	5 U	-	5 U	5 U	-	5 U	5 U	5 U	50 U
Trichloroethene	28	-	10	5 U	-	5 U	5 U	5 U	55
Vinyl Chloride	5 U	-	5 U	5 U	-	5 U	5 U	5 U	50 U

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Table 3

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

ANALYTICAL RESULTS
PW-2 AREA - GROUNDWATER SAMPLES
MONITORING WELLS
RDWP / RDWPA

Sample ID	MW-6	MW-7	MW-8	MW-9
Dilution Factor	1 X	200 X	20 X	1 X
Matrix	WATER	WATER	WATER	WATER
Sample Interval (feet)	35-45	13-23	17-27	15-25
Sample Date	12/22/94	12/6/94	12/6/94	12/19/94
Analysis Date	12/23/94	12/7/94	12/7/94	12/19/94

Volatile Organic Compounds (ppb)

1,1,1-Trichloroethane	5 U	5392	328	5 U
1,1-Dichloroethane	5 U	11080	182	5 U
1,1-Dichloroethene	5 U	2668 J	141	5 U
Chloroform	5 U	3090 J	168	5 U
Tetrachloroethene	5 U	1000 U	202	5 U
Toluene	5 U	1000 U	100 U	5 U
Trichloroethene	5 U	1000 U	670	5 U
Vinyl Chloride	5 U	1000 U	100 U	5 U

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Table 4

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PW-2 AREA - SOIL SAMPLING
RDWP / RDWPA

Sample ID	EW-02	EW-02	EW-02	OW-03	OW-03	OW-3	GP-05	GP-05
Sample Interval (feet)	10-12	14-16	4-6	4-6	6-8	14-16	2-2.5	3.5-4
Dilution Factor	1 X	100 X	100 X	100 X	12.5 X	5 X	5,000 X	5,000 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	10/10/95	10/10/95	10/10/95	10/11/95	10/11/95	10/11/95	10/12/95	10/12/95
Analysis Date	10/18/95	10/11/95	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95	10/13/95

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	0.013	4.499	4.205	1.39	0.27125	0.025 U	55.5	1,961 E
Trichloroethene	0.005 U	0.5 U	0.321 J	0.500 U	0.0625 U	0.08	25 U	45.225
Toluene	0.005 U	0.5 U	2.009	0.500 U	0.1325	0.025 U	16.500 J	1,168 E
Tetrachloroethene	0.005 U	1.187	3.46	2.35	0.115	0.025 U	25 U	25 U

Sample ID	GP-05	GP-05	GP-05	GP-05	GP-05	GP-05	GP-05	GP-06
Sample Interval (feet)	3.5-4	6 - 6.5	6 - 6.5	8 - 8.5	13 - 14	16 - 17	18 - 20	3.5 - 4
Dilution Factor	50,000 X	4,000 X	100,000 X	400 X	400 X	200 X	200 X	400 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95
Analysis Date	10/13/95	10/12/95	10/18/95	10/13/95	10/13/95	10/13/95	10/13/95	10/13/95

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	1,226.90	2,475.600 E	2,842.60	2 U	7.748	2.36	4.4	25.296 E
Trichloroethene	250 U	154.400 E	500 U	2 U	2 U	1 U	1 U	2 U
Toluene	967.75	2,234.400 E	1,758.20	3.62	7.064	3.066	4.54	13.642
Tetrachloroethene	250 U	20 U	500 U	2 U	2 U	1 U	1 U	9.324

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Table 4

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PW-2 AREA - SOIL SAMPLING
RDWP / RDWPA

Sample ID	GP-06	GP-06	GP-06	GP-06	GP-06	GP-06	GP-07	GP-07
Sample Interval (feet)	3.5 - 4	4 - 8	4 - 8	8 - 10	10 - 12	16 - 17	4 - 5	10
Dilution Factor	1,000 X	5,000 X	50,000 X	5,000 X	400 X	400 X	10 X	1 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95	10/12/95	10/13/95	10/13/95
Analysis Date	10/12/95	10/12/95	10/13/95	10/12/95	10/13/95	10/13/95	10/13/95	10/13/95

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	31.257	989.500 E	1,282.50	46.275	6.728	5.48	0.050 U	0.025
Trichloroethene	5 U	42.5	250 U	25 U	2 U	1.036 J	0.134	0.080 E
Toluene	5 U	508.500 E	578.45	63.79	7.348	8.08	0.050 U	0.005 U
Tetrachloroethene	5 U	25 U	250 U	25 U	2 U	2 U	0.050 U	0.005 U

Sample ID	GP-07	GP-08	GP-08	GP-08	GP-08	GP-09	GP-10	GP-10
Sample Interval (feet)	10	0 - 0.5	8	8.5 - 9	16 - 18	10 - 12	5 - 6	15.5
Dilution Factor	2.5 X	1 X	1 X	1 X	1 X	10 X	10 X	5 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	10/13/95	10/13/95	10/13/95	10/13/95	10/13/95	10/13/95	10/13/95	10/13/95
Analysis Date	10/13/95	10/13/95	10/13/95	10/13/95	10/13/95	10/16/95	10/16/95	10/16/95

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	0.0125 U	0.005 U	0.008	0.005 U	0.03	0.057	0.054	0.025 U
Trichloroethene	0.087	0.022	0.008	0.005 U	0.005 U	0.050 U	0.050 U	0.035
Toluene	0.0125 U	0.005 U	0.043	0.005 U	0.03	0.050 U	0.028 J	0.025 U
Tetrachloroethene	0.0125 U	0.005	0.023	0.005 U	0.0029 J	0.050 U	0.050 U	0.025 U

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Table 4

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PW-2 AREA - SOIL SAMPLING
RDWP / RDWPA

Sample ID	GP-11	GP-11	GP-16	GP-16	GP-17
Sample Interval (feet)	8	8	0 - 2	4 - 6	3.5 - 4
Dilution Factor	1,000 X	10,000 X	1 X	1 X	2.5 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	10/13/95	10/13/95	10/16/95	10/16/95	10/17/95
Analysis Date	10/17/95	10/17/95	10/17/95	10/17/95	10/17/95

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	46.717	50 U	0.005 U	0.01	0.0125 U
Trichloroethene	5 U	50 U	0.005 U	0.009	0.0125 U
Toluene	115.679 E	382.04	0.006	0.005 U	0.0125 U
Tetrachloroethene	5 U	50 U	0.005 U	0.005 U	0.0125 U

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Table 4

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

ANALYTICAL RESULTS
PW-2 AREA - SOIL SAMPLING
RDWP / RDWPA

Sample ID	SWB-02	SWB-11	SWB-11	SWB-11	SWB-17	SWB 18A	SWB-30	SWB-30	SWB-31
Sample Interval (feet)	2-4	1-2	6-7	11-12	10-12	5-7	2-4	6-8	5-7
Dilution Factor	3.33 X	10 X	5 X	5 X	17 X	20 X	20 X	10 X	10 X
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	12/19/94	12/13/94	12/13/94	12/13/94	12/15/94	12/15/94	12/20/94	12/20/94	12/20/94
Analysis Date	12/19/94	12/14/94	12/14/94	12/14/94	12/16/94	12/24/94	12/20/94	12/21/94	12/21/94

Volatile Organic Compounds (ppm)

1,1,1-Trichloroethane	**0.269 E**	0.050 U	0.025 U	0.025 U	**0.116**	**0.535**	**0.217**	**0.148**	0.050 U
1,1-Dichloroethane	**0.231**	0.050 U	0.025 U	0.025 U	0.085 U	**2.342 E**	**0.163**	**0.2**	0.131
1,1-Dichloroethene	**0.026**	0.050 U	0.025 U	0.025 U	0.085 U	0.100 U	**0.060 J**	**0.031 J**	0.050 U
Chloroform	0.01665 U	0.050 U	0.025 U	0.025 U	0.085 U	0.100 U	0.100 U	0.050 U	0.050 U
Tetrachloroethene	**0.076**	0.050 U	0.025 U	0.025 U	0.085 U	**0.428**	**0.573**	**0.067**	0.050 U
Trichloroethene	0.01665 U	0.050 U	0.025 U	0.025 U	0.085 U	**0.468**	**0.699**	**2.556 E**	0.050 U
Toluene	**1.892 E**	0.050 U	0.025 U	0.025 U	**2.326 E**	**0.063 J**	0.100 U	0.050 U	0.050 U
Vinyl Chloride	0.01665 U	0.050 U	0.025 U	0.025 U	0.085 U	0.100 U	0.100 U	0.050 U	0.050 U

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Table 5

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

Analytical Results
Bedrock Groundwater Sampling
RDWPA

Sample ID	MW-3*	MW-3A	MW-4	MW-4A	MW-4A*	MW-5
Matrix	WATER	WATER	WATER	WATER	WATER	WATER
Sample Date	9/26/95	9/26/95	9/27/95	9/27/95	9/27/95	9/26/95
Analysis Date	10/5/95	10/5/95	10/5/95	10/5/95	10/5/95	9/27/95
VOCs (ppb)						
Chloromethane	<4	<4	<4	<4	<4	<4
Bromomethane	<4	<4	<4	<4	<4	<4
Vinyl Chloride	<1	<1	<1	<1	<1	<1
Chloroethane	<4	<4	<4	<4	<4	5.4
Methylene Chloride	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	1.1
1,1-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	14
cis-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	1.6
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Freon 113	<2	<2	<2	<2	<2	<2

* MW-3 is considered an overburden monitoring well.
** Field duplicate sample.

Table 5

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

Analytical Results
Bedrock Groundwater Sampling
RDWPA

Sample ID	MW-5A	MW-6	MW-6A	MW-13A	PW-1	PW-4
Matrix	WATER	WATER	WATER	WATER	WATER	WATER
Sample Date	9/26/95	9/25/95	9/25/95	9/27/95	9/27/95	12/12/95
Analysis Date	9/27/95	9/26/95	9/26/95	10/3/95	10/3/95	12/13/95

VOCs (ppb)

Chloromethane	<4	<4	<4	<4	<4	<4
Bromomethane	<4	<4	<4	<4	<4	<4
Vinyl Chloride	<1	<1	<1	<1	<1	<1
Chloroethane	<4	<4	<4	<4	<4	<4
Methylene Chloride	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	<0.5	<0.5	<0.5	1.9	<0.5	<0.5
1,1-Dichloroethane	<0.5	<0.5	<0.5	8.9	1.9	17
cis-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	3.1
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	<0.5	<0.5	<0.5	5.7	1.7	17
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	0.63
Dibromochloromethane	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Freon 113	<2	<2	<2	<2	<2	<2

Table 5

Robintech, Inc. / National Pipe Co. Site
Vestal, New York

Analytical Results
Bedrock Groundwater Sampling
RDWPA

Sample ID	PW-5	PW-6	PW-8	PW-9	PW-10
Matrix	WATER	WATER	WATER	WATER	WATER
Sample Date	9/27/95	9/27/95	9/28/95	9/29/95	9/28/95
Analysis Date	10/4/95	10/3/95	10/3/95	10/4/95	10/3/95
VOCs (ppb)					
Chloromethane	<4	<4	<4	<4	<4
Bromomethane	<4	<4	<4	<4	<4
Vinyl Chloride	1.5	<1	<1	<1	<1
Chloroethane	<4	<4	8.5	<4	<4
Methylene Chloride	<10	<10	<10	<10	<10
Trichlorofluoromethane	<0.5	<0.5	0.92	<0.5	<0.5
1,1-Dichloroethene	23	1.9	6.9	<0.5	0.64
1,1-Dichloroethane	75	8.9	29	<0.5	9.3
cis-1,2-Dichloroethene	8.2	<0.5	5.4	<0.5	<0.5
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	60	5.7	54	<0.5	2.3
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	16	<0.5	5.2	<0.5	<0.5
Dibromochloromethane	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5
Freon 113	<2	<2	<2	<2	<2

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

TABLE 6

TYPE=Ground Water (Unfiltered) - Overburden

Chemical Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Volatiles	Vinyl Chloride	2	11	17.00	34.00	6.65	.	10.00	10.00
	Chloroethane	2	11	23.00	46.00	7.03	.	10.00	10.00
	1,1-Dichloroethene	2	11	52.00	110.00	4.65	.	5.00	5.00
	1,1-Dichloroethane	4	11	3.00	370.00	6.82	.	5.00	5.00
	1,2-Dichloroethene (total)	2	11	210.00	400.00	5.93	.	5.00	5.00
	Chloroform	2	11	1.00	3.00	2.34	.	5.00	5.00
	1,2-Dichloroethane	2	11	3.00	5.00	2.71	.	5.00	5.00
	1,1,1-Trichloroethane	5	11	2.00	1100.00	10.87	.	5.00	5.00
	Trichloroethene	3	11	31.00	1000.00	8.71	.	5.00	5.00
	1,1,2-Trichloroethane	1	11	4.00	4.00	2.61	.	5.00	5.00
	Benzene	3	11	2.00	23.00	3.35	.	5.00	5.00
	Tetrachloroethene	2	11	17.00	53.00	3.93	.	5.00	5.00
Inorganics	Aluminum	11	11	486.00	52500.00	4487.61	.	.	.
	Arsenic	1	10	36.70	36.70	1.52	.	2.12	2.30
	Barium	10	11	145.00	1050.00	237.46	.	43.20	43.20
	Calcium	11	11	49000.00	1710001.00	156101.77	.	.	.
	Chromium	2	11	8.80	770.00	5.74	.	3.30	8.80
	Cobalt	1	11	40.00	40.00	13.60	.	20.10	38.50
	Copper	7	11	31.00	320.00	37.13	.	14.00	17.30
	Iron	11	11	2780.00	101000.00	14442.31	.	.	.
	Lead	6	10	1.69	29.20	2.90	.	0.91	2.80
	Magnesium	11	11	8900.00	51200.00	22462.26	.	.	.
	Manganese	11	11	424.00	7480.00	1784.09	.	.	.
	Nickel	6	11	14.20	121.00	19.49	.	8.90	17.80
	Potassium	10	10	542.00	14600.00	2693.25	.	.	.
	Sodium	11	11	5740.00	99100.00	28943.23	.	.	.
	Vanadium	1	11	24.00	24.00	4.23	.	6.34	11.20
	Zinc	10	11	4.10	276.00	30.97	.	2.78	2.78

TABLE 6

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Ground Water (Filtered) - Overburden

Chemical Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Inorganics	Aluminum	2	11	230.00	1030.00	100.99	.	138.00	159.00
	Arsenic	1	11	20.00	20.00	1.41	.	2.12	2.30
	Barium	8	11	48.00	511.00	81.74	.	43.20	46.00
	Calcium	11	11	13000.00	187000.00	87757.62	.	.	.
	Chromium	1	11	14.00	14.00	3.74	.	3.30	8.80
	Iron	8	11	20.51	1630.00	90.51	.	20.50	68.00
	Magnesium	11	11	2960.00	50900.00	15073.96	.	.	.
	Manganese	10	11	110.00	5060.00	502.72	.	5.13	5.13
	Nickel	3	11	15.80	23.00	10.33	.	8.90	17.80
	Potassium	11	11	44.00	14200.00	1212.25	.	.	.
	Sodium	11	11	5370.00	95900.00	30950.86	.	.	.
	Thallium	1	11	1.37	1.37	1.17	.	1.37	7.80
	Vanadium	1	11	31.30	31.30	4.33	.	6.34	11.20
	Zinc	8	11	6.00	180.00	21.75	.	2.78	34.00

TABLE 6

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Ground Water (Unfiltered) - Bedrock

Chemical Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Volatiles	Vinyl Chloride	5	15	4.00	38.00	6.75	.	10.00	10.00
	Chloroethane	5	15	6.00	36.00	6.86	.	10.00	10.00
	Acetone	3	15	14.00	2200.00	10.76	.	10.00	50.00
	1,1-Dichloroethene	5	15	23.00	150.50	7.46	.	5.00	5.00
	1,1-Dichloroethane	10	15	3.00	865.00	18.40	.	5.00	5.00
	1,2-Dichloroethene (total)	5	15	140.00	535.00	12.36	.	5.00	5.00
	Chloroform	1	15	4.00	4.00	3.15	.	5.00	25.00
	1,2-Dichloroethane	2	15	3.00	4.00	3.19	.	5.00	25.00
	2-Butanone	5	15	21.00	510.00	17.11	.	10.00	50.00
	1,1,1-Trichloroethane	8	15	5.00	6950.00	34.80	.	5.00	5.00
	Carbon Tetrachloride	1	15	60.00	60.00	3.77	.	5.00	25.00
	Trichloroethene	7	15	4.00	1350.00	17.33	.	5.00	5.00
	Benzene	6	14	2.00	11.00	3.94	.	5.00	25.00
	Tetrachloroethene	1	15	3.00	3.00	3.09	.	5.00	25.00
	Toluene	11	15	2.00	2250.00	29.45	.	5.00	5.00
	Ethylbenzene	4	15	2.00	73.00	4.35	.	5.00	25.00
	Styrene	1	15	8.00	8.00	3.55	.	5.00	25.00
	Xylene (total)	8	15	3.00	480.00	8.75	.	5.00	25.00
Semivolatiles (BNAs)	bis(2-Ethylhexyl)phthalate	1	12	97.00	97.00	6.40	.	10.00	10.00
Inorganics	Aluminum	8	11	170.00	1290.00	241.95	.	130.00	130.00
	Arsenic	5	11	8.80	27.35	5.01	.	2.12	6.00
	Barium	11	11	59.00	1360.00	254.17	.	.	.
	Cadmium	3	11	5.00	6.00	3.05	.	4.60	5.00
	Calcium	11	11	12500.00	197000.00	73781.09	.	.	.
	Chromium	1	11	30.00	30.00	2.22	.	2.08	43.00
	Cobalt	1	11	21.00	21.00	11.37	.	20.00	38.50
	Iron	11	11	332.00	42400.00	1540.38	.	.	.
	Lead	3	8	5.39	10.60	2.73	.	0.91	5.00
	Magnesium	11	11	7470.00	19300.00	13650.16	.	.	.
	Manganese	10	11	80.00	1440.00	292.18	.	14.70	14.70
	Mercury	2	11	0.14	0.40	0.04	.	0.03	0.10
	Nickel	1	11	18.20	18.20	8.92	.	8.90	17.80
	Potassium	11	11	725.00	39400.00	2123.73	.	.	.
	Sodium	11	11	10500.00	64900.00	32945.97	.	.	.
	Zinc	9	11	23.00	1390.00	132.59	.	2.78	2.78

TABLE 6

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Ground Water (Filtered) - Bedrock

Chemical Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Inorganics	Arsenic	1	4	8.90	8.90	1.80	.	2.12	2.12
	Barium	4	4	121.00	1270.00	513.15	.	.	.
	Calcium	4	4	11000.00	78800.00	39951.52	.	.	.
	Iron	1	4	630.00	630.00	38.54	.	20.10	68.00
	Magnesium	4	4	7580.00	15700.00	10003.03	.	.	.
	Manganese	3	4	60.00	430.00	90.58	.	14.70	14.70
	Potassium	4	4	1030.00	35900.00	4685.01	.	.	.
	Sodium	4	4	8280.00	58400.00	30599.21	.	.	.
	Zinc	1	4	5.00	5.00	1.97	.	2.78	3.10

TABLE 6

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Soil-Subsurface

Chemical Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Volatiles	Chloroethane	1	27	58.00	58.00	6.54	9.30	10.00	53.00
	Methylene Chloride	9	27	15.00	53.00	6.61	23.32	5.00	110.00
	Acetone	10	27	12.00	81.00	12.73	28.72	10.00	210.00
	1,1-Dichloroethane	6	27	5.00	49.00	4.17	8.72	5.00	8.00
	1,2-Dichloroethene (total)	3	27	2.00	22.00	3.46	5.13	5.00	26.00
	Chloroform	2	27	7.00	8.00	3.31	4.10	5.00	26.00
	1,1,1-Trichloroethane	5	27	5.00	630.00	4.25	14.65	5.00	8.00
	Trichloroethene	5	27	2.00	16.00	3.28	4.33	5.00	26.00
	Tetrachloroethene	2	27	3.00	4.00	3.08	3.63	5.00	26.00
	Toluene	5	27	2.00	27.00	3.60	5.52	5.00	26.00
	Xylene (total)	3	27	2.00	8.00	3.22	4.05	5.00	26.00
Semivolatiles (BNAs)	Naphthalene	1	27	130.00	130.00	264.39	361.45	330.00	1700.00
	2-Methylnaphthalene	2	27	150.00	300.00	272.84	368.68	330.00	1700.00
	Phenanthrene	1	27	1800.00	1800.00	288.33	441.06	330.00	1700.00
	Anthracene	1	27	280.00	280.00	269.13	362.89	330.00	1700.00
	Di-n-butylphthalate	7	27	98.00	2100.00	290.23	476.76	340.00	1700.00
	Fluoranthene	1	27	950.00	950.00	281.59	401.72	330.00	1700.00
	Pyrene	2	27	120.00	2200.00	285.86	458.47	330.00	1700.00
	Benzo(a)anthracene	2	27	75.00	840.00	271.09	404.53	330.00	1700.00
	Chrysene	2	27	86.00	950.00	273.71	407.84	330.00	1700.00
	bis(2-Ethylhexyl)phthalate	15	28	84.00	18000.00	849.29	6787.33	360.00	9000.00
	Benzo(b)fluoranthene	1	27	470.00	470.00	274.34	374.07	330.00	1700.00
	Benzo(k)fluoranthene	1	27	540.00	540.00	275.76	378.34	330.00	1700.00
	Benzo(a)pyrene	2	27	100.00	630.00	271.09	387.11	330.00	1700.00
Inorganics	Aluminum	27	27	4650.00	142000.00	9652.01	15453.06	.	.
	Arsenic	5	27	2.07	13.00	1.72	8.84	1.25	67.50
	Barium	20	27	23.60	137.50	23.27	60.94	9.55	10.30
	Cadmium	7	27	1.23	18.30	0.91	2.34	0.43	1.60
	Calcium	27	27	129.00	21839.00	2048.82	6983.04	.	.
	Cobalt	1	27	27.10	27.10	2.54	3.42	4.15	6.30
	Copper	23	27	11.60	43.30	12.92	25.24	3.00	29.70
	Iron	27	27	10300.00	34300.00	18027.39	20749.49	.	.
	Lead	27	27	8.24	12800.00	89.65	94920.02	.	.
	Magnesium	27	27	650.00	5100.00	2287.25	2944.55	.	.
	Manganese	27	27	114.00	882.00	347.03	485.41	.	.

TABLE 6

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Soil-Subsurface (Continued)

Chemical Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Mercury	26	27	0.02	5.78	0.31	4.41	0.11	0.11
	Nickel	24	27	3.70	66.30	13.79	40.12	3.92	4.33
	Potassium	27	27	2.71	1400.00	512.92	1954.15	.	.
	Selenium	2	27	0.44	0.73	0.33	0.52	0.42	2.37
	Silver	9	27	0.09	4.80	0.37	2.14	0.07	1.08
	Sodium	27	27	39.20	449.00	120.58	177.65	.	.
	Vanadium	5	27	15.50	38.70	5.93	9.45	5.40	12.50
	Zinc	27	27	2.50	120.70	46.97	76.81	.	.
	Cyanide	1	27	0.11	0.11	0.31	0.71	0.05	1.60

TABLE 7 ROBINTECH/NATIONAL PIPE CO., INC. SITE: SUMMARY OF EXPOSURE PATHWAYS

		Time-Frame Evaluated		Degree of Assessment		
Pathway	Receptor	Present	Future	Quant.	Qual.	Rationale for Selection or Exclusion
Groundwater:						
Ingestion of Unfiltered Ground Water (From Bedrock & Overburden Aquifers)	Small Child Resident Adult Resident	No No	Yes Yes	X X		Residents currently obtain drinking water from public drinking water supply; Assumes residents obtain drinking water from local well in the future.
Inhalation of Ground Water Contaminants During Showers	Adult Resident	No	Yes	X		Assumes residents obtain water from local wells in the future; several volatiles present in ground water.
Inhalation of Ground Water Contaminants During Baths	Small Child Resident	No	No			Volatilization not as great as showering because less aeration and lower temperature
Dermal Contact with Ground Water Contaminants During Showers/Baths	Adult Resident Small Child Resident	No	No			Exposures assumed to be insignificant in relation to other ground water pathways.
Inhalation of Contaminants that Volatilize from Ground water and Seep in Basements	Local Resident	No	No			Ground water table is shallow; but low avg VOC conc. & westerly flow preclude significant exposure.
Dermal Contact with Onsite Production Well Water	Onsite Worker	No	No			Data inadequate for assessment.
Inhalation of Volatilized Contaminants from Production Well Water	Onsite Worker	No	No			Data inadequate for assessment.
Soil:						
Dermal Contact With Onsite Soils						
Surface Soils	Trespasser	No	Yes	X		Assumes complete pavement removal in the future;
Subsurface Soils	Excavation/Utility Worker	Yes	Yes	X		Excavation or routine maintenance of buried utilities may be necessary.
Ingestion of Onsite Soils						
Surface Soils	Trespasser	No	Yes	X		Assumes complete pavement removal in the future; Excavation or routine maintenance of buried utilities may be necessary.
Subsurface Soils	Excavation/Utility Worker	Yes	Yes	X		

TABLE 7 SUMMARY OF EXPOSURE PATHWAYS - continued

Pathway	Receptor	Time-Frame Evaluated		Degree of Assessment		Rationale for Selection or Exclusion
		Present	Future	Quant.	Qual.	
Soils cont.						
Inhalation of Fugitive Soil Emissions	Onsite Worker Trespasser	No	No			Releases expected to be insignificant.
Dermal Contact with Soils West of Drainage Ditch (Skate Estate Property)	Youth Residents	Yes	Yes	X		Soils adjacent to drainage ditch are currently accessible to Skate Estate users.
Ingestion of Soils West of Drainage Ditch (Skate Estate Property)	Youth Residents	Yes	Yes	X		Soils adjacent to drainage ditch are currently accessible to Skate Estate users.
Sediments:						
Dermal Contact with Sediments in Drainage Ditches	Trespassers Youth Residents	Yes	Yes	X		This area is accessible to the general public.
Incidental Ingestion of Sediments in Drainage Ditches	Trespassers Youth Residents	Yes	Yes	X		This area is accessible to the general public.
Surface Water:						
Dermal Contact With Surface Water in Drainage Ditches	Trespassers Local Residents	No	No			Water is intermittent and shallow; exposure assumed to be insignificant.
Ingestion of Surface Water in Drainage Ditches	Trespassers Local Residents	No	No			Ditches are too shallow to support swimming activities; thus, incidental ingestion is unlikely.
Manhole and Settling Tank Exposures	Utility/Maintenance Worker	No	No			Exposure likely to be insignificant.
Air:						
Inhalation of Contaminants in Air	Local Resident Trespasser Worker	No	No			Unable to assess because of limited and inconclusive sampling data; sampling results may not be representative of site sources.

TABLE 8

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE ROBINTECH INC./NATIONAL PIPE CO. SITE

CONTAMINANTS OF CONCERN	ORAL SLOPE FACTOR (mg/kg*day)-1	INHALATION SLOPE FACTOR (mg/kg*day)-1	DERMAL SLOPE FACTOR (o) (mg/kg*day)-1	ORAL RFD (mg/kg/day)	INHALATION RfD (mg/kg/day)	DERMAL RfD (o) (mg/kg/day)	1-DAY HEALTH ADVISORY (a) (mg/l)	LONG-TERM HEALTH ADVISORY (a) (mg/l)
VOLATILES								
Acetone	--	--	--	1.00E-01	--	8.00E-02	--	--
Benzene	2.90E-02	2.90E-02	3.63E-02	**	**	--	2.00E-01	--
Bromodichloromethane	1.30E-01	--	1.63E-01	2.00E-02	--	1.60E-02	7.00E+00	1.30E+00
Butanone (2-)	--	--	--	5.00E-02	9.00E-02 b	4.00E-02	8.00E+01	9.00E+00
Carbon tetrachloride	1.30E-01	1.30E-01	1.63E-01	7.00E-04	--	5.60E-04	4.00E+00	2.50E-01
Chlorobenzene	**	**	--	2.00E-02	5.00E-03 b	1.60E-02	--	--
Chloroethane	--	--	--	4.00E-01 r	3.00E+00 r	3.20E-01	--	--
Chloroform	6.10E-03	8.10E-02	7.63E-03	1.00E-02	**	8.00E-03	--	--
Chloromethane	1.30E-02 b	6.30E-03 b	1.62E-02	--	--	--	--	--
Dibromochloromethane	8.40E-02 b	--	6.72E-02	2.00E-02 b	--	2.50E-02	7.00E+00	7.00E-01
Dichloroethane (1,2-)	9.10E-02	9.10E-02	1.14E-01	--	--	--	7.40E-01	2.60E+00
Dichloroethane (1,1-)	--	--	--	1.00E-01 b	1.00E-01 b	8.00E-02	--	--
Dichloroethylene (1,2-) (q)	--	--	--	1.00E-02 b	--	8.00E-03	4.00E+00	--
Dichloroethylene (1,1-)	6.00E-01	1.20E+00	7.50E-01	9.00E-03	**	7.20E-03	2.00E+00	4.00E+00
Ethylbenzene	--	--	--	1.00E-01	3.00E-01	8.00E-02	3.00E+01	3.00E+00
Methylene Chloride	7.50E-03	1.60E-03 b	9.38E-03	6.00E-02	9.00E-01 b	4.80E-02	1.00E+01	--
Styrene	3.00E-02 b	2.00E-03 b	2.40E-02	2.00E-01 b	**	2.50E-01	2.00E+01	7.00E+00
Tetrachloroethylene	5.10E-02 b	1.80E-03 b	6.37E-02	1.00E-02	--	8.00E-03	2.00E+00	5.00E+00
Toluene	--	--	--	2.00E-01 b	6.00E-01 b	1.60E-01	2.00E+01	1.00E+01
Trichloroethane (1,1,1-)	--	--	--	9.00E-02	3.00E-01 b	7.20E-02	1.00E+02	1.00E+02
Trichloroethylene	1.10E-02 b	1.70E-02 b	1.38E-02	7.00E-03 r	**	5.60E-03	--	--
Vinyl Chloride	1.90E+00 b	2.90E-01 b	2.37E+00	--	--	--	3.00E+00	5.00E-02
Xylenes	--	--	--	2.00E+00 n	2.00E-01 b,n	1.60E+00	4.00E+01	1.00E+02
BASE NEUTRAL/ ACID EXTRACTABLE (SEMIVOLATILES)								
Acenaphthene	--	--	--	6.00E-02	--	6.00E-03	--	--
Acenaphthylene	--	--	--	**	--	--	--	
Anthracene	--	--	--	3.00E-01	--	3.00E-02	--	--

TABLE 8

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE ROBINTECH INC./NATIONAL PIPE CO. SITE (continued)

CONTAMINANTS OF CONCERN	ORAL SLOPE FACTOR (mg/kg*day)-1	INHALATION SLOPE FACTOR (mg/kg*day)-1	DERMAL SLOPE FACTOR (o) (mg/kg*day)-1	ORAL RFD (mg/kg/day)	INHALATION RfD (mg/kg/day)	DERMAL RfD (o) (mg/kg/day)	1-DAY HEALTH ADVISORY (a) (mg/l)	LONG-TERM HEALTH ADVISORY (a) (mg/l)
Benzo(a)anthracene	1.15E+01 c	--	--	--	--	--	--	--
Benzo(a)pyrene	1.15E+01 c,d	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.15E+01 c	--	--	--	--	--	--	--
Benzo(k)fluoranthene	1.15E+01 c	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	1.40E-02 b	--	1.40E-01	2.00E-02	--	2.00E-03	--	--
Chrysene	1.15E+01 c	--	--	--	--	--	--	--
Di-n-butyl phthalate	--	--	--	1.00E-01	--	1.00E-02	--	--
Fluoranthene	--	--	--	4.00E-02	--	4.00E-03	--	--
Fluorene	--	--	--	4.00E-02	--	4.00E-03	--	--
Methylnaphthalene (2-)	--	--	--	4.00E-03 e	--	4.00E-04	--	--
Naphthalene	--	--	--	4.00E-03 b,e	--	4.00E-04	5.00E-01	2.00E+00
Phenanthrene	--	--	--	4.00E-03 e	--	4.00E-04	--	--
Pyrene	--	--	--	3.00E-02	--	3.00E-03	--	--
INORGANICS								
Aluminum	--	--	--	--	--	--	--	--
Antimony	--	--	--	4.00E-04	--	4.00E-05	1.50E-02	1.50E-02
Arsenic	1.75E+00 p	--	1.94E+00	1.00E-03 b	--	9.00E-04	--	--
Barium	--	--	--	7.00E-02	--	7.00E-03	5.00E+00	5.00E+00
Beryllium	4.30E+00	--	4.30E+01	5.00E-03	--	5.00E-04	3.00E+01	2.00E+01
Cadmium	--	--	--	1.00E-03 f	--	1.00E-04	4.00E-02	2.00E-02
Calcium	--	--	--	--	--	--	--	--
Chromium	-- g	--	--	5.00E-03 g	--	5.00E-04	1.40E+00 j	8.00E-01 j
Cobalt	--	--	--	--	--	--	--	--
Copper	--	--	--	-- h	--	--	--	--
Cyanide	--	--	--	2.00E-02	--	2.00E-03	2.00E-01	8.00E-01
Iron	--	--	--	--	--	--	--	--
Lead	--	--	--	-- i	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--
Manganese	--	--	--	1.00E-01	--	1.00E-02	--	--

TABLE 8

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE ROBINTECH INC./NATIONAL PIPE CO. SITE (continued)

CONTAMINANTS OF CONCERN	ORAL SLOPE FACTOR (mg/kg*day)-1	INHALATION SLOPE FACTOR (mg/kg*day)-1	DERMAL SLOPE FACTOR (o) (mg/kg*day)-1	ORAL RfD (mg/kg/day)	INHALATION RfD (mg/kg/day)	DERMAL RfD (o) (mg/kg/day)	1-DAY HEALTH ADVISORY (a) (mg/l)	LONG-TERM HEALTH ADVISORY (a) (mg/l)
Mercury	--	--	--	3.00E-04 b	--	3.00E-05	--	2.00E-03
Nickel	--	--	--	2.00E-02 l	--	2.00E-03	1.00E+00	6.00E-01
Potassium	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--
Silver	--	--	--	3.00E-03	--	3.00E-04	2.00E-01	2.00E-01
Vanadium	--	--	--	7.00E-03 b	--	--	--	--
Zinc	--	--	--	2.00E-01 b	--	2.00E-02	--	--

Note: Unless otherwise indicated, all data are from IRIS.

-- Not available or not provided because chemical is not a COC for the pathway.

** data pending according to IRIS.

(a) U.S. EPA, Drinking Water Regulations and Health Advisories, Office of Drinking Water, April, 1990.
One-Day HAs are for a 10kg child; Long-Term HAs are for a 70kg adult.

(b) U.S. EPA, Health Effects Assessment Summary Tables (HEAST), Fourth Quarter, FY 1990, September.

(c) Per EPA guidance, the benzo(a)pyrene slope factor is used as a surrogate for other PAHs where sufficient evidence of carcinogenicity exists, as designated in IRIS or HEAST.

(d) U.S.EPA, Health Effects Assessment for polynuclear aromatic hydrocarbons as per 10/26/90 ECAO memo on OERR Policy for PAHs to Marina Stephanidis,
EPA Region II, from Pei-Fung Hurst, Chemical Mixtures Assessment Branch.

(e) The RfD for napthalene is used as a surrogate for PAHs showing evidence of noncarcinogenic effects.

(f) Cadmium - Oral RfD is for food consumption; RfD of 5.0E-04 is used for water consumption.

(g) Slope factor and RfD values are for Chromium VI.

(h) Copper - no RfD calculated; the drinking water standard is 1.3 mg/l.

(i) Given the current knowledge of lead pharmocokinetics, CAG recommends that a numerical estimate not be used for carcinogenic risk.
The RfD Work Group considered the development of an RfD for lead inappropriate because there is essentially no threshold.
OSWER Directive #9355.4-02 ("Interim Guidance on Establishing Soil Clean-up Levels at Superfund Sites") states that the soil clean-up level should be at 500-1000ppm.

(j) Health advisories (one-day and long-term) are for Total Chromium

(k) Inhalation slope factor for nickel refinery dust.

(l) RfD values for nickel, soluble salts.

(m) Inhalation slope factors may be derived from Unit Risks according to the following equation:
inhalation slope factor (mg/kg/day)-1 = unit risk (ug/cu.meter)-1 x 70kg x 1/20cu.m/day x 1/10-3mg/ug.
(U.S. EPA, Risk Assessment Guidance for Superfund Vol.I Human Health Evaluation Manual (Part A), p.7-13, EPA/540/1-89/002, Dec.1989)

(n) RfD values for xylenes are for o-xylene

(o) Dermal toxicity values were derived from oral toxicity values by applying an absorption factor:
volatiles 0.80
semivol. 0.10
arsenic 0.90
other inorg. 0.10
(per agreement with EPA Region II)
Dermal slope factors were calculated using the equation: slope factor/absorption factor

TABLE 8

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE ROBINTECH INC./NATIONAL PIPE CO. SITE (continued)

Dermal RfDs were calculated using the equation: RfD x absorption factor
(EPA,1989. Risk Assessment Guidance for Superfund Vol.I Human Health Evaluation Manual (Part A).EPA/540/1-89/002. Interim Final.Dec.1989.)

(p) Oral slope factor for arsenic was calculated from Unit Risk provided in IRIS by the following equation:
oral slope factor (mg/kg/day)-1 = unit risk (ug/liter)-1 x 70kg x 1/2liters/day x 1/10-3mg/ug

(q) Total 1,2-dichloroethylene was analyzed. This compound exists as two isomers, however. The toxicity values for the cis isomer were used because it is the isomer more likely to be found in environmental media.

(r) Interim values provided by ECAO (memorandum on Toxicity Information from Pei-Fung Hurst, Coordinator, Superfund Technical Support Center, Chemical Mixtures Assessment Branch to Marina Stephanidis, EPA, Region II. April 23,1991.)

TABLE 9 SUMMARY OF CARCINOGENIC RISK ESTIMATES FOR THE ROBINTECH SITE

Scenario	Receptor	Current/ Future	Incremental Risk
Ground Water (overburden)			
Ingestion	Resident	F	3.8×10^{-3}**
Volatiles Inhalation While Showering	Resident	F	1.0×10^{-3}**
Ground Water (bedrock)			
Ingestion	Resident	F	4.1×10^{-3}**
Volatiles Inhalation While Showering	Resident	F	1.4×10^{-3}**
Surface Soils			
Ingestion - On Site	Trespasser	F	1.2×10^{-5}
Dermal Contact - On Site	Trespasser	F	1.7×10^{-6}
Ingestion - Skate Estate	Youth	C/F	1.4×10^{-7}
Dermal Contact - Skate Estate	Youth	C/F	2.5×10^{-6}
Subsurface Soils			
Ingestion - On Site	Worker	C/F	4.3×10^{-7}
Dermal Contact - On Site	Worker	C/F	1.1×10^{-7}
Sediment			
Ingestion - On Site	Trespasser	C/F	3.4×10^{-7}
Dermal Contact - On Site	Trespasser	C/F	2.8×10^{-6}
Ingestion - Off Site, Downgradient	Youth	C/F	2.8×10^{-7}
Dermal Contact - Off Site, Downgradient	Youth	C/F	1.7×10^{-6}

** Exceeds 10^{-4} risk.

TABLE 10 SUMMARY OF NONCARCINOGENIC HAZARD INDICES (HI) FOR THE ROBINTECH SITE

Scenario	Receptor	Current/ Future	Acute HI	Chronic HI
Ground Water (overburden)				
Ingestion	Resident	F	3.5×10^{-1}(a) 8.0×10^{-1}(c)	1.3×10^{1}(a)* 3.0×10^{1}(c)*
Volatiles Inhalation While Showering	Resident	F	N/A	1.0×10^{-1}(a)
Ground Water (bedrock)				
Ingestion	Resident	F	2.7×10^{-1}(a) 6.3×10^{-1}(c)	1.4×10^{1}(a)* 3.3×10^{1}(c)*
Volatiles Inhalation While Showering	Resident	F	N/A	5.4×10^{-1}(a)
Surface Soils				
Ingestion - On Site	Trespasser	F	1.0×10^{-1}	7.8×10^{-2}
Dermal Contact - On Site	Trespasser	F	6.1×10^{-2}	5.5×10^{-1}
Ingestion - Skate Estate	Youth	C/F	1.1×10^{-3}	2.0×10^{-3}
Dermal Contact - Skate Estate	Youth	C/F	1.4×10^{-3}	4.4×10^{-2}
Subsurface Soils				
Ingestion - On Site	Worker	C/F	1.2×10^{-3}	5.4×10^{-4}
Dermal Contact - On Site	Worker	C/F	5.5×10^{-4}	1.5×10^{-3}
Sediment				
Ingestion - On Site	Trespasser	C/F	6.4×10^{-4}	3.1×10^{-3}
Dermal Contact - On Site	Trespasser	C/F	3.8×10^{-4}	3.7×10^{-2}
Ingestion - Off Site, Downstream	Youth	C/F	3.4×10^{-4}	1.3×10^{-3}
Dermal Contact - Off Site, Downstream	Youth	C/F	2.0×10^{-4}	9.3×10^{-3}

(a) - adult
(c) - child
* HI exceeds one (1).

Table 11

Robintech, Inc. / National Pipe Co. Site
Vestal, NY

EPA and New York State Maximum Contaminant Limits

Compound	EPA (ppb)	New York State (ppb)
1,1,1 - Trichloroethane	200	5
Trichloroethene	5	5
Toluene	1,000	5
Vinyl Chloride	2	5
1,1 - Dichloroethene	7	5
1,1 - Dichloroethane	-	5
1,2 - Dichloroethene (total)	70	5
Tetrachloroethene	5	5
Benzene	5	5
Chloroethane	-	5
Carbon Tetrachloride	5	5
Ethylbenzene	700	5
Styrene	100	5
Xylene (total)	10,000	5

Note
Table reproduced from EPA-approved Remedial Design Workplan.

TABLE 12

Recommended soil cleanup objectives (mg/kg or ppm)

Volatile Organic Contaminants

taminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ~~ppm.~~ Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm)		CRQL (ppb)	*** Rec.soil Clnup Objct (ppm)
					Carcinogens	Systemic Toxicants		
etone	2.2	50	0.0011	0.11	N/A	8,000	10	0.2
nzene	83	0.7	0.0006	0.06	24	N/A	5	0.06
nzoic Acid	54*	50	0.027	2.7	N/A	300,000	5	2.7
Butanone	4.5*	50	0.003	0.3	N/A	4,000	10	0.3
arbon Disulfide	54*	50	0.027	2.7	N/A	8,000	5	2.7
arbon Tetrachloride	110*	5	0.006	0.6	5.4	60	5	0.6
lorobenzene	330	5	0.017	1.7	N/A	2,000	5	1.7
loroethane	37*	50	0.019	1.9	N/A	N/A	10	1.9
loroform	31	7	0.003	0.30	114	800	5	0.3
ibromochloromethane	N/A	50	N/A	N/A	N/A	N/A	5	N/A
1,2-Dichlorobenzene	1,700	4.7	0.079	7.9	N/A	N/A	330	7.9
1,3-Dichlorobenzene	310 *	5	0.0155	1.55	N/A	N/A	330	1.6
1,4-Dichlorobenzene	1,700	5	0.085	8.5	N/A	N/A	330	8.5
1,1-Dichloroethane	30	5	0.002	0.2	N/A	N/A	5	0.2
1,2-Dichloroethane	14	5	0.001	0.1	7.7	N/A	5	0.1
1,1-Dichloroethene	65	5	0.004	0.4	12	700	5	0.4
1,2-Dichloroethene(trans)	59	5	0.003	0.3	N/A	2,000	5	0.3
1,3-dichloropropane	51	5	0.003	0.3	N/A	N/A	5	0.3
Ethylbenzene	1,100	5	0.055	5.5	N/A	8,000	5	5.5
113 Freon(1,1,2 Trichloro-1,2,2 Trifluoroethane)	1,230*	5	0.060	6.0	N/A	200,000	5	6.0
Methylene chloride	21	5	0.001	0.1	93	5,000	5	0.1
4-Methyl-2-Pentanone	19*	50	0.01	1.0	N/A	N/A	10	1.0
Tetrachloroethene	277	5	0.014	1.4	14	800	5	1.4
1,1,1-Trichloroethane	152	5	0.0076	0.76	N/A	7,000	5	0.8
1,1,2,2-Tetrachloroethane	118	5	0.006	0.6	35	N/A	5	0.6
1,2,3-trichloropropane	68	5	0.0034	0.34	N/A	80	5	0.4
1,2,4-Trichlorobenzene	670 *	5	0.034	3.4	N/A	N/A	330	3.4
Toluene	300	5	0.015	1.5	N/A	20,000	5	1.5
Trichloroethene	126	5	0.007	0.70	64	N/A	5	0.7
Vinyl chloride	57	2	0.0012	0.12	N/A	N/A	10	0.2
Xylenes	240	5	0.012	1.2	N/A	200,000	—	1.2

a. Allowable Soil Concentration Cs = f x Cw x Koc

b. Soil cleanup objective = Cs x Correction Factor (CF)

N/A is not available

* Partition coefficient is calculated by using the following equation: log Koc = -0.55 log S + 3.64, where S is solubility in water in ppm. All other Koc values are experimental values.

** Correction Factor (CF) of 100 is used as per TAGM #4046

*** As per TAGM #4046, Total VOCs < 10 ppm.

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1%, and should be adjusted for the actual soil organic carbon content if it is known.

APPENDIX III

ADMINISTRATIVE RECORD INDEX

Document Number: ROB-001-0001 To 0007 Date: 09/20/85

Title: (Letter describing a site reconnaissance and initial sampling effort at the Robintech site in Vestal, New York)

Type: CORRESPONDENCE
Author: Ranney, Colleen A.: Camp Dresser & McKee (CDM)
Recipient: Leong, Sui: US EPA

Document Number: ROB-001-0008 To 0083 Date: 09/01/84

Title: Preliminary Investigation of the Robintech Site, Town of Vestal, Broome County, New York, Phase I, Summary Report

Type: REPORT
Author: none: Ecological Analysts
Recipient: none: NY Dept of Environmental Conservation

Document Number: ROB-001-0084 To 0111 Date: 08/01/89

Title: Work/Quality Assurance Project Plan - Remedial Investigation - Robintech, Inc./National Pipe Company, Vestal, New York - Revised

Type: PLAN
Author: Barker, Frances B.: Fred C. Hart Associates
Recipient: none: US EPA

Document Number: ROB-001-0112 To 0293 Date: 03/18/88

Title: Revised Project Operations Plan for the Remedial Investigation of the Robintech, Inc./National Pipe Co., Site

Type: PLAN
Author: none: Fred C. Hart Associates
Recipient: none: none

Document Number: ROB-001-0294 To 0294 Date: 02/10/87

Title: (Letter forwarding the attached Work Plan for the Robintech, Inc./National Pipe Co. site, Vestal, New York)

Type: CORRESPONDENCE
Author: Ranney, Colleen A.: Camp Dresser & McKee (CDM)
Recipient: Alvi, M. Shaheer: US EPA
Attached: ROB-001-0295

Document Number: ROB-001-0295 To 0507 Parent: ROB-001-0294 Date: 10/10/87

Title: Work Plan for the Remedial Investigation/Feasibility Study of the Robintech, Inc./National Pipe Co., Site, Vestal, New York

Type: PLAN
Author: none: Camp Dresser & McKee (CDM)
Recipient: none: US EPA

Document Number: ROB-001-0508 To 0763 Date: 09/23/91

Title: Draft Remedial Investigation Report - Robintech, Inc./National Pipe Co. Site, 3421 Old Vestal Road, Vestal, New York

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: Buffton Corporation
Attached: ROB-001-0764 ROB-001-0982 ROB-001-1514 ROB-001-1841

Document Number: ROB-001-0764 To 0981 Parent: ROB-001-0508 Date: 04/19/91

Title: Draft Remedial Investigation Report, Volume I: Appendix A-D, F-I, and K, Robintech, Inc./National Pipe Co. Site

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: Buffton Corporation

Document Number: ROB-001-0982 To 1513 Parent: ROB-001-0508 Date: 09/23/91

Title: Draft Remedial Investigation Report, Volume II: Appendix E, Robintech, Inc./National Pipe Co. Site

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: Buffton Corporation

Document Number: ROB-001-1514 To 1840 Parent: ROB-001-0508 Date: 04/19/91

Title: Draft Remedial Investigation Report, Volume III: Appendix J, Robintech, Inc./National Pipe Co. Site

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: Buffton Corporation

Document Number: ROB-001-1841 To 2179 Parent: ROB-001-0508 Date: 04/19/91

Title: Draft Remedial Investigation Report, Volume IV: Appendix L-R, Robintech, Inc./National Pipe Co. Site

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: Buffton Corporation

Document Number: ROB-002-0001 To 0290 Date: 12/03/91

Title: Draft Feasibility Study Report - Robintech, Inc./National Pipe Company Site, Vestal, New York

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: none

Document Number: ROB-002-0291 To 0291 Date: 01/25/91

Title: (Letter forwarding the attached Feasibility Study Work Plan for the Robintech site, Vestal, New York)

Type: CORRESPONDENCE
Author: Barbara, Michael: McLaren Hart Environmental Engineering
Recipient: Granger, Mark: US EPA
Attached: ROB-002-0292

Document Number: ROB-002-0292 To 0305 Parent: ROB-002-0291 Date: 01/01/91

Title: Feasibility Study Work Plan, Robintech, Inc./National Pipe Co. Site, 3421 Old Vestal Road, Vestal, New York

Type: PLAN
Author: none: McLaren Hart Environmental Engineering
Recipient: none: US EPA

Document Number: ROB-002-0306 To 0318 Date: 02/01/92

Title: Superfund Proposed Plan - Robintech, Inc./National Pipe Co. Site, Vestal, New York

Type: PLAN
Author: none: US EPA
Recipient: none: none

Document Number: ROB-002-0319 To 0340 Date: 10/08/87

Title: Administrative Order on Consent

Type: LEGAL DOCUMENT
Author: Daggett, Christopher J.: US EPA
Recipient: none: various PRPs

Document Number: ROB-002-0341 To 0341 Date: 07/18/89

Title: (Memorandum forwarding the enclosed Preliminary Health Assessment for the Robintech site, Vestal, New York)

Type: CORRESPONDENCE
Author: Nelson, William Q.: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Kaplan, Dick: US EPA
Attached: ROB-002-0342

Document Number: ROB-002-0342 To 0351 Parent: ROB-002-0341 Date: 06/30/89

Title: Preliminary Health Assessment for Robintech Site, CERCLIS No. NYD002232957, Broome County, Vestal, NY

Type: PLAN
Author: none: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: none: none

Document Number: ROB-002-0352 To 0746 Date: 02/10/92

Title: Risk Assessment - Robintech, Inc./National Pipe Co. Site, Vestal, New York - Revision No. 1

Type: PLAN
Author: Fratt, David: Alliance Technologies Corporation
Recipient: Granger, Mark: US EPA

Document Number: ROB-002-0747 To 0747 Date: 02/21/92

Title: (Public Notice:) The United States Environmental Protection Agency Invites Public Comment on the Proposed Remedial Alternative for the Robintech Superfund Site, Vestal, Broome County, New York

Type: CORRESPONDENCE
Author: none: US EPA
Recipient: none: Press & Sun Bulletin

Document Number: ROB-002-0748 To 0748 Date: 02/20/92

Title: (Letter stating that the New York State Department of Environmental Conservation and the New York State Department of Health concur with the groundwater remedy for the February 18, 1992, revision of the Superfund Proposed Plan)

Type: CORRESPONDENCE
Author: O'Toole, Michael J.: NY Dept of Environmental Conservation
Recipient: Callahan, Kathleen C.: US EPA

Document Number: ROB-002-0749 To 0811 Date: 03/18/92

Title: (Transcript of a Public Hearing) In the Matter of Robintech, Inc. Superfund Site

Type: LEGAL DOCUMENT
Author: Noller, Dawn Y.: Czerenda Court Reporting, Inc.
Recipient: none: none

Document Number: ROB-002-0812 To 0899 Date: 03/31/92

Title: Declaration for Record of Decision (for the Robintech Inc./National Pipe Co. site, Vestal, New York)

Type: LEGAL DOCUMENT
Author: Sidamon-Eristoff, C.: US EPA
Recipient: none: none

Document Number: ROB-002-0900 To 0914 Date: 04/01/97

Title: Superfund Proposed Plan, Robintech, Inc./National Pipe Co. Site, Town of Vestal, New York

Type: PLAN
Author: none: US EPA
Recipient: none: none

Document Number: ROB-002-0915 To 1570 Date: / /

Title: Revised Remedial Design Work Plan, Robintech Inc./National Pipe Co. Superfund Site, Vestal, New York

Type: PLAN
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: US EPA

Document Number: ROB-002-1571 To 1666 Date: / /

Title: Remedial Design Work Plan Addendum, Robintech Inc./National Pipe Co. Superfund Site, Vestal, New York

Type: PLAN
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: US EPA

Document Number: ROB-002-1667 To 1878 Date: 08/01/96

Title: Volume I of II, Draft Remedial Design Investigation Report & Evaluation of Remedial Alternatives

Type: REPORT
Condition: DRAFT
Author: none: McLaren/Hart Environmental Engineering Corporation
Recipient: none: US EPA

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York 12233-7010

John P. Cahill
Commissioner

JUN 26 1997

Mr. Richard Caspe
Director
Emergency & Remedial Response Division
U.S. Environmental Protection Agency
Region II
290 Broadway - 19th Floor
New York, New York 10007

Dear Mr. Caspe:

Re: **Robintech Site, Broome County, N.Y., Site No. 7-04-002**

The New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) have reviewed the Record of Decision dated June 1997 for the above-referenced site. The preferred remedy consists of the excavation of and treatment of saturated and unsaturated soils in the PW-2 and Paved Pipe Staging Areas. The contaminated soil will be treated by low temperature thermal desorption and backfilled. Groundwater entering the excavations will be pumped into holding tanks and treated, if necessary. The existing production well network will continue to extract contaminated groundwater from the bedrock aquifer. The remedy will include a long term groundwater monitoring program and a contingency plan related to the extraction of contaminated bedrock groundwater.

The NYSDEC and NYSDOH concur with the preferred remedy listed in the Proposed Plan. In you have any questions, please contact Robert W. Schick, of my staff, at (518) 457-4343.

Sincerely,

Michael J. O'Toole, Jr.
Director
Division of Environmental Remediation

cc: J. Singerman, USEPA
M. Granger, USEPA
A. Carlson, NYSDOH

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR THE
ROBINTECH, INC./NATIONAL PIPE CO. SUPERFUND SITE
TOWN OF VESTAL, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of citizens' comments and concerns received during the public comment period related to the Remedial Design Investigation Report (RDIR) and Proposed Plan for the Robintech, Inc./National Pipe Co. Site (the "Site") and the U.S. Environmental Protection Agency's (EPA's) and the New York State Department of Environmental Conservation's (NYSDEC's) responses to those comments and concerns. All comments summarized in this document have been considered in EPA's and NYSDEC's final decision in the selection of a remedial alternative to address the contamination at the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The August 1996 RDIR, which describes the nature and extent of the contamination at and emanating from the Site and evaluates remedial alternatives to address this contamination, and the April 1997 Proposed Plan, which identified EPA's and NYSDEC's preferred remedy and the basis for that preference, were made available to the public in both the Administrative Record and information repositories maintained at the EPA Docket Room in the Region II New York City office and at the Town of Vestal Public Library located at 320 Vestal Parkway East, Vestal, New York. Notices of availability of these documents were published in the *Binghamton Press & Sun Bulletin* on April 25, 1997. A public comment period was held from April 25 through May 25, 1997 to provide interested parties with the opportunity to comment on the RDIR and Proposed Plan. A public meeting was held on May 14, 1997 at the Vestal Public Library in Vestal, New York to inform local officials and interested citizens about the Superfund process, to review planned remedial activities at the Site, to discuss and receive comments on the Proposed Plan, and to respond to questions from area residents and other interested parties. Approximately 20 people, consisting of local businessmen, residents, representatives of the media, and state and local government officials, attended the public meeting.

OVERVIEW

The public, generally, supports the preferred remedy, which includes, among other things, the excavation and treatment of the contaminated unsaturated and saturated soils in two areas of the Site and the extraction of contaminated groundwater from the bedrock aquifer through the existing production well network.

The public's concerns, which relate to Site contaminants, treatment alternatives, the Site investigation, alternative selection, drinking water contamination, and shallow groundwater contamination, are summarized below.

SUMMARY OF COMMENTS AND RESPONSES FROM THE PUBLIC MEETING CONCERNING THE ROBINTECH, INC./NATIONAL PIPE CO. SUPERFUND SITE

The following summarizes the verbal comments that were received at the May 14, 1997 public meeting.

Site Contaminants

Comment #1: A representative from the Vestal Conservation Advisory Commission expressed concern related to the lead concentrations in the soil at the Site. The commenter also asked what concentration of lead is permitted in soil.

Response #1: EPA has established a residential soil screening level of 400 ppm lead in soil. As lead concentrations in soils exceed 400 ppm, there is increasing concern with elevated blood levels in children (based on a six-year childhood exposure duration). Soil lead concentrations less than 400 ppm have a negligible effect on blood lead levels. Elevated lead concentrations reported for samples collected during the remedial investigation (RI) were determined to be due to laboratory error. This determination was based upon available split sampling data and on EPA's resampling of all locations where elevated concentrations had been found. The results of samples collected during the resampling effort showed that lead concentrations were below the criterion (most concentrations were below 100 ppm). In March 1993, EPA issued a Record of Decision indicating that no action was required to address on-site soils for lead.

Comment #2: A question was raised concerning the proposed remedy's ability to remove bis-2-ethylhexyl phthalate (BEHP) from the soil and water, since BEHP has a low volatility. Concern was also expressed by the commenter that BEHP was not identified as a constituent that presented a risk at the Site. Another commenter asked whether the most recent samples collected at the Site were analyzed for BEHP.

Response #2: While BEHP was evaluated as a contaminant of concern in the risk assessment conducted for the Site, it was determined to pose negligible risk based on factors such as concentration and frequency of detection. Also, BEHP is unlikely to travel in the groundwater and has not been detected in the groundwater downgradient of the Site.

Samples collected as part of the RD investigation were not analyzed for BEHP, since extensive sampling for BEHP was conducted during the RI and the risk assessment concluded that BEHP did not pose a risk at the Site.

Treatment Alternatives

Comment #3: A representative from the Broome County Environmental Management Counsel asked whether the groundwater that will be pumped in order to excavate soil below the groundwater table would be treated.

Response #3: Under Alternative 3, groundwater entering the excavation would be pumped into mobile holding tanks for testing and treatment, if necessary, prior to disposal.

Comment #4: A question was asked concerning the treatment of metals in the soil treated using low temperature thermal desorption (LTTD).

Response #4: LTTD is an effective means of treating organic contaminants in soils, not inorganic contaminants (i.e., metals). To ensure that only soils that are within the protective limits are backfilled, treated soils will be subjected to the Toxicity Characteristic Leaching Procedure testing. Soils that pass the test will be used as backfill. Soils that fail the test would either require additional on-site treatment prior to backfilling or would be treated or disposed of at an approved off-site facility, as appropriate.

Site Investigation

Comment #5 : A commenter asked about the methods of sample collection and analysis.

Response #5: Sampling was performed using temporary well points installed with a geoprobe unit. A mobile laboratory, equipped with a gas chromatograph-mass spectrometer, was used for the analysis of the samples. All samples were analyzed in accordance with EPA protocols.

Comment #6 : A commenter asked whether samples from the overburden included the fill in the vicinity of the building or only native materials.

Response #6: Fill and native overburden materials were sampled for volatile organic compounds (VOCs).

Comment #7 : A commenter asked whether the production wells were acting as conduits for contamination to migrate downward from the overburden aquifer to the bedrock aquifer. The commenter also asked whether any plumes were observed in the vicinity of the production wells.

Response #7: Based on the results of the RI, it appears that the only production well which was acting as a conduit was Production Well No. 2 (PW-2). (Apparently, the conduit was created when the unsealed casing of the production well was installed through the overburden formation into the upper level of bedrock.) Since significant levels of soil and groundwater contamination are present in the vicinity of PW-2, to prevent further migration of contamination, EPA authorized Buffton to replace this well with a new, properly sealed production well, followed by the sealing and abandonment of PW-2. This work was completed in December 1996, effectively eliminating this groundwater migration pathway. Low levels of groundwater contamination have been observed in the production wells at the facility. However, since no Site-related contamination was detected in downgradient monitoring wells, it appears that the constant pumping of the production wells is controlling the migration of groundwater contamination.

SUMMARY OF WRITTEN COMMENTS AND RESPONSES CONCERNING THE ROBINTECH, INC./NATIONAL PIPE CO. SUPERFUND SITE

The following summarizes the written comments received by EPA during the public comment period.

Comments from the Buffton Corporation, Correspondence of 5/23/97

Alternative Selection

Comment #8: EPA should specify in the ROD that the preferred alternative, Alternative 3, and the expenditure of an additional $1 million required to perform Alternative 3, as compared to Alternative 2, will result in a more expeditious deletion of the Site from the National Priorities List (NPL) and a more expeditious return of the Site to a marketable condition than would Alternative 2.

Response #8: EPA determined that Alternative 3 was preferable to Alternative 2 when weighed against all of the evaluation criteria. Although the timing issue was not specifically considered by EPA, removing a greater volume of heavily contaminated soil should lead to a more expeditious remediation of the Site. This should result in the ability to delete the site from the NPL sooner than would be expected under Alternative 2.

Comment #9: The ROD should address the change in understanding of the Site since the signing of the 1992 ROD (in particular, the pumping and treatment of the groundwater and the need for a remedy for the Northeastern Site Boundary Area).

Response #9: The findings of the RI/FS ultimately led to the selection of pumping and treatment of the contaminated aquifers in the Northeastern Site Boundary Area, Paved Pipe Staging Area, and PW-2 Area in the 1992 ROD. The results of the RD investigation, however, identified the presence of a relatively low permeability overburden formation with extremely low groundwater yield. Therefore, the extraction of contaminated groundwater from the overburden formation was determined not to be feasible.

The results of the RI identified low-level concentrations of trichloroethene (TCE) in overburden groundwater samples near the Northeastern Site Boundary Area. Upgradient groundwater samples collected during the RD investigation, however, exhibited higher concentrations of TCE than were detected at this portion of the Site, indicating the probability of an off-site source of TCE contamination. NYSDEC is currently overseeing an investigation related to this potential off-site source of contamination. As a result, this area is not currently being considered for remediation by EPA. Remediation of this area may be considered in the future based upon the results of the ongoing investigation of the potential off-site source, or upon the results of any long-term monitoring conducted at the Site.

Comment #10: EPA should expedite its selection of the remedy and the issuance of a ROD so that Buffton will be able to commence Site work this summer.

Response #10: The implementation of the selected remedy is contingent upon not only the issuance of the ROD but the amendment of the existing Unilateral Administrative Order or the execution of a Consent Decree for the RD/remedial action (RA) and the timely submission of the necessary work plans, design documents, and reports for conducting the RD and RA.

Comment #11: There is an absence of a complete soil exposure pathway under either current or reasonably anticipated future land-use scenarios and, according to the Proposed Plan, "no current or future overburden groundwater exposure is possible because the overburden aquifer is not usable." Further, CERCLA moderates its emphasis on permanent solutions and treatment through the addition of the qualifier "to the maximum extent practicable" and contains a requirement for remedies to be cost-effective. Therefore, the findings of the Proposed Plan, when considered in the context of the requirements of CERCLA, raise questions as to whether CERCLA requires the selection of Alternative 3 over Alternative 2.

Response #11: Although there is no subsurface soil exposure pathway under current- and future-use scenarios, the severely contaminated overburden soils constitute a demonstrably unacceptable threat to the groundwater, as they are a source of contamination to the usable bedrock aquifer. While risk reduction in the form of continued bedrock groundwater extraction and the elimination of the PW-2 conduit may improve this situation, it does not take into consideration the unknown nature of the transport of severely contaminated overburden groundwater to the usable bedrock aquifer below.

The Proposed Plan statement that "no current or future overburden groundwater exposure is possible because the overburden aquifer is not usable" is made as an explanation as to why it is not necessary in this circumstance to apply federal Maximum Contaminant Levels (MCLs) to the restoration of that aquifer. Section §300.430(a)(1)(iii)(F) of the NCP clearly states that "when restoration of groundwater to beneficial uses is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction." Addressing the uncontrolled spread of contamination in the overburden groundwater was a part of the rationale behind selecting Alternative 3.

Regarding EPA's preference for permanent solutions and treatment to the maximum extent practicable, Alternative 3 is well within the requirements of CERCLA and the NCP, including the preference for treatment as a principal element and utilizing permanent solutions. Regarding cost-effectiveness, cost was considered in evaluating all of the alternatives against the nine criteria, as required by the NCP. The selected remedy, Alternative 3, is cost-effective, even though its costs are greater than Alternative 2.

Drinking Water Contamination

Comment #12: The primary risk identified in the baseline risk assessment was the *potential* risk associated with the future use of the bedrock groundwater as a source of drinking water. This risk was evaluated using the conservative assumptions and posits a hypothetical worst-case scenario. There are, however, two significant Site-related factors that should be considered—the pumping of the production wells at the Site has curtailed the migration of bedrock groundwater contamination and there is no indication that contaminated bedrock groundwater is causing drinking water contamination. Thus, there is no documented risk to human health from the Site bedrock groundwater.

Response #12: In accordance with the NCP, the basis for taking action at a site is a result of current and future risk. While there is not a current risk to human health from the bedrock groundwater, the risk assessment concluded that there was an unacceptable potential for future risk.

The fact that it appears likely that the pumping of the production wells at the Site have curtailed the migration of bedrock groundwater contamination has been weighed carefully in EPA's remedy selection. That is, the remedy requires the continued extraction of bedrock groundwater, regardless of the status of the pipe-production facility, until such time as cleanup goals have been attained. The rationale for this element of the remedy is based primarily on the continued protection of human health and the environment and on the restoration and protection of groundwater resources. See Section 300.430(a)(1)(iii)(F) of the NCP, which states that EPA expects to return usable groundwaters to their beneficial uses wherever practicable. As previously stated, the bedrock aquifer at the Site is a usable aquifer.

Shallow Groundwater Contamination

Comment #13: EPA has identified contamination in a small area of groundwater "much closer to the ground surface" of the PW-2 Area. Although acknowledging that the source of this groundwater is unknown, EPA has suggested that the groundwater may be related to plant operations and that any plant-related sources of water to the overburden aquifer need to be eliminated in order to mitigate contaminant mobility in this area. Even if the source of this groundwater once was, in some way, related to plant operations, it is highly unlikely that the condition or situation resulting in the contaminated groundwater still exists. The RD investigation did not reveal that the shallow groundwater in the PW-2 Area was naturally connected to the bedrock aquifer. Rather, the casing in PW-2 was determined to be a conduit of water to the bedrock aquifer from the shallow fractures. Buffton's recent abandonment and installation of a new PW-2 and the performance of the ROD remedy should address any significant concerns that EPA may have about groundwater migration in the PW-2 Area. Accordingly, under these circumstances, further investigation of the source of the surface groundwater appears unwarranted. At most, the need for an investigation of the source of the surface groundwater in the PW-2 Area might be reevaluated at some time in the future after the remedy has had a chance to work.

Response #13: While the source of the shallow water is unknown, it appears unlikely that it is simply perched water from natural sources. Much of the piping from the extraction-well network runs through the severely-contaminated source area near PW-2 and other plant-related piping may run through this area, as well. Given this situation, a plant-related source of water appears likely. The fact that the shallow groundwater corresponds with the PW-2 source area has potentially significant consequences in terms of contaminant mobility in the overburden aquifer. An overburden groundwater plume of 1,1,1-trichloroethane and other VOCs extends south to the far side of the adjacent Skate Estate property. Unlike the Paved Pipe Staging Area plume, the PW-2/Skate Estate plume is not bounded by nondetectable sampling results or locations where insufficient water was available for sampling. Therefore, there is potential for still further migration.

While EPA agrees that the recent abandonment and installation of a new PW-2, and the performance of the remedy, should address EPA's primary concerns about groundwater downward migration in the PW-2 Area, this effort does not address the lateral spread of contamination in the overburden. Extraneous sources of water in the overburden should be eliminated in order for the natural attenuation element of the selected remedy to be the most effective, particularly, in stemming the spread of contamination downgradient of the Site.

As such, further investigation of the source of this water appears consistent with the fourth remedial action objective (i.e., reduce or eliminate the potential for off-site migration of contaminants) which EPA believes is a relatively easily implemented and low-cost endeavor.

APPENDIX V-a

RESPONSIVENESS SUMMARY

LETTER SUBMITTED DURING THE PUBLIC COMMENT PERIOD

BUFFTON CORPORATION

226 Bailey Avenue, Suite 101 • Fort Worth, Texas 76107-1220 • (817) 332-4761 • Fax No. (817) 877-0420

May 23, 1997

Via Federal Express

Mr. Mark Granger
Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Re: Comments on Superfund Proposed Plan for Robintech, Inc. /National Pipe Company, Superfund Site, Vestal, New York

Dear Mr. Granger:

Buffton Corporation (Buffton), the current owner of the Robintech Inc./National Pipe Co. Superfund Site (the Site), submits these comments on the remedial plan dated April 1997 that the Environmental Protection Agency (EPA) has proposed for the Site. (Proposed Plan).

At the outset, Buffton wants to make clear that its comments are not intended to challenge the overall approach of the Proposed Plan. For a number of years, Buffton has urged EPA to correct the remedy for the Site and the Record of Decision (ROD) that EPA approved on March 30, 1992. We are pleased that EPA has now proposed the corrections that Buffton has suggested. The Site has been on the Superfund National Priorities List (NPL) since 1986, and Buffton is ready, willing, and able to conduct the cleanup.[1] Thus, Buffton's objectives for the Site are as follows; namely to

- avoid any delay in the selection, design, and implementation of a remedy for the Site;
- proceed as expeditiously as possible to install the Site remedy; and
- perform an appropriate cleanup so that the Site may be deleted from the NPL and its Superfund liability resolved, both as soon as possible.

The Proposed Plan is an important step in enabling Buffton to fulfill these objectives. Nevertheless, despite our general support for the overall approach that EPA has outlined, there are several conclusions that EPA appears to have reached, about which Buffton offers comment or clarification. Each of these conclusions is discussed below.

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[1] EPA recently permitted Buffton to begin Site work with the replacement of PW-2.

1. Alternative 3 – Saturated Overburden Soil Excavation and Treatment

EPA's preferred remedy, Alternative 3, requires the excavation and treatment of an estimated additional 2,000 cubic yards of saturated VOC-contaminated soil from the overburden in the PW-2 and the Paved Pipe Staging Areas and removal and treatment of contaminated overburden groundwater entering the excavation. Alternative 3 is projected to cost nearly $1 million more, or an additional 30 percent, than Alternative 2[2], which Buffton supported. Although Alternative 3 goes further than CERCLA requires[3], it fixes the problems with the previous remedy. Accordingly, Buffton is willing to go forward with Alternative 3, at substantial additional expense, with the following understandings:

a) EPA will specify in the amended ROD that Alternative 3 and the expenditure of the additional $1 million required to perform Alternative 3 will result in a more expeditious deletion of the Site from the NPL and return the Site to a marketable condition, than would Alternative 2.

b) The amended ROD that EPA issues will address the problems in the 1992 ROD, including the pump and treat groundwater remedy and the remedy for the Northeastern Site Boundary Area.

c) EPA will expedite its selection of the remedy and the issuance of an amended ROD, so that Buffton will be able to commence site work this Summer.

2. Risk of Drinking Water Contamination

The primary risk[4] identified in the Baseline Risk Assessment that EPA conducted was the potential risk associated with the future use of the bedrock groundwater as a source of drinking

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[2] Alternative 2 and Alternative 3 are identical with the exception that Alternative 2 does not require excavation and treatment of saturated overburden soils and related groundwater.

[3] The Proposed Plan indicates that there is little or no natural connection between the overburden aquifer and the bedrock aquifer. It notes that the overburden formation is of "relatively low permeability" with "extremely low groundwater yield" (page 6) and that the overburden formation limits the migration of dissolved organic constituents to overburden groundwater. (page 8) The Proposed Plan reiterates the conclusion reached in the 1991 risk assessment that risks due to VOC's in subsurface soils need not be examined because of the absence of a complete exposure pathway under either current or reasonably anticipated future land use scenarios and no current or future overburden groundwater exposure is possible because the overburden aquifer is not usable. (page 12). Further CERCLA moderates its emphasis on permanent solutions and treatment through the addition of the qualifier "to the maximum extent practicable" and contains a requirement for remedies to be cost-effective. See "The Role of Cost in the Superfund Remedy Selection Process", Publication 9200.3-23FS (September, 1996), page 2. EPA's "Superfund Administrative Reforms Annual Report Fiscal Year 1996" cites as an accomplishment that all stakeholders involved in the Superfund process fully understand the important role of cost in remedy selection. Page 4 of 8. Thus, the findings of the Proposed Plan, when considered in the context of the requirements of CERCLA, raise questions as to whether CERCLA requires selection of Alternative 3 over Alternative 2.

[4] EPA also identified a potential risk associated with the inhalation of VOC's if the groundwater were used for showering, under a future use scenario. There is virtually no likelihood that the groundwater will be used for showering and so we do not discuss that here.

water. This risk was evaluated, as acknowledged by EPA, using the conservative assumptions that an individual will consume a minimum of two liters of contaminated groundwater daily and that the concentration of contaminants in the groundwater will be equal to the highest concentrations of contaminants that ever were detected in the groundwater at the Site. Although Buffton does not intend to minimize the need to protect the public from drinking contaminated groundwater, that is not the situation here. The risk assessment admittedly posits a hypothetical worst case scenario that bears little or no relationship to reality. Thus, on this issue, there are two significant site-related factors to consider: 1) the pumping of the production wells at the Site has curtailed the migration of bedrock groundwater contamination and 2) the Proposed Plan does not suggest that bedrock groundwater from the Site is entering the drinking water supply and causing drinking water contamination. (page 4). Thus, there is no cited documented risk to human health from the Site bedrock groundwater.

3. <u>PW-2 Surface Groundwater Source Investigation</u>

EPA has identified contamination in a small area of groundwater "much closer to the ground surface" of the PW-2 area. (page 2). Although acknowledging that the source of this groundwater is unknown, EPA has suggested that the groundwater may be related to plant operations and that any plant-related sources of water to the overburden aquifer need to be eliminated in order to mitigate contaminant mobility in this area. (page 14). Even if the source of this groundwater once was, in some way, related to plant operations, it is highly unlikely that the condition or situation resulting in the contaminated groundwater still exists. EPA has confirmed that the surface water effluent discharge, i.e., water discharged from the plant after plant use, has met State Pollutant Discharge Elimination System standards since 1984. The remedial design investigation did not reveal that the shallow groundwater in the PW-2 area was naturally connected to the bedrock aquifer. Rather the casing in PW-2 was determined to be a conduit of water to the bedrock aquifer from the shallow fractures. Buffton's recent abandonment and installation of a new PW-2, and the performance of the remedy, should address any significant concerns that EPA may have about groundwater migration in the PW-2 area. Accordingly, under these circumstances, further investigation of the source of the surface groundwater appears unwarranted. At most, the need for an investigation of the source of the surface groundwater in the PW-2 area might be reevaluated at some time in the future after the remedy has had a chance to work.

Buffton would be pleased to meet with EPA at the earliest appropriate time to discuss these comments. We encourage EPA to resolve these issues expeditiously so that Buffton can begin the work at hand. We appreciate the opportunity to provide these comments.

Sincerely,

Robert Korman
Vice President & Chief Financial Officer

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