DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Rowe Industries Superfund Site
Town of Sag Harbor
Suffolk County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Rowe Industries Site (the Site), which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document summarizes the factual and legal basis for selecting the remedy for this Site.

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy. A letter of concurrence from NYSDEC is attached to this document (Appendix 4).

The information supporting this remedial action decision is contained in the administrative record file for this Site, an index of which is attached (Appendix 5).

ASSESSMENT OF THE SITE

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

DESCRIPTION OF SELECTED REMEDY

The remedy presented in this document addresses the treatment of soils and groundwater at the Rowe Industries Site.

The major components of the selected remedy include:

- Excavation and disposal of approximately 365 cubic yards of contaminated soil at a Resource Conservation and Recovery Act (RCRA) permitted landfill. In order to comply with RCRA Land Disposal Restriction (LDR) regulations, it is expected that the excavated soils will have to be treated off-site prior to disposal at the landfill. This will be verified during remedial design.

- Confirmatory sampling to ensure that soils with concentrations above the site specific soil cleanup objectives have been excavated;
- Remediation of the groundwater by the installation of seven extraction wells which will pump the contaminated groundwater to an air stripping treatment system with ultimate discharge of treated water to Sag Harbor Cove;
- Implementation of a system monitoring program that includes the collection and analysis of the influent and effluent from the treatment system and periodic collection of well-head samples; and
- Implementation of a long-term monitoring program to track the migration and concentrations of the contaminants of concern.

DECLARATION OF STATUTORY DETERMINATIONS

This selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site. Because treatment is being used to address the principal threats at the Site, this remedy satisfies the statutory preference for treatment as a principal element of the remedy.

As the remedy will result in hazardous substances remaining on site, in the aquifer, above health-based levels, a review will be conducted within five (5) years after commencement of the remedial action, and every five years thereafter, to ensure that the remedy continues to provide adequate protection of human health and the environment.

Constantine Sidamon-Eristoff
Regional Administrator

9/30/92
Date

ROD FACT SHEET

SITE

Site name: Rowe Industries

Site location: Sag Harbor, New York

HRS score: 31.94

ROD

Selected remedy: Soil excavation and Disposal at a Chemical Waste Landfill in conjunction with Extraction/Air Stripping of Groundwater with Discharge to Sag Harbor Cove

Capital cost: $2,280,000

O & M cost: $254,000

Present-worth cost: $6,187,000

LEAD

Enforcement, PRP lead

Primary Contact: Linda Wood (212) 264-8585

Secondary Contact: Melvin Hauptman (212) 264-7681

Main PRPs: Nabisco Inc. and Sag Harbor Industries

WASTE

Waste type: Chlorinated solvents - VOCs

Waste origin: Waste solvents were discharged from the Rowe Industries facility to a series of cesspools and onto the ground surface.

Estimated waste quantity: The groundwater plume is approximately 600 feet wide and 2700 feet long. In addition, a total of approximately 365 cubic yards of soil is contaminated with volatile organic and semi-volatile organic compounds.

Contaminated media: Groundwater and Soil

DECISION SUMMARY

ROWE INDUSTRIES SITE

TOWN OF SAG HARBOR, NEW YORK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

NEW YORK

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I. SITE LOCATION AND DESCRIPTION

The Rowe Industries Site (the Site) is located on the east side of Sag Harbor-Bridgehampton Turnpike, Town of Sag Harbor, Suffolk County, New York (see Figure 1). The Site includes an industrial facility which is approximately 8.5 acres in size and is located 1,500 feet south of the village of Sag Harbor in the vicinity of Carrol Street, Noyack Road, Brick Kiln Road and Sag Harbor Turnpike. One acre of the facility is covered by a building (see Figure 2). There are two ponds located 300 and 700 feet to the northeast of the building. There is a small industrial area to the southwest and residential and commercial areas to the northwest, north and south. According to the Town Clerk, the town of Southampton consists of approximately 49,000 residents, 1,870 of which reside in the Village of Sag Harbor. The entire area, with the exception of the homes within the contaminated groundwater plume, is served by private wells. Approximately 6,000 people within a 3 mile radius of the site use groundwater as their primary drinking water source.

The site is underlain by the Upper Glacial aquifer which consists of clayey sand and gravel. The upper sediments above the water table consist of medium to fine sand with a trace amount of medium to fine gravel. The lower sediments below the water table consist of medium to very fine sand, alternating with intervals of silty clay, silt and clay. There are no major continuous beds or clay layers.

Sag Harbor Cove is about 3,000 feet to the northwest. Ligonee Brook, which flows into Sag Harbor Cove, is to the east and north of the Site. The area surrounding the Site is largely undeveloped to the east and west. Several designated wetlands in the vicinity of the Rowe site are considered to be significant habitats. The National Wetlands Inventory (NWI) classifies the area where Ligonee Brook enters Sag Harbor Cove as a mixture of palustrine forested, broad-leaf deciduous wetlands and intertidal emergent estuarine wetlands communities. The on-site pond is also classified as a palustrine, open water, intermittently exposed wetland community. One other significant habitat, a tern nesting area, is listed as occurring within two miles of the site along Noyack Bay. The tiger salamander is the only endangered animal known to live within two miles of the Site. It is listed as endangered in the NYSDEC's Natural Heritage Database.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

A. Site History

The Rowe Industries Site is also known as the Sag Harbor Groundwater Contamination Site in reference to the current owners of the Site, Sag Harbor Industries, Inc. From the 1950's through the early 1960's, the Site was originally owned and operated by Rowe Industries, Inc. During that time, Rowe Industries manufactured small electric motors and transformers. During this process, chlorinated solvents were used to degrease oil-coated metals. Waste solvents were discharged from two tanks in the building into cesspools or through a connecting pipe to an open field located 75 to 100 feet east of the building (see Figure 2). The building was destroyed by fire in 1962 and reconstructed that same year.

Rowe Industries - Aurora Plastics, Inc. owned and operated the Site in the late 1960's. Nabisco, Inc. acquired the Site in the early 1970's. The Site ceased operation in 1974. In 1980, the Site was sold to Sag Harbor Industries (SHI) which currently uses the facility to manufacture electronic devices. The small electronic parts are currently cleaned with Freon 113.

A series of dry wells (designated DW-A through DW-F in Figure 2, with two wells at location DW-B) were used while Rowe Industries was in operation to dispose of organic solvents. Dry well DW-B was not installed until 1983 and has only been used for collecting roof runoff and coolant water. Currently, only wells DW-B, DW-E, and DW-F are still in use by SHI. DW-E and DW-F collect wastewater from lavatories.

Groundwater contamination was first discovered in the Sag Harbor area in 1983. The Suffolk County Department of Health Services (SCDHS) sampled water from a private well on Noyack Road which revealed contamination by three solvents, 1,1,1-trichloroethane (TCA), 1,1,2-trichloroethylene (TCE), and tetrachloroethylene (PCE), and the metal iron. As a result of these findings, the SCDHS and EPA conducted further investigations to determine the extent and the cause of the groundwater contamination of the Sag Harbor area. Forty-three private wells and twenty-one monitoring wells were monitored from March 1984 until October 1984. The results of the study indicated a groundwater contamination plume that was approximately 600 feet wide and 1900 feet long extending to Ligonee Brook flowing northwest from the SHI facility and containing chlorinated hydrocarbons, primarily solvents.

The study also determined that drinking water wells for twelve homes exceeded current New York State Department of Health (NYSDOH) standards for one or more solvents. Therefore, in January 1985, EPA undertook an removal action to provide an alternative water supply to twenty-five residences in the vicinity of the groundwater contamination plume. EPA contracted with the Suffolk County Water Authority to install a water main, and the Town of Southampton to install the hook-ups to the twenty-five homes affected by the contamination plume.

Based on the extent of groundwater contamination, the Rowe Industries Site was placed on the National Priorities List (NPL) on June 10, 1986. On September 30, 1988, EPA and Nabisco entered into an Administrative Order on Consent, Index NO. II-CERCLA-80213 (the Order). The Order required Nabisco to perform a Remedial Investigation/Feasibility Study (RI/FS) to determine the nature and extent of contamination at the Site and to develop and analyze remedial alternatives to address the contamination. The RI was performed in two separate phases; Phase I was conducted in 1989-90 and Phase II was conducted in 1991. The Phase I investigation was designed to determine if groundwater contamination was still present at the Site, and if so, how the concentrations compared to 1984 findings. In addition, several areas of the SHI facility, including suspected drum disposal areas, active and inactive dry wells, pond sediments, surface water, and surface and subsurface soils, were investigated in Phase I. The results of the Phase I groundwater investigation were consistent with the results of the SCDHS study. The three most prevalent compounds, TCE, TCA and PCE, were again detected at concentrations exceeding Federal and State water quality standards. In addition, the size of concentrations exceeding Federal and State water quality standards. In addition, the size of the plume remained at approximately 600 feet wide and 2700 feet long as defined in the SCDHS study (see Figure 3). However, despite the additional investigations of suspected disposal areas, the Phase I study did not pinpoint the source of the groundwater contamination. The Phase II investigation revealed that the sources of the groundwater contamination are the sludge and sediments in dry wells DW-C, DW-D, and DW-F and the soil in the former drum storage area. Therefore, in 1992, a Feasibility Study was performed to develop alternatives to clean up these sources of contamination as well as the contaminated groundwater itself.

B. Enforcement

EPA identified two potentially responsible parties (PRP's) as owners and/or operators. Special notice letters informing the PRPs of their potential liabilities were mailed on February 23, 1988 to Nabisco and Sag Harbor Industries. Several negotiations were held to discuss technical and legal issues relating to the Administrative Order on Consent (AO) for the conduct of the RI/FS. On September 30, 1988, EPA entered into an Administrative Order on Consent, Index NO. II-CERCLA-80213, with Nabisco. The Order required Nabisco to perform an RI/FS to determine the nature and extent of the contamination at the Site and to develop and analyze remedial alternatives to address the contamination.

Leggette Brashears and Graham (LBG) performed the RI/FS for Nabisco. The Phase I RI Report was submitted on May 23, 1990. In response to EPA's comments, LBG submitted the Phase II RI work plan on December 10, 1990. The final RI Report, which incorporated the results of both phases, was approved by EPA on August 25, 1992. The FS Report was submitted to EPA in July 1992.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Reports and the Proposed Plan for the Site were released to the public for comment on August 26, 1992. These two documents were made available at information repositories maintained at the EPA Region II Office in New York City and at the Jeramin Library in Sag Harbor, New York. The notice of availability for these documents was published in Newsday on August 26, 1992. A public comment period on the documents was held from August 26, 1992 through September 24, 1992. In addition, a public meeting was held on September 9, 1992. At this meeting, representatives from EPA presented the Proposed Plan, and later answered questions concerning such plan and other details related to the RI/FS reports. Responses to comments and questions received during this period are included in the Responsiveness Summary, which is appended to this ROD.

IV. SCOPE AND ROLE OF RESPONSE ACTION

The objective of this remedy is to address the contamination in the soils and the groundwater attributable to the Site. The ultimate goal of the EPA Superfund Program's approach to groundwater remediation is to return usable groundwater to beneficial uses within a reasonable time frame. EPA's Groundwater Protection Strategy establishes different degrees of protection for groundwater based on their vulnerability, use, and value. For the aquifer beneath the Site, the final remediation goals will be drinking water standards. Therefore, EPA's goal in remediating groundwater at the Site is to reduce concentration levels in groundwater to meet the Maximum Contaminant Levels promulgated under the Safe Drinking Water Act. In order to achieve this goal any contaminated soil which is leaching contaminants into the groundwater must also be remediated. Therefore the selected remedy will excavate the soil in the drum storage area and in the three contaminated dry wells DW-C, DW-D and DW-F. However, EPA recognizes that the final selected remedy may not achieve this goal because of potential difficulties associated with removing contaminants from groundwater to cleanup levels. The results of the selected remedy will be monitored carefully to determine the feasibility of achieving this final goal. The remedial action may require continuous pumping, pulsed pumping, and flexibility in placing pumping wells at strategic locations.

V. SUMMARY OF SITE CHARACTERISTICS

The RI was performed in two separate phases. Phase I was conducted in 1989-90 and Phase II was conducted in 1991. The Phase I investigation was designed to determine if groundwater contamination was still present at the Site, and if so, how the concentrations of contaminants in groundwater compared to the 1984 SCDHS findings. In addition, several potential areas of the facility, including suspected drum disposal areas, active and inactive dry wells, pond sediments, surface water, and surface and subsurface soils, were investigated during the Phase I study. The Phase II investigation was a more comprehensive study of potential sources of groundwater contamination at the Site. In addition to further investigation of several of the areas mentioned above, it included investigation of the drum storage area.

A. Nature and Extent of Contamination

1. Groundwater

During Phase I, 32 wells were sampled to evaluate groundwater conditions. The wells consisted of 18 previously installed SCDHS monitoring wells, 8 private wells and two new well clusters (MW-42, MW-43) consisting of a shallow, intermediate and a deep well. The wells were completed to 30, 70 and 100 feet respectively. The locations of the wells can be seen in Figures 4 and 5.

The highest concentration of PCE was found in a sample from well N-28 at 12,000 parts per billion (ppb). The compound found at the second highest concentration during Phase I was TCA, which was also found in well N-28 at 690 ppb. Finally, TCE was also detected at its highest concentration in well N-28 at 530 ppb. The three primary contaminants discovered in the SCHDS study were TCA, TCE and PCE. Therefore, the results of the VOC analysis for Phase I are consistent with the results of the 1984 SCHDS study. In addition, the Phase I groundwater sampling showed that the plume had not increased in area and remained approximately 600 feet wide and 2700 feet long. The summary of the groundwater results for volatile organics can be found in Table 1-A.

In addition, the groundwater was analyzed for metals using both filtered and unfiltered samples. All of the filtered samples were collected during round 2 of Phase I. The filtered samples represent dissolved concentrations and thus do not have the interference from fine material that is mobilized during sampling. Iron, manganese, lead, cadmium and chromium exceeded federal and state water quality standards in the unfiltered samples during both phases. Only iron showed significant differences between unfiltered and filtered samples. Iron concentrations ranged between nondetectable and 228,000 ppb in unfiltered samples. The concentrations of iron detected in the filtered samples ranged from 106 to 4670 ppb which still exceed the federal and state water quality standards. The summary for groundwater results for metals can be found in Table 1-B.

During Phase I it was discovered that the parcel of land formerly utilized as the drum storage area was not owned by SHI or any previous owners of the Rowe Industries Site. The results of Phase I indicated that the area may be one of the sources of groundwater contamination. Permission to perform a subsurface investigation on the property was not obtained until the data from Phase I was analyzed. Therefore, this area was not investigated until Phase II. As a result, in Phase II, one well cluster and two shallow wells were installed to monitor groundwater downgradient of the former drum storage area. The well cluster, consisting of a shallow well (MW-45a) and an intermediate well (MW-45b), was completed to 30 and 50 feet, respectively. Likewise the two shallow wells (MW-51A, MW-52A) were completed to 30 feet. PCE was the primary compound detected in the groundwater. The highest concentration was detected in MW-51A at 3100 ppb. The data from this investigation indicate that the plume emanating from the drum storage area is in the upper portion of the aquifer.

Overall, the results of both Phases indicate that the most prevalent VOCs in the groundwater were PCE, TCE, TCA, 1,1-dichloroethane (DCA), and 1,1-dichloroethylene (DCE). In addition to VOC contamination, heavy metals (chromium, iron, lead and manganese) were present in unfiltered samples at levels up to 7210 ppb, 108,000 ppb, 93.3 ppb and 4250 ppb, respectively. These levels exceed the federal Safe Drinking Water Act maximum contaminant level (MCL) for chromium (100 ppb) and the Action Level for lead (15 ppb). These levels also exceed the NYSDEC Water Quality Standards which are 50 ppb for chromium, 25 ppb for lead and 500 ppb for iron and manganese. However, all of the filtered samples, except for iron, indicated levels which were below the federal and state drinking water standards. The results indicate that the horizontal extent of the plume is the same as that observed in the SCDHS study (see Figure 5) . The plume appears to intersect but not extend beyond Sag Harbor Cove, as shown by samples obtained from MW-50 on the other side of the Cove. However, the vertical extent of the plume increases with distance from the SHI facility. For example, on the SHI facility, the plume is confined to the upper 10-25 feet of the aquifer. However, as the plume migrates away from the SHI facility, the depth of the plume extends to the upper 50-60 feet of the Upper Glacial Aquifer. The groundwater plume ultimately discharges to Sag Harbor Cove via Ligonee Brook. VOC levels in Ligonee Brook did not exceed Federal Ambient Water Quality Criteria. The levels of VOCs in Sag Harbor Cove dissipate to nondetectable levels within several hundred feet of its confluence with Ligonee Brook.

2. Soils

The soil sampling program was designed to define the lateral and vertical extent of soil contamination. During Phase I, eight soil borings were drilled on the SHI property. The boring locations, which can be seen in Figure 6, were selected based on the results of a soil gas survey which measures the concentrations of VOCs in the space between soil particles.

The predominant plume constituents, TCE, TCA and PCE, were detected in three of the eight soil borings. These compounds were only detected in the paved area along the eastern border of the building in the upper six feet of the soil borings. PCE was detected in boring B-2 and boring B-5 at a concentration of 100 parts per million (ppm) and 9 ppm. TCE was detected in boring B-1 at a concentration of 130 ppm. Semivolatiles, pesticides and PCBs were not detected in these samples. Overall, the Phase I subsurface investigation indicated that soil contamination was limited to a depth of 6 feet. In addition, the concentrations in these soils from above the water table were not high enough to indicate that they were acting as a continuing source to groundwater. The results of Phase I indicated that the former drum storage area could be a possible source of groundwater contamination.

During Phase II, six additional soil borings were drilled in the former drum storage area. Two of the borings (B-9 and B-10) drilled in the drum storage area were chosen based on soil gas survey results. These two borings were completed to a depth of 45 feet. The remaining four were chosen to define the horizontal extent of contamination detected during the drilling of B-10. These four borings were completed above the water table to a depth of 14 feet in the area where most of the contamination was detected in B-10. The results showed that the drum storage area contains VOCs, primarily PCE and xylene, to a depth of approximately 12 feet below grade. The highest concentration of PCE was detected in this area at B-10 with a concentration of 67 ppm. Xylene was also detected at the same location at 66 ppm. The only metals which were detected above background levels were barium and copper. The complete results of subsurface sampling can be found in Table 6. The high levels of VOCs indicate that the former drum storage area is acting as a continuing source to groundwater contamination.

3. Dry Well Sediments

Seven dry wells are located on the Site (designated DW-A through DW-F with two wells located at DW-B - see Figure 2), some of which were used for disposal of organic solvents . Currently only wells DW-B, DW-E and DW-F are used by SHI. The piping configuration can be seen in Figure 7. DW-A was used for the disposal of solvents. Floor drains on the first floor were directed to DW-A in the past but are no longer connected to the dry well. Therefore any continuing source to DW-A from inside the SHI building has been cut off. DW-B was installed in 1983 and is still used for the purpose of collecting roof runoff and coolant water. DW-C, DW-D, DW-E and DW-F were also all utilized for solvent disposal. Drywell DW-C was an overflow well for DW-D. Currently, DW-E and DW-F handle wastewater from lavatories.

Sediment samples were obtained from the soil or sludge in DW-A, DW-C, DW-D, DW-E and DW-F during both Phases. The samples were obtained from depths of 6 inches and 2 feet. DW-B was not sampled since it was not used for solvent disposal. The sludge from DW-A showed concentrations of PCE and TCE at 2.1 ppm and 2.5 ppm, respectively. However, the sludge and sediment collected below the sludge (down to 2 feet) had no plume constituents present. PCE, the only organic compound detected in DW-C sludge and soil, was present at a maximum concentration of 6.9 ppm in the sludge and 1.1 ppm in a composite sample of upper sludge sediments and underlying soil. In addition DW-C had a high concentration of PCE at 1100 ppm detected at a depth of 2 feet. DW-D also had a high concentration of TCE at 820 ppm detected at a depth of 2 feet.

The results of both phases showed that DW-D contained sludge with TCE at concentrations up to 27 ppm. This dry well also contained elevated levels of VOCs including toluene, xylene and ethylbenzene. The concentrations of solvents in the soil which underlies the sludge were lower than concentrations in the sludge. For example, the concentration of PCE at 6 inches and 2 feet are 9100 ppm and 160 ppm respectively. This indicates that portions of the sludge are acting as the source to underlying soils and groundwater, although significant concentrations are not being retained by the soil. None of the primary plume constituents were detected in either the sludge or the underlying soil of DW-E. The only constituent detected in this dry well was 2.3 ppm of toluene in the upper 6 inches of the sludge. The presence of toluene is suspected to be related to current activities. Low levels of the primary (PCE,TCA and TCA) or secondary (1,1-DCE, 1,1-DCA and 1,2- DCE) plume constituents were detected in the sludge or soil of DW-F. However, elevated levels of Freon 113, toluene, methylene chloride, xylene, ethylbenzene and 2-butanone were detected in the sludge. Freon 113 was present at a maximum concentration of 230 ppm and toluene was found at 27 ppm. The underlying soil was generally clean. The studies show that the sludge in DW-D and DW-C are contributing the primary and secondary plume constituents to the groundwater and DW-F contains elevated concentrations of other compounds which are contributing to the groundwater contamination. Copper, lead, nickel and zinc were the only inorganics that exceeded background levels in the dry wells.

4. Surface Water and Sediment

The only stream in the area is Ligonee Brook, which is an intermittent stream, originates in Long Pond, located to the southeast of the Site. The brook and the groundwater flow in a north-westerly direction and discharge into an inlet of Sag Harbor Cove. Very little overland flow occurs; however that which does occur discharges into Sag Harbor Cove, Ligonee Brook, Lily Pond and the on-site pond which can be seen in Figure 2. Ligonee Brook is a freshwater stream that is sometimes intermittent. Sag Harbor Cove is a salt water body connected to Peconic Bay.

On Carrol Street, there is a catch basin/dry well which collects storm-water run-off. This catch basin is located directly across from well cluster MW-43 and adds to the recharge rate in the nearby vicinity during periods of intense storms. Storm-water runoff collected on the roof of the SHI building is diverted through gutters and storm drains to DW-B located along the southeast side of the building.

Sediment and surface water samples were collected from 5 locations along Ligonee Brook and Sag Harbor Cove as shown in Figure 5. In addition, sediment samples were collected from 3 locations from the on-site pond as shown in Figure 6. All sediment samples were collected in the top 6 inches of the sample location.

The sediment results for the Brook and the Cove exhibited contamination at locations where VOC-contaminated groundwater discharges at sediment sampling locations SD-3 and SD-4. The volatile organic contamination included 1,1-DCA, 1,2-DCE, 1,1,1-TCA, TCE and PCE. The concentration of PCE was the highest at 87 ppb at location SD-4. Organic contaminants were not present in sediments from upstream locations. All detected inorganics were present at concentrations indicative of naturally-occurring background levels. The surface water sampling results reflected the results of the sediment samples in that the most significant VOC contamination was where the plume discharges to the Cove at locations SW-4 and SW-3. Concentrations of PCE, TCE and 1,1,1-TCA reach 30 ppb at SW-4 and diminish to levels less than 4 ppb at SW-5. However, none of these levels exceed ambient water quality criteria. All the concentrations of inorganic compounds in the Brook and Cove were within Federal freshwater and saltwater aquatic guidelines. A summary of the complete results of the sediment and surface water sampling for the Brook and the Cove can be found in Table 3 and Table 4.

The only organic compound detected in the on-site pond sediments occurred at sample location 3 where ethylbenzene was detected at 2 ppb which is below its MCL. All of the detected inorganics, except antimony, were identified at concentrations comparable to those of background samples. Antimony was detected at a concentration of 1300 ppb.

VI. SUMMARY OF SITE RISKS

Human Health Assessment

EPA conducted a baseline Risk Assessment of the potential risks to human health and the environment associated with the Rowe Industries Site in its current state. The Risk Assessment focused on contaminants in the groundwater, soil, and surface water and sediments which are likely to pose a significant risks to human health and the environment. The summary of the contaminants of concern (COCs) in the sampled matrices is listed in Table 7.

EPA's Risk Assessment addressed the potential risks to human health by identifying several pathways by which the public may be exposed to contaminant releases at the Site under current and future land use conditions. A summary of the exposure scenarios can be found in Table 8.

Demographics and land use were evaluated in assessing present and potential future populations which live, work, or otherwise spend time at or in the area of the Site. The purpose of this analysis was to assess the likelihood of various groups, including sensitive populations, becoming exposed to Site contaminants.

An undetermined number of people work at the SHI facility. Surrounding properties are primarily residential. The immediate Site vicinity is rural, however, a dense population center is located approximately 0.75 miles north of the Site. General public access to the SHI facility is currently restricted by a chain link fence, but area youths may trespass on the facility itself. As a result, the possible exposure of facility employees, maintenance workers, and utility workers needed to be considered along with residents and their youth. Therefore the following exposure scenarios were developed :

- ingestion of groundwater by residents (future use);
- inhalation of contaminants volatilized from groundwater when residents shower (future use);
- ingestion of surface soils by onsite residents (future use);
- incidental ingestion of subsurface soils by excavation workers (future use);
- incidental ingestion of subsurface soils by utility workers (present and future uses);
- ingestion of sediments from Ligonee Brook by local residents (present and future uses); and
- incidental ingestion of dry well sediments by utility workers (present use).

Under current EPA guidelines, the likelihood of carcinogenic (cancer causing) and non-carcinogenic effects due to exposure to site chemicals are considered separately. It was assumed that the toxic effects of the site-related chemicals would be additive. Thus, carcinogenic and non-carcinogenic risks associated with exposures to individual compounds of concern were added to indicate the potential risks associated with mixtures of potential carcinogens and non-carcinogens, respectively.

Potential carcinogenic risks were evaluated using the cancer slope factors (SFs) developed by EPA for the chemicals of potential concern. SFs have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor (CRAVE) for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes the underestimation of the risk highly unlikely. The SF for each COC is presented in Table 9.

For known or suspected carcinogens, EPA considers excess upper bound individual lifetime cancer risks of between 10^{-4} to 10^{-6} to be acceptable. This level indicates that an individual has not greater than a one in ten thousand to one in a million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at the site. The total cancer risks for each receptor at the Rowe Site are outlined in Table 10-A. Media specific cancer risk estimates are listed in Table 10-B. The total cancer risk for an on-site resident is 7×10^{-3}, primarily based on ingesting untreated groundwater containing PCE from the Upper Glacial aquifer in the vicinity of the Site. This means that, as a plausible upper bound, as individual has an additional 7 in 1000 chance of developing cancer as a result of Site-related exposures under the specific exposure conditions presented at the Site. In addition, MCLs are currently exceeded for several hazardous substances in groundwater.

Non-carcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake, or Reference Doses (RfDs). 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). The RfDs for the chemicals of potential concern at the Rowe site are presented in Table 9. 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 HI is obtained by adding the hazard quotients for all compounds across all media that impact a common receptor.

An HI greater than 1 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

A receptor-specific summary of the non-carcinogenic risks associated with the chemicals of potential concern across various exposure pathways is found in Table 11-A. It can be seen from Tables 11-A and 11-B that the greatest non-carcinogenic risk from the Site is associated with ingestion of Upper Glacial aquifer water by residents. The hazard index associated with ingestion of groundwater was estimated to be 43. The non-carcinogenic effects exceed 1.0 due primarily to the presence of PCE, antimony, and iron. The hazard index for soil was calculated to be less than 1.0 except for ingestion of subsurface soils in the drum storage area and surface soils. The summary of surface soil sampling results which were used to determine the hazard index for ingestion of soils can be found in Table 5. Although the risks posed by ingestion of soils in the former drum storage area and the ingestion of sludge and underlying soils associated with the dry wells are within the range generally considered acceptable by EPA, contamination in these areas, if not addressed will likely continue to contribute to further contamination of groundwater at the Site.

Ecological Assessment

Information from the RI report, site visits and literature were used to characterize species present in the vicinity. Information on endangered, threatened, and special concern species was obtained from the New York Natural Heritage Program. The tiger salamander was the only identified, threatened, or rare animal that could potentially frequent the site vicinity. The species uses coastal plain ponds as breeding grounds. Exposure to arsenic, copper, chromium, lead, magnesium and zinc in soils can potentially cause sublethal effects in wildlife. Chromium is the only contaminant in Ligonee Brook surface water that may present a hazard to aquatic life. However, exposures will be limited since the streambed is frequently dry.

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 error 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 would actually come in contact with the chemicals of potential concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of potential 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 risk to populations near the site.

A specific uncertainty inherent in the risk assessment process is that the methodology used to calculate the site risks are site-wide averages, which give a clear overall understanding of site risks.

Therefore, actual or threatened releases of hazardous substances from this site, if not addressed by the selected alternative or one of the other remedial measures considered, may present an imminent and substantial endangerment to the public health, welfare, and the environment. More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the Risk Assessment which can be found in the Administrative Record.

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 applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

Specific remedial action objectives for this Site include:

Groundwater - Restoration of groundwater quality to its intended use of potential drinking water by reducing contaminant levels to State and Federal drinking water standards (see Table 12).

Soil - Excavation of contaminated soil to the recommended soil cleanup objectives will be performed in order for the soil not to be a contributor to groundwater contamination by VOCs (see Table 13).

VII. DESCRIPTION OF REMEDIAL ALTERNATIVES

A feasibility study was conducted to develop and evaluate remedial alternatives at the Rowe Industries Site. Remedial alternatives were assembled from applicable remedial technology process options and were initially evaluated for effectiveness, implementability, and cost. The alternatives meeting these criteria were then evaluated and compared to nine criteria required by the NCP. Two media-specific remedial actions are required to protect human health and the environment because of the nature of the contamination at the Site. They are numbered to correspond with their presentation in the FS report. On-site soil in the former drum storage area and certain dry wells (DW-C, DW-D and DW-F) have been determined to be a source of groundwater contamination. Contaminants were found to move from the unsaturated soil to the groundwater. Once in the groundwater, the contaminants, under the influence of the groundwater gradient, migrate from the facility to potential receptors.

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, alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

This Record of Decision evaluates, in detail, nine remedial alternatives for addressing the contamination associated with the Rowe Industries Site. The time to implement reflects only the time required to construct or implement the remedy and does not include the time required to negotiate with responsible parties, procure contracts for design and construction or design the remedy.

The alternatives identified for both soil and groundwater are presented below:

Soil Remediation Alternatives:

Alternative 1: No Action

EPA considered the "No Action" alternative for soils and dry well sludge to provide a baseline of comparison among soil alternatives. Under this alternative, the contaminated soil would be left in place without treatment. In accordance with Section 121 of CERCLA, remedial actions that leave hazardous substances at the Site are to be reviewed at least once every five years to assure that the remedial action is protective of human health and the environment. The No Action alternative must be reviewed by EPA at least every five years.

Capital cost:	$0
Annual Operation & Maintenance:	$0

30-year Present Worth:	$0

Time to Implement: None

Alternative 2- Deed Notation, Physical Restrictions and Monitoring

This alternative involves obtaining deed notations in compliance with the appropriate regulatory agencies, fencing with warning signs around the former drum storage area and periodic soil sampling and analysis.

The deed notations would indicate that the land contains hazardous substances. A survey plot and record of the location and quantity of VOCs would be filed at the repositories.

The drum storage area would be secured by installing a 6 foot high industrial grade chain link fence and posting warning signs stating that the area contains hazardous substances. In addition, soil sampling and analysis for VOCs in the former drum storage area and dry wells DW-C, DW-D, DW-F would be conducted semiannually for ten years. After the first ten years, the need for further soil monitoring would be evaluated. EPA would review the Site every five years.

Capital cost:	$40,000
Annual Operation & Maintenance:	$16,000
30 year Present Worth:	$281,000

Time to Implement: None

Alternative 3- Capping, Excavation and Off-Site Disposal, Deed Restrictions, Physical Restrictions and Periodic Monitoring

This alternative consists of capping the 20 foot by 20 foot drum storage area according to federal specifications, excavation and off-site disposal of sludge and underlying soil from dry wells DW-C, DW-D, and DW-F, deed notations, physical restrictions, such as fencing with warning signs, and semiannual ground-water monitoring and analysis.

A cap is cover material placed over contaminated material designed to prevent infiltration of water. The cap itself would be designed to conform with federal Resource Conservation and Recovery Act (RCRA) requirements. It would occupy a 45-by-45-foot area, which would include a 2.5-foot wide perimeter infiltration trench. The cap would consist of the following layers above the compacted soil: a geocomposite membrane liner, a 40-mil high density polyethylene (HDPE) liner, 12 inches of masons sand, a geotextile membrane filter, 12 inches of sandy loam and 6-12 inches of loose topsoil. The liners would act as impermeable seals. The masons sand would allow water to seep into the infiltration trench. The geotextile membrane filter would separate the masons sand and sandy loam while allowing water to pass through. The sandy loam would provide a base for the topsoil and protect the liners.

The soil beneath the cap would be sloped to direct water away from the center of the cap and into the surrounding trench. The water would then travel from the trench into a 6-inch pipe to a nearby pond.

In addition, 135 cubic yards of contaminated sludge and underlying soils associated with dry wells DW-C, DW-D, and DW-F would be excavated and transported off-site to a RCRA permitted landfill. However, to comply with RCRA Land Disposal Restrictions (LDR) regulations, it is expected to be necessary to treat the soils before disposal. The LDR sets treatment standards which are based on the best demonstrated available technology (BDAT) for treatment of a given waste. In the case of VOCs in soil, the BDAT treatment method is generally incineration. During the remedial design phase of this project, EPA will determine whether incineration is necessary to meet the LDR regulations. Incineration would produce a dry ash material which may require further RCRA-permitted disposal to protect the environment. In addition, confirmatory monitoring would be performed to ensure that soils with concentrations above Site cleanup objectives have been excavated.

Semiannual inspections would be performed to inspect the cap, the fence and the drainage channels. In addition groundwater would be sampled semi-annually from the three wells in the immediate vicinity of the cap. EPA would review the Site every five years.

A range of costs is presented for this alternative. The low end of the range assumes that treatment is not required to meet LDR restrictions. The high end of the range assumes incineration of all excavated soils is required to meet LDRs.

Capital cost:	$277,000 - $452,000
Annual Operation & Maintenance:	$7,000
30 year Present Worth:	$441,000 - $616,000

Time to Implement:	6 Months
Remedial Action:	30 Years

Alternative 4- Soil Vapor Extraction in the Drum Storage Area and Excavation and Off-Site Disposal at a RCRA-Permitted Landfill

Soil vapor extraction would involve the installation of vents in the contaminated unsaturated soil zone in the drum disposal area. A vacuum would be applied through these vents to volatilize and extract organic compounds from the soil. The organic vapors would be drawn into a collection system and subsequently treated with an activated carbon off-gas treatment system. Circulation of air through the soil also would enhance the biodegradation of semi-volatiles in the unsaturated zone.

A small amount of liquid condensate would be generated during the vapor extraction process. With an on-site groundwater treatment alternative operating in conjunction with groundwater remediation, the condensate could be treated on-site at minimal cost. Off-site disposal of condensate would be necessary if this alternative was implemented before a groundwater treatment system was constructed.

Under this alternative, approximately 230 cubic yards of contaminated soil would be treated until no more VOCs could be effectively removed from the unsaturated soil zone. Subsurface soil sampling would be required to monitor the progress of the soil vapor extraction process.

In addition, 135 cubic yards of contaminated sludge and underlying soils associated with dry wells DW-C, DW-D, and DW-F would be excavated and transported off-site to a RCRA permitted landfill. However, to comply with RCRA LDR regulations, it may be necessary to treat the soils before disposal as described under Alternative 3. The total cost of this remedy includes the cost of the excavation and off-site disposal of the dry wells shown under Alternative 3.

A range of costs is presented for this alternative. The low end of the range assumes that treatment is not required to meet LDR restrictions. The high end of the range assumes incineration of all excavated soils is required to meet LDRs.

In addition, confirmatory monitoring would be performed to ensure that soils with concentrations above Site cleanup objectives have been excavated.

Capital cost:	$257,000 - $432,000
Annual Operation & Maintenance:	$37,000
30 year Present Worth:	$436,000 - $650,000

Time to Implement:	6 Months
Remedial Action:	30 Years

Alternative 5 - Excavation and Off-site Disposal at a RCRA-Permitted Landfill

This alternative includes excavation of contaminated soils in the drum storage area and contaminated sludges and underlying soils associated with dry wells DW-C, DW-D, and DW-F. A total of 365 cubic yards of soil contaminated with volatile organic and semi-volatile organic compounds would be excavated, and the excavated soil would be disposed off-site at a RCRA-permitted landfill.

However, to comply with RCRA LDRs, it may be necessary to treat the soils before disposal as described under Alternative 3.

A range of costs is presented for this alternative. The low end of the range assumes that treatment is not required to meet LDR restrictions. The high end of the range assumes incineration of all excavated soils is required to meet LDRs.

In addition, confirmatory monitoring would be performed to ensure that soils with concentrations above Site cleanup objectives have been excavated.

Capital cost:	$465,000 - $939,000
Annual Operation & Maintenance:	$0
Present Worth:	$465,000 - $939,000
Time to Implement:	1-2 months

Groundwater Treatment Alternatives:

All of the remedial groundwater alternatives, except the No Action alternative and Alternative 2, involve extraction, treatment and discharge of the treated water to the surface water. The contaminated groundwater is recovered using extraction wells within the contaminant plume. The extracted groundwater is treated and then discharged to a downgradient body of surface water.

The ultimate goal of the EPA Superfund Program's approach to groundwater remediation as stated in the NCP (40 CFR Part 300) is to return usable groundwater to its beneficial use within a time frame that is reasonable. Therefore, for this aquifer, which is classified by New York State as IIB (drinking water aquifer), the final remediation goals will be federal and state drinking water standards. Recent studies have indicated that pumping and treatment technologies have inherent uncertainties in achieving the ppb concentrations required under ARARs for groundwater over a reasonable period of time. However, these studies also indicate significant decreases in contaminant concentrations early in the system implementation, followed by a leveling out. For these reasons, the selected groundwater treatment alternative stipulates

contingency measures,
whereby the groundwater extraction and treatment system's performance will be monitored on a regular basis and adjusted as warranted by the performance data collected during operation. Modifications may include any or all of the following:

a) at individual wells where cleanup goals have been attained, discontinue pumping;

b) alternating pumping at wells to eliminate stagnation points;

c) pulse pumping to allow aquifer equilibration and to allow adsorbed contaminants to partition into groundwater; and

d) installation of additional extraction wells to facilitate or accelerate cleanup of the contaminant plume.

If it is determined, on the basis of the preceding criteria and the system performance data, that certain portions of the aquifer cannot be restored to their beneficial use in a reasonable time, all or some of the following measures involving long-term management may occur, for an indefinite period of time, as a modification of the existing system:

a) engineering controls such as physical barriers, source control measures, or long-term gradient control provided by low level pumping, as containment measures;

b) waiving chemical-specific ARARs for the cleanup of those portions of the aquifer based on the technical impracticability of achieving further contaminant reduction;

c) recommending institutional controls, in the form of local zoning ordinances, be implemented and maintained to restrict access to those portions of the aquifer which remain above remediation goals;

d) continued monitoring of specified wells; and

e) periodic reevaluation of remedial technologies for groundwater restoration.

The decision to invoke any or all of these measures may be made during a periodic review of the remedial action, which will occur at intervals of no less often than every five years.

Groundwater Remediation Alternatives

Alternative 1: No Action

EPA considers the "No Action" alternative for groundwater to provide a baseline of comparison among groundwater alternatives. Under this alternative, no groundwater remedial activity would take place at the Site. Alternative 1 relies on natural processes in the groundwater to reduce VOC levels in the aquifer. In accordance with Section 121 of CERCLA, the No Action alternative would be reviewed by EPA at least every five years.

Capital cost:	$0
Annual Operation & Maintenance:	$0
30 year Present Worth:	$0

Time to Implement: None

<u>Alternative 2- Deed Notations with Monitoring</u>

This alternative involves obtaining deed notations to limit the land use activities at the Site as well as periodic groundwater monitoring to track the movement and concentrations of the VOCs. No active groundwater remediation (<u>e.g.</u>, groundwater extraction and treatment) would be undertaken. Annual sampling of 19 monitoring wells would provide an assessment of the extent and mobility of the VOCs. Monitoring would be conducted at eight of the monitoring wells located on the SHI property, seven of the monitoring wells located within the extent of the VOC plume, and four additional monitoring wells to be located downgradient of the plume. Samples would be collected annually and analyzed to determine the compounds present and their concentrations. Two potential monitoring schemes were evaluated. Groundwater would be monitored for five years at which time EPA would re-evaluate the groundwater quality and determine the need for active groundwater extraction and treatment. Alternatively, groundwater could be monitored until contaminants are flushed out naturally through continued groundwater flow. Under this option, groundwater would be monitored for a minimum of 30 years. EPA would review the Site every five years. The following costs are for 30 years of monitoring.

Capital cost:	$39,000
Annual Operation & Maintenance:	$26,000
30 year Present Worth:	$485,000

Time to Implement:	None
Remedial Action:	30 Years

<u>Alternative 3- Groundwater Extraction & Treatment with Discharge to Ligonee Brook</u>

This alternative includes pumping and treating contaminated groundwater, discharging the treated water to Ligonee Brook, and groundwater monitoring. Based on groundwater modelling, this alternative was evaluated at two flow rates, each flow rate targeted to a different level of groundwater remediation. Alternative 3-I is evaluated assuming that 150 gallons per minute (gpm) is pumped from four recovery wells located on the SHI facility property. Based on this assumption, modelling shows that it would take approximately five years to remediate the plume located on the SHI property to meet cleanup goals. The remainder of the plume would disperse in approximately 20 years.

Alternative 3-II is evaluated assuming that a total of 600 gpm is pumped from seven recovery wells on and off the facility property throughout the groundwater plume. Based on this assumption, after 10 years a large portion of the plume would be remediated, and in 15 years the entire plume would be remediated to cleanup goals.

Under both Alternatives 3-I and 3-II, contaminated groundwater would be pumped from designated recovery wells and treated to remove iron, manganese, and VOCs. Sampling of the extraction wells would be performed to determine whether chromium and lead treatment should be included in the remedial action. After treatment to remove iron and manganese, the water would flow, under pressure, through a sediment filter and then to a packed tower for air stripping. The air stripper would remove the VOCs from the water through volatilization. The treated water from the tower would be pumped and discharged to Ligonee Brook. The discharge would be sampled as necessary to comply with State Pollutant Discharge Elimination System (SPDES) permit requirements.

Vapors from the packed tower would be treated, if necessary, to comply with air emissions requirements and then released to the atmosphere.

EPA would review the Site every five years.

Capital cost:	3-I	$874,000
	3-II	$1,298,000
Annual Operation & Maintenance:	3-I	$180,000
	3-II	$254,000
Present Worth:	3-I	$3,646,000
	3-II	$5,206,000
Time to Implement:		
Construction:	18 months	
Remedial Action:	3-I -20 years	
	3-II -15 years	

Alternative 4- Groundwater Extraction & Treatment with Discharge to Sag Harbor Cove

The only difference between Alternative 3 and Alternative 4 is the point of discharge for treated groundwater. The point of discharge for this alternative would be Sag Harbor Cove. EPA would review the Site every five years.

Capital cost:	4-I	$941,000
	4-II	$1,341,000
Annual Operation & Maintenance:	4-I	$180,000
	4-II	$254,000
Present Worth:	4-I	$3,713,000
	4-II	$5,248,000

Time to Implement:

Construction:	18 months
Remedial Action:	4-I -20 years
	4-II -15 years

VIII. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In accordance with the NCP, a detailed analysis of each alternative is performed. The purpose of the detailed analysis is to assess objectively the alternatives with respect to nine evaluation criteria that encompass statutory requirements and include other gauges of the overall feasibility and acceptability of remedial alternatives. This analysis is comprised of an individual assessment of the alternatives against each criterion and a comparative analysis designed to determine the relative performance of the alternatives and identify major trade-offs, that is, relative advantages and disadvantages, among them.

The nine evaluation criteria against which the alternatives are evaluated are as follows:

Threshold Criteria - The first two criteria must be satisfied in order for an alternative to be eligible for selection.

1. **Overall Protection of Human Health and the Environment:**
   This criterion addresses whether or not a remedy provides adequate protection and describes how risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. **Compliance with ARARs:**
   This criterion addresses whether or not a remedy will meet all the ARARs of other federal

or State environmental statutes and/or provide grounds for invoking a waiver.

Primary Balancing Criteria - The next five "primary balancing criteria" are to be used to weigh major trade-offs among the different hazardous waste management strategies.

3. **Long-term Effectiveness and Permanence:**
This criterion refers to the ability of the remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

4. **Reduction of Toxicity, Mobility, or Volume:**
This criterion addresses the degree to which a remedy utilizes treatment technologies to reduce the toxicity, mobility, or volume of contaminants.

5. **Short-term Effectiveness:**
This criterion considers 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 met.

6. **Implementability:**
This criterion examines the technical and administrative feasibility of a remedy, including availability of materials and services needed to implement the remedy.

7. **Cost:**
This criterion includes capital and O&M costs and the present-worth costs.

Modifying Criteria - The final two criteria are regarded as "modifying criteria," and are to be taken into account after the previous criteria have been evaluated. They are generally to be focused upon after the public comment period.

8. **State Acceptance:**
This criterion indicates whether, based on its review of the FS and Proposed Plan, the State concurs with, opposes, or has no comment on the proposed alternative.

9. **Community Acceptance:**
This criterion indicates whether, based on its review of the FS and Proposed Plan, the public concurs with, opposes, or has no comment on the proposed alternative. Comments received during this public comment period, and the EPA's responses to those comments, are summarized in the Responsiveness Summary which is appended to this ROD.

The following is a summary of the comparison of each alternative's strengths and weaknesses with respect to the nine evaluation criteria.

1. **Overall Protection of Human Health and the Environment**

Soil Remediation Alternatives

Contaminated soils represent a continuing source of groundwater contamination. In addition, groundwater poses an unacceptable risk to human health in future use scenarios.

Alternatives 1 and 2 are not protective of human health or the environment because contaminants will continue to leach to groundwater. It has been estimated that leaching will result in groundwater concentrations that exceed ARARs for 30 years or more.

Alternative 3, which includes capping in the former drum storage area and excavation of the dry wells, provides for some protection of human health by minimizing infiltration and reducing leachate generation. Alternative 4 is more protective of human health and the environment because it removes the VOCs from the soil. In addition, the circulation of air from the soil vapor extraction system also enhances the biodegradation of semi-volatiles. Alternative 5 is the most protective because it ensures that all the contaminated soil and any residual contamination will be completely removed from the Site.

Groundwater Remediation Alternatives

All the groundwater alternatives, except Alternatives 1 and 2, are considered protective of human health. Deed restrictions rely heavily upon institutional controls for effectiveness. The time period for natural attenuation has been estimated to be 30 years, if a source control alternative is implemented. Alternatives 3-I and 4-I are less protective than Alternatives 3-II and 4-II since they actively treat only a portion of the plume and leave the rest of the plume, located downgradient of the SHI property, subject to natural attenuation only.

2. **Compliance With Applicable or Relevant and Appropriate Requirements (ARARs)**

Soil Remediation Alternatives

No federal or state chemical-specific ARARs exist for soils. However, EPA and NYSDEC have generated soil cleanup objectives (see Table 13) to restrict the concentration of compounds in the soil to a level which would ensure that contaminants in soil do not further contaminate groundwater.

EPA has determined that, based on available information, certain actions taken with respect to the contaminated soil at the site must comply with applicable RCRA Land Disposal Restrictions (LDR) requirements. The LDRs place restrictions on the land disposal of any RCRA hazardous wastes. Because soil remediation alternatives 3, 4, and 5 involve the excavation and placement of contaminated soil and because EPA believes that such soil contains RCRA listed hazardous wastes, these alternatives must comply with RCRA LDR requirements.

Soil remediation alternatives 3, 4, and 5 include the excavation and off-site disposal of 135 - 365 cubic yards of soil contaminated with spent solvents which were used in degreasing operations at the Site. EPA believes that these soils are contaminated with listed RCRA wastes, known as F001 wastes. The RCRA LDRs require that F001 wastes and soils which contain them comply with certain concentration requirements prior to being land disposed. These concentrations requirements are expressed in terms of the toxic characteristic leaching procedure (TCLP) analysis which measures concentration levels in the waste extract as a result of the TCLP test (see 40 CFR Part 268, Appendix I). The TCLP concentration requirements for F001 wastes include the following requirements for chemicals at the Rowe Site:

Chemical	Concentration in TCLP Extract (ppm)
Ethylbenzene	0.053
Methylene Chloride	0.96
PCE	0.05
Toluene	0.33
1,1,1 TCA	0.41
TCE	0.091
Xylene	0.15

Therefore, in compliance with the LDR requirements, the soils to be excavated in soil remediation Alternatives 3, 4 and 5 would be analyzed using the TCLP analysis. If the extract concentrations for these soils are higher than those listed above, the soils would be treated (either by incineration or an alternative technology) to meet the TCLP concentrations above. Once the TCLP concentrations have been met, the soils would be disposed of in a RCRA-permitted landfill.

Groundwater Remediation Alternatives

Since the groundwater underlying the Site is a potential future water supply source, Federal MCLS and State Groundwater Quality Standards (whichever are more stringent) and non-zero MCL Goals are ARARs. Therefore, pumping of the groundwater would continue until levels in the aquifer are at or below ARARs. Alternatives 3 and 4 are designed to achieve these ARARs in a timeframe of 15-20 years. It is possible that Alternative 2 might potentially meet MCLs through the flushing processes associated with natural groundwater flow. However, all of these groundwater restoration timeframes are based on a computer model designed to predict environmental conditions, and the actual restoration timeframes may be longer or shorter than those predicted by this model. EPA believes that it would require a long period of time (greater than 20 years) to meet MCLs through natural attenuation. Therefore, EPA does not consider that Alternative 2 would meet MCLs in a timely manner.

Under Alternatives 3 and 4, treated groundwater would be directly discharged into surface water. Therefore, the requirements of the SPDES Program are ARARs and must be met. Any discharges made to Ligonee Brook or Sag Harbor Cove will be in compliance with SPDES requirements. Ligonee Brook is a fresh water intermittent stream and Sag Harbor Cove is a salt water body. Therefore discharging to the Cove will be more feasible for two reasons. One reason is the fact that periodically the Brook is dry and therefore the effluent discharge quality would have to be the fresh water, water quality criteria. The second reason is that since the Cove is a salt water body the SPDES requirements will be easier to achieve because salt water quality criteria are less stringent than fresh water quality. For the alternatives that include pumping and treating the groundwater, air emission treatment, if necessary, will be installed to meet 6NYCRR Parts 200,201, and 212 regulations and New York State Air Guide.

3. **Long-term Effectiveness**

Soil Remediation Alternatives

Alternative 1 results in groundwater contamination that exceeds MCLs for the groundwater contaminants of concern for over 30 years. Alternative 2 offers a lesser degree of long-term effectiveness since the likelihood of adequately enforcing deed notations and physical restrictions cannot be guaranteed.

Alternative 3 would offer a lesser degree of long-term effectiveness by eliminating the exposure pathway but diligent maintenance of the cap and long term monitoring would be required to be fully effective. Additionally, Alternative 3 does not fully eliminate the possibility of contaminated soil acting as a source of groundwater contamination if horizontal flow is present within some portion of the lower 12 feet of contaminated soil.

Alternatives 4 and 5 would offer the greatest degree of long-term effectiveness by reducing the contaminants to below the previously stated soil cleanup objectives.

Groundwater Remediation Alternatives

Alternatives 1 and 2 are effective as long as the groundwater is not used as a potable water supply, but do not actively address the degraded condition of the aquifer. Alternative 2 offers a lesser degree of long-term effectiveness since the likelihood of adequately enforcing deed notations and well permitting restrictions cannot be guaranteed. Alternatives 3 and 4 provide for active extraction systems which will remove the contaminated plume. The active treatment and extraction alternatives provide for more reliable protection by meeting groundwater clean-up goals. However, Alternatives 3-I and 4-I are less protective than Alternatives 3-II and 4-II since they only actively treat the portion of the plume located on the SHI property and leave the remainder of the plume subject to natural attenuation only.

4. **Reduction of Toxicity, Mobility, or Volume**

Soil Remediation Alternatives

Alternatives 1 and 2 do not utilize treatment to reduce the toxicity, mobility or volume of contaminants. Alternative 3 would not employ treatment of the drum storage area but could reduce the mobility of the contaminants by preventing vertical infiltration that may carry contaminants into the groundwater. Alternatives 4 and 5 best meet this criterion because they would reduce the toxicity and volume of contaminants by removing the VOCs through the use of soil vapor extraction or excavation and treatment.

Groundwater Remediation Alternatives

Alternatives 1 and 2 would not reduce the toxicity, mobility, or volume of any contaminants through treatment.

Alternatives 3 and 4 best meet this criterion since they would reduce the toxicity, mobility, and volume of contaminants in Site groundwater through treatment to remove volatile organic compounds.

5. **Short-term Effectiveness**

Soil Remediation Alternatives

Alternatives 1 and 2 would not involve any change to the existing Site conditions. Therefore, no short term impacts to human health are anticipated for either alternative. However, both alternatives would not achieve soil cleanup goals in any reasonable period of time.

Alternatives 3 through 5 involve activities such as drilling and excavation, however, the major components would have minimal short-term effects on the community during implementation, since they require very limited excavation of dry wells. These alternatives would have minor short-term effects on the surrounding community, including a slight increase in noise level from construction equipment, and possible fugitive dust emissions which could be minimized by the proper engineering procedure.

Alternatives 5 involves transportation of a greater volume of contaminated soil from the Site, and increases the potential risks to workers associated with dust generated during excavation and/or transportation. Potential risks to workers can be managed easily by procedures outlined in site specific health and safety plans.

Groundwater Remediation Alternatives

Groundwater Alternatives 3-I and 4-I are not as protective of human health and the environment as 3-II and 4-II because 3-I and 4-I do not actively address the downgradient portion of the plume and therefore require a longer period of time to achieve protection . All the active groundwater treatment Alternatives, 3-I, 3-II, 4-I and 4-II, involve little disturbance to contaminated subsurface areas, therefore the potential risks to Site workers are minor and can be easily managed. The potential short-term risks to human health and the environment are anticipated to be low for these alternatives.

6. Implementability

Soil Remediation Alternatives

All the alternatives are technically and administratively feasible. Alternatives 1 and 2 would be the easiest to implement. Alternatives 3, 4 and 5 depend on a RCRA-permitted landfill agreeing to accept the soil before it can be implemented. In addition, since the area of soil to be remediated is small, it would be difficult to obtain a vendor to implement Alternative 4, soil vapor extraction.

Groundwater Remediation Alternatives

All the alternatives are technically and administratively feasible. The treatment components of Alternatives 3 and 4 are known to be proven effective for all contaminants of concern and should be relatively easy to implement because they rely on well understood and readily available commercial equipment. Air stripping is a proven technology widely used in the removal of VOCs from groundwater.

7. Cost

Soil Remediation Alternatives

The present worth cost of the alternatives that provide for treatment and disposal of the soils ranges from approximately $616,000 (for capping of drum storage area and excavation of DW-D, DW-C & DW-F) to $939,000 (for excavation of drum storage area and DW-D, DW-C and DW-F). These totals include the cost of incineration of all excavated soils to meet LDRs.

Groundwater Remediation Alternatives

The present worth cost of the alternatives that provide treatment for groundwater range from a present worth of $3,646,000 (for extraction using four recovery wells and treatment with discharge to Ligonee Brook) to $5,248,00 (for extraction using seven recovery wells and treatment with discharge to the Cove). The greater costs of the selected remedy increase with the greater degree of protectiveness. Alternative 4-II is more protective than Alternatives 3-I and 4-I since it cleans up the entire plume.

8. State Acceptance

The State of New York concurs with the selected remedy.

9. Community Acceptance

In general, the local residents agreed with the selection of the remedy. Their main concern is the effects that discharging the treated groundwater to the Sag Harbor Cove may have on its ecosystem. All comments are addressed in the Responsiveness Summary which is appended to this ROD in Appendix 4.

IX. SELECTED REMEDY

Based on the results of the RI/FS and after careful consideration of all alternatives presented above, EPA recommends the following alternatives for cleaning up the contaminated soils and groundwater at the Rowe Industries Superfund Site: **Soil Remediation Alternative 5: Soil Excavation and Disposal at a Chemical Waste Landfill in conjunction with Groundwater Remediation Alternative 4-II: Extraction/Air Stripping with Discharge to Sag Harbor Cove.**

Specifically, the selected remedy will involve the following:

1) excavating and disposing of 365 cubic yards of soil at a RCRA permitted facility (soil will be treated to meet LDRs, if necessary);

2) monitoring to confirm that soils with concentrations above Site cleanup objectives have been excavated;

3) extraction and treatment of groundwater to meet federal and State drinking water MCLs in the aquifer (groundwater will be treated with air stripping with subsequent discharge to Sag Harbor Cove);

4) long-term groundwater monitoring to track the migration and concentrations of the contaminants of concern; and

5) re-evaluation of the Site at least once every five years to determine if a modification to the selected alternative is necessary as long as contaminants remain on-site above health-based levels.

The selected remedy is believed to provide the best balance of trade-offs among the alternatives with respect to the evaluation criteria. Based on the information available at this time, EPA believes the selected alternative will be protective of human health and the environment, comply with ARARs, be cost effective, and utilize permanent technologies to the maximum extent practicable. The alternative also treats the source of contamination (i.e., soils), meeting the statutory preference for a remedy that involves treatment as a principal element.

X. STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of the CERCLA establishes several other statutory requirements and preferences. These specify that, when complete, the selected remedial action for a site must comply with applicable or relevant and appropriate environmental standards established under federal and state environmental laws unless a statutory waiver is justified. The selected remedy also must be cost effective and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. Finally, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the toxicity, mobility and volume of hazardous substances as their principal element. The following sections discuss how the selected remedy meets these statutory requirements.

1. Protection of Human Health and the Environment

The selected remedy is protective of human health and the environment. Soils with concentrations of contaminants exceeding the recommended soil cleanup objectives will be excavated and disposed of in an off-site RCRA-permitted landfill. Therefore the selected remedy for soils is also fully protective of human health and the environment because it removes a continuing threat to groundwater posed by the on-site contaminated soils and protects the sole source aquifer drinking water supply.

Groundwater remediation with the goal of achieving ARARs is also protective of human health and the environment. Although there is no current exposure pathway for groundwater use on the site, the pumping and treatment alternative attempts to restore a future potential drinking water source to drinking water standards. Prior to the contamination, this sole source aquifer was used as a private drinking water supply. Additionally, the alternative prevents any contamination from migrating to Sag Harbor Cove, the surface water body to which the contaminated aquifer discharges.

2. Compliance with Applicable or Relevant and Appropriate Requirements

At the completion of response actions, the selected remedy will have complied with the following major ARARs and considerations:

Chemical-specific ARARs:

Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs) (40 CFR 141.11-141.16) and non-zero MCLGs, 6 NYCRR Groundwater Quality Regulations (Parts 703.5, 703.6, 703.7) and the NYS Sanitary code (10 NYCRR part 5) provide standards for toxic compounds for public drinking water supply systems. The groundwater will be pumped until the above-referenced standards are achieved in the aquifer.

No federal or state chemical-specific ARARs exist for soils. However, EPA and NYSDEC have generated soil cleanup objectives (see Table 13) to restrict the concentration of compounds in the soil to a level which would ensure that contaminants in soil do not further contaminate groundwater.

Action-specific ARARs:

The selected remedy which involves the pumping and treating of groundwater may require air emissions treatment. This treatment will be required to meet 6NYCRR Parts 200, 201 and 212 regulations and the New York State Air Guide. In addition, the extracted groundwater will be treated and discharged to Sag Harbor Cove in compliance with SPDES requirements.

EPA has determined that, based on available information, certain actions taken with respect to the contaminated soil at the site must comply with applicable RCRA Land Disposal Restrictions (LDR) requirements. The LDRs place restrictions on the land disposal of any RCRA hazardous wastes. Because the selected remedy for soil remediation, Alternative 5, involves the excavation and placement of contaminated soil, and because EPA believes that such soil contains RCRA listed hazardous wastes, this alternative must comply with RCRA LDR requirements.

Soil remediation Alternative 5 is the excavation and off-site disposal of 365 cubic yards of soil contaminated with spent solvents which were used in degreasing operations at the Site. EPA believes that these soils are contaminated with listed RCRA wastes, known as F001 wastes. The RCRA LDRs require that F001 wastes and soils which contain them comply with certain concentration requirements prior to being land disposed. These concentrations requirements are expressed in terms of the toxic characteristic leaching procedure (TCLP) analysis which measures concentration levels in the waste extract as a result of the TCLP test (see 40 CFR Part 268, Appendix I). The TCLP concentration requirements for F001 wastes include the following requirements for chemicals at the Rowe Site:

Chemical	Concentration in TCLP Extract (ppm)
Ethylbenzene	0.053
Methylene Chloride	0.96
PCE	0.05
Toluene	0.33

1,1,1 TCA	0.41
TCE	0.091
Xylene	0.15

Therefore, in compliance with the LDR requirements, the soils to be excavated will be analyzed using the TCLP analysis. If the extract concentrations for these soils are higher than those listed above, the soils will be treated (either by incineration or an alternative technology) to meet the TCLP concentrations above. Once the TCLP concentrations have been met, EPA would dispose of the soils in a RCRA-permitted compliant landfill.

Location-specific ARARs

Executive Order 11990 - "Protection of Wetlands" is an ARAR for this Site. Therefore, a wetland delineation will be completed during the early stages of the Remedial Design (RD) Process. If it is determined that remedial actions may adversely impact wetlands, a wetland functional values assessment will be completed and used to develop a Wetland Impact Mitigation Plan if necessary.

Executive Order 11988 - "Floodplain Management" is an ARAR for this Site. A floodplain assessment (with delineation of the 100 and 500 year flood contours) will be completed in the early stages of RD. This will ensure that the 500 year contour are protected against, and that the 500 year contour will be evaluated so that appropriate protective measures will be taken if necessary to address the potential effects of a flood event.

The Endangered Species Act is an ARAR for this site. If it is determined that there Federal Endangered/Threatened species, or their critical habitats are on or in the vicinity of the Site, actions will be taken to ensure that they are not adversely impacted by the remedial action.

The National Historic Preservation Act is applicable to the site. Accordingly, a Stage IA Cultural Resources Survey will be completed for the project area during the early stages of the RD. If the results of the Stage IA Survey suggest that further investigation is necessary, a Stage IB Survey will be completed for sensitive areas. If Cultural Resources are found and will be impacted by site actions, further actions will be necessary consistent with the National Historic Preservation Act.

3. Cost Effectiveness

The selected soil remedy is the most expensive. However, it provides the greatest overall protectiveness. Excavation of the contaminated soil with off-site disposal and treatment has a present worth cost of $939,000 and is more expensive than soil vapor extraction which offers the next highest level of protectiveness. However, the difficulty of finding a vendor to implement the technology for such a small 20' by 20 'area makes it infeasible. Therefore Alternative 5 is the most cost effective. The $5,248,000, 30-year present worth cost associated with the selected groundwater remedy, Alternative 4-II is the most costly of all the groundwater treatment alternatives. The $5,248,000 cost associated with groundwater treatment is cost effective in that the remedy provides the greatest overall protectiveness as compared with the $3,646,00 and $3,713,000 cost associated with Alternatives 3-I and 4-I, respectively, which pump and treat a portion rather than the entire plume which is not as protective as alternative 4-II.

4. Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable

The selected remedy represents the maximum extent to which permanent solutions and alternative treatment technologies can be utilized in a cost effective manner for the Site. After excavation is complete, the soil will no longer be contributing contaminants to the underlying aquifer.

The groundwater treatment used in the selected remedy will reduce the contaminants of concern to levels protective of human health. In addition, of those alternatives which are protective of human health and the environment and comply with ARARs, EPA has determined that the selected remedy provides the best balance of trade-offs in terms of the five balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. The modifying considerations of State and community acceptance were also taken into account in this determination.

The long-term effectiveness and permanence of the selected soil remedy is very high in that the contaminated soils would be removed and the contaminated areas restored. Groundwater treatment also offers long-term effectiveness and permanence in that the remedial goal is to achieve ARARs as rapidly as possible.

Reduction of toxicity, mobility, or volume is also evident in the selected remedy. The excavation of soils will effectively reduce the mobility of contaminants by eliminating this pathway as a continuing source to groundwater. The toxicity and volume of contaminated soil is also reduced. Groundwater treatment has the goal of reducing contaminant concentrations in the aquifer to meet ARARs, effectively diminishing both toxicity and volume.

The short-term effectiveness and implementability of the selected soil remedy is high in that it would be conducted in a short time and have minimal effects on the surrounding community. The short-term effectiveness and implementability of the groundwater treatment alternative is high in that there is no exposure to contaminated groundwater during implementation and the remedy employs standard equipment and well developed technologies. As stated above, the cost associated with the selected remedy is the least costly of each alternative that is protective of human health and the environment and provides for treatment of the most hazardous substances.

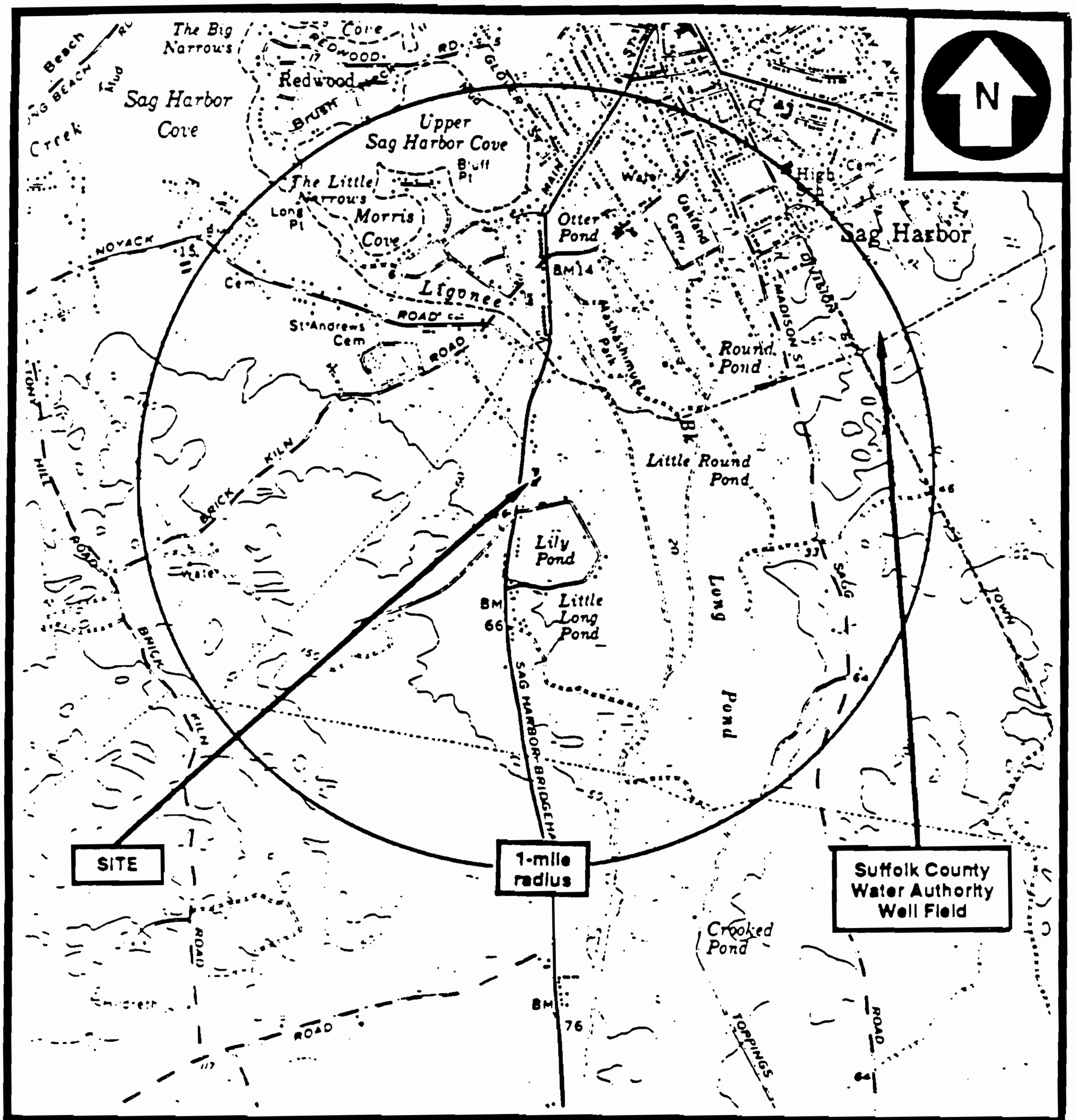
5. Preference for Treatment as a Principal Element

The statutory preference for treatment as a principal element is satisfied in the selected remedy for each medium. The soil excavation alternative may require treatment prior to disposal to comply with LDR standards. The groundwater treatment alternative requires treatment prior to discharge to comply with SPDES requirements and to achieve ARARs in the aquifer.

XI. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Rowe Industries Site was released to the public on August 26, 1992. The Proposed Plan identified soil remediation Alternative 5 and groundwater remediation Alternative 4-II as the preferred alternative. EPA reviewed all comments submitted. Upon review of the comments, it was determined that no significant changes to the preferred remedy, as it was originally identified in the Proposed Plan, were necessary.

APPENDIX 1



BASE MAP IS A PORTION OF THE FOLLOWING U.S.G.S. 7.5' SERIES QUADRANGLE:
SAG HARBOR, NY, 1956

0 1000 2000 3000 feet

QUADRANGLE LOCATION

LOCATION MAP

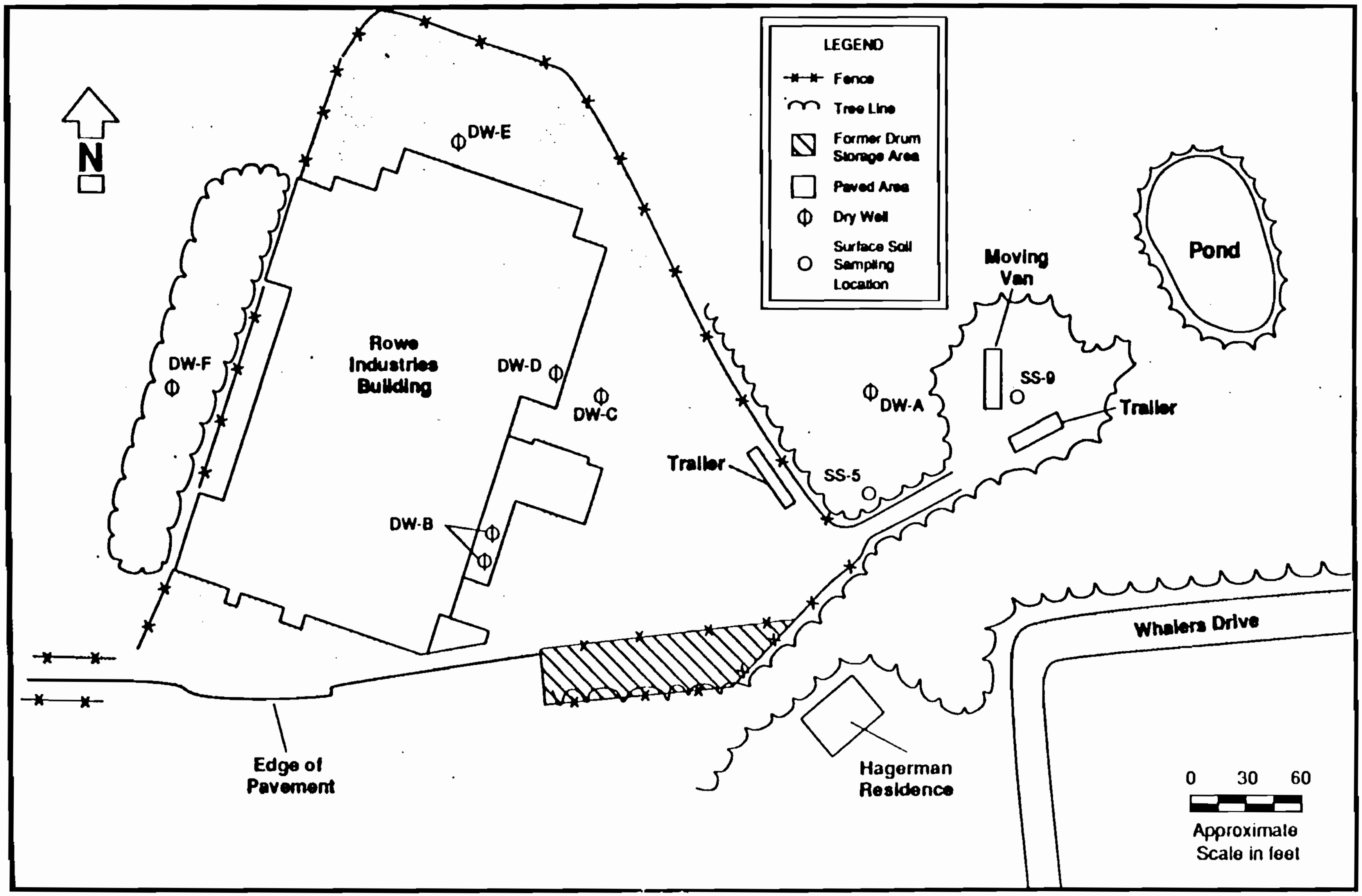
ROWE INDUSTRIES SUPERFUND SITE
SAG HARBOR, NEW YORK

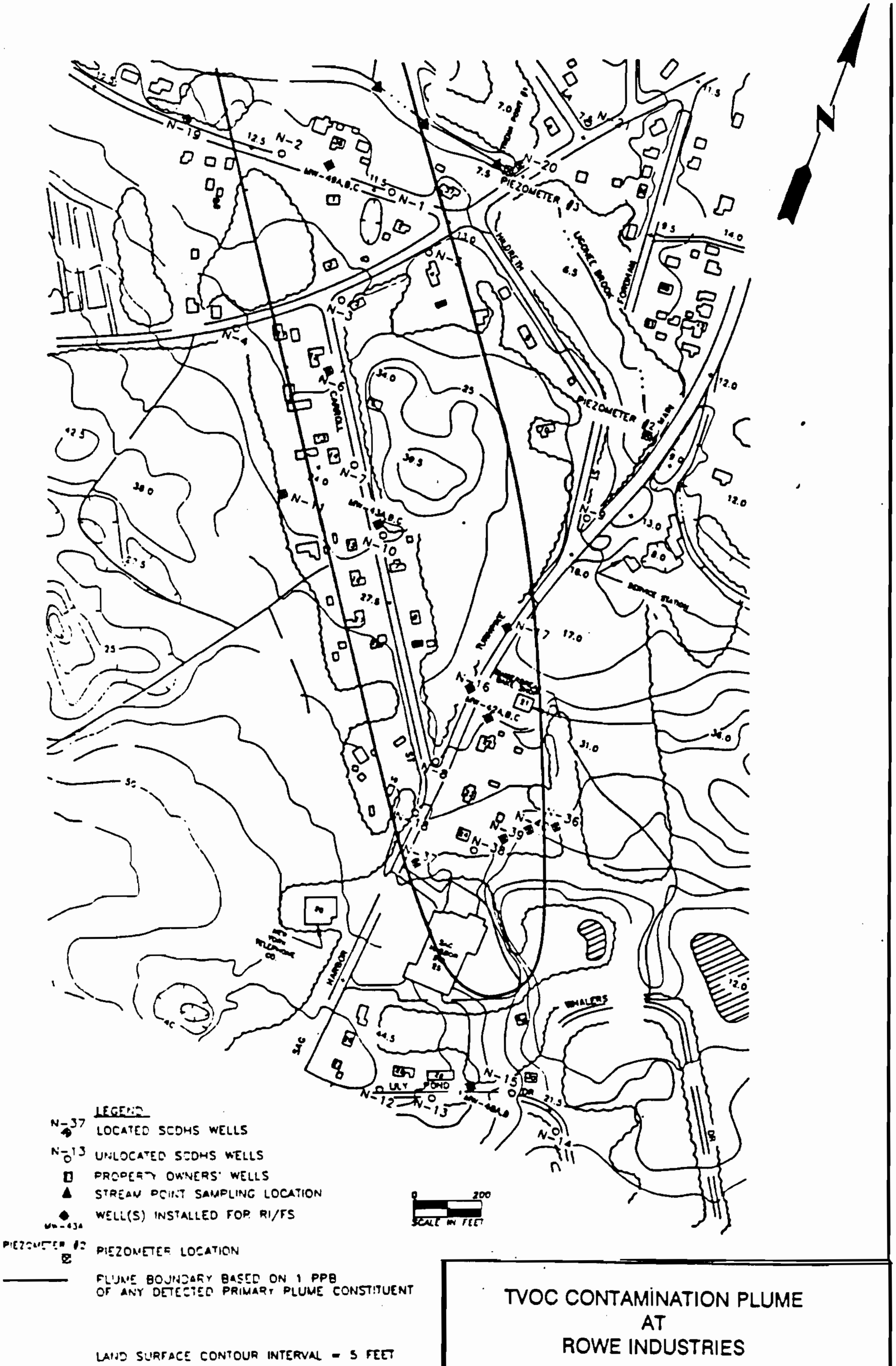
TRC

Figure 1

Figure 2

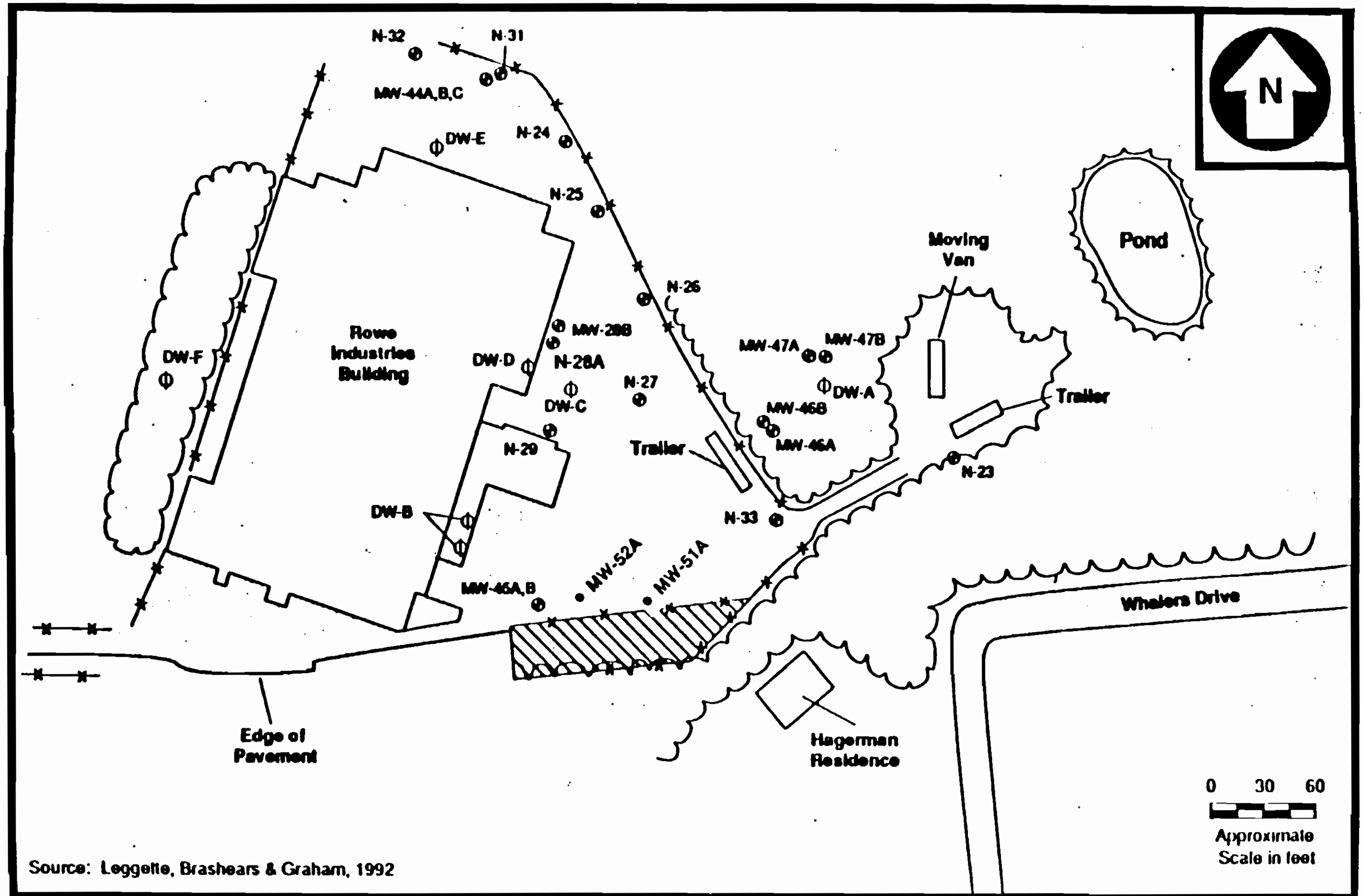
Rowe Industries Superfund Site: Site Sketch





TVOC CONTAMINATION PLUME
AT
ROWE INDUSTRIES

FIGURE 3



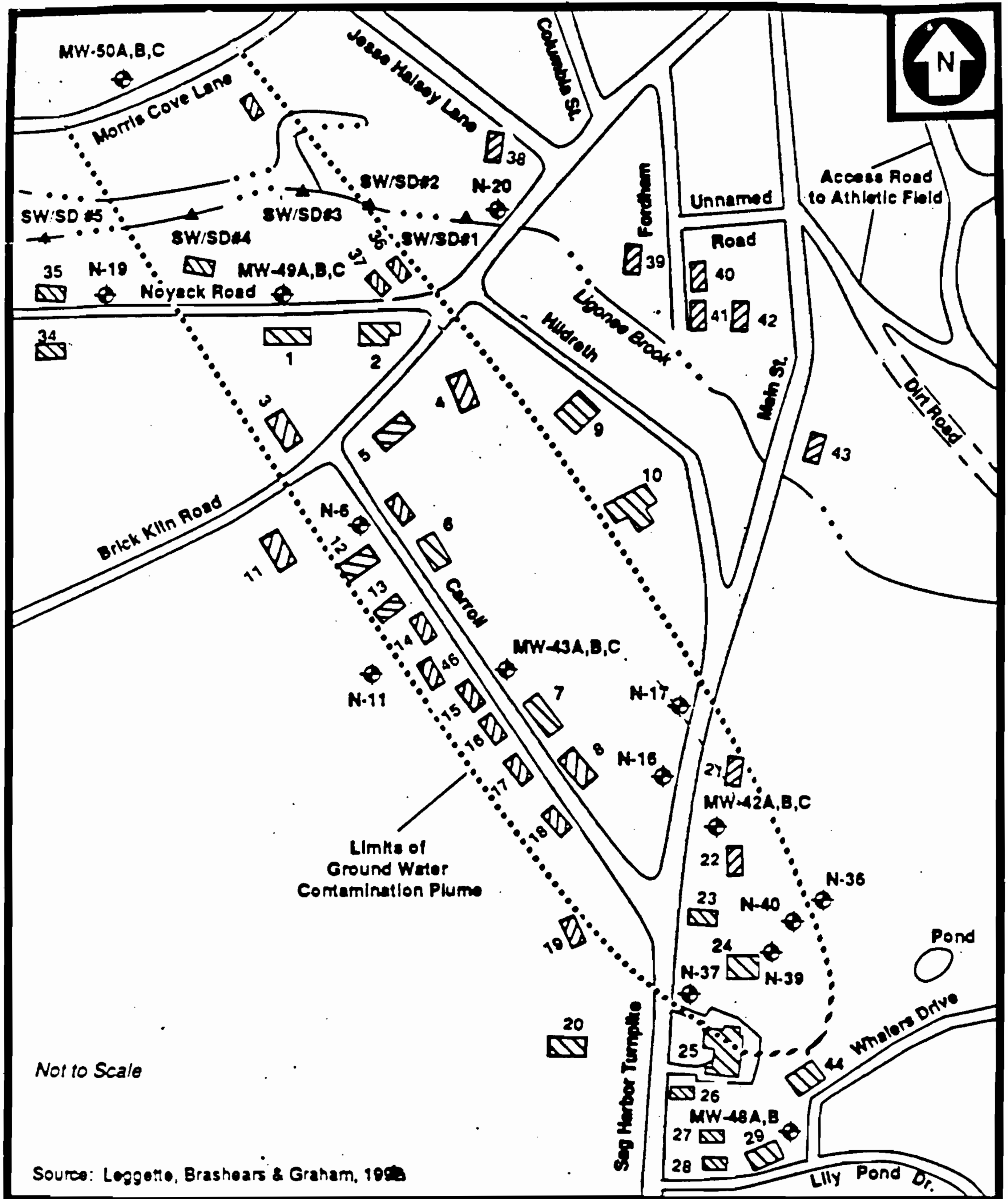
Source: Leggette, Brashears & Graham, 1992

ONSITE GROUND WATER SAMPLING LOCATIONS

ROWE INDUSTRIES SUPERFUND SITE
SAG HARBOR, NEW YORK

TRC

Figure 4.



Not to Scale

Source: Leggette, Brashears & Graham, 1992

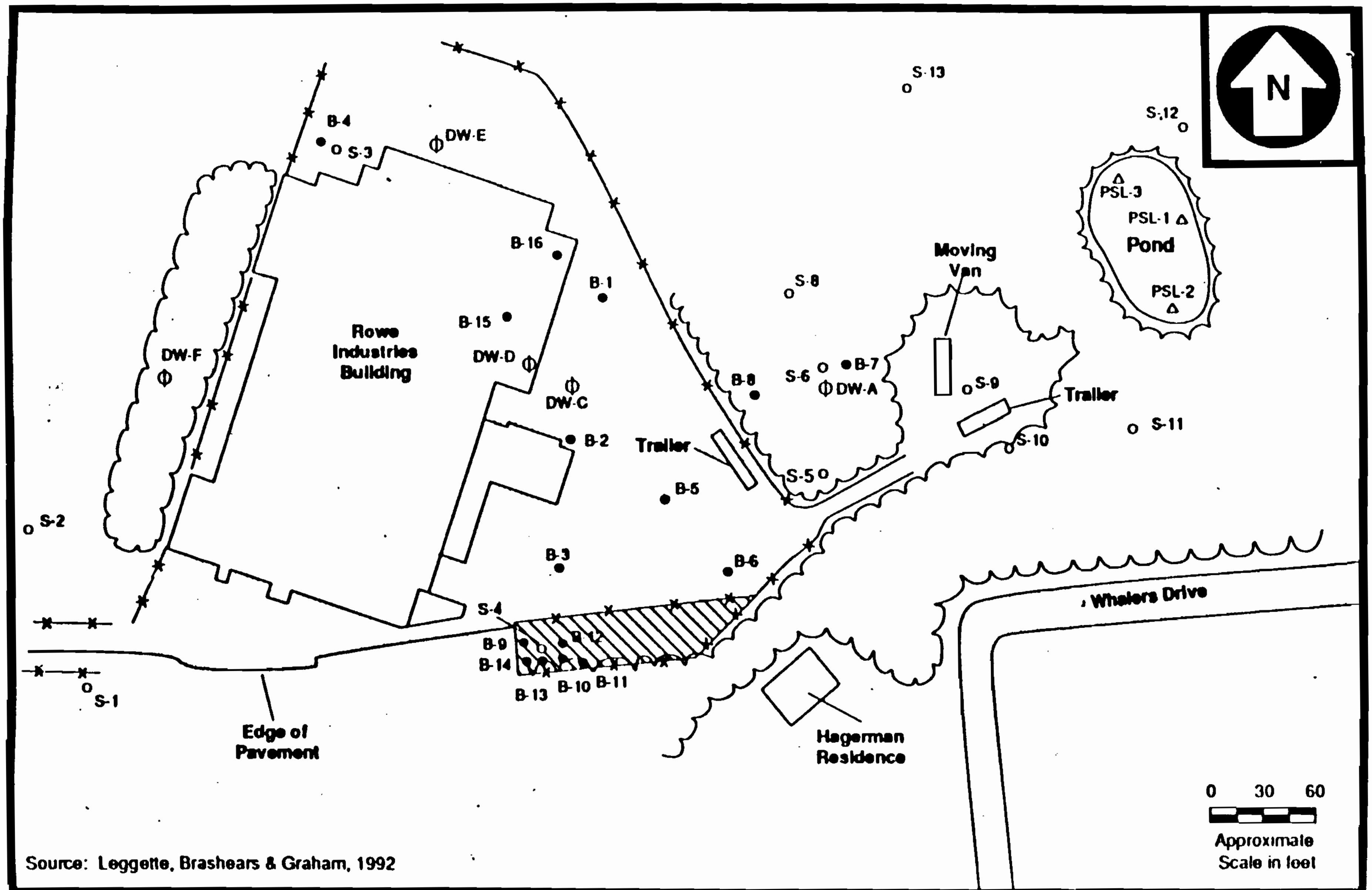
═	Paved Road
▨1	Private Homeowner Well Sample Location
⊕	Monitoring Well
▲	Surface Water/Sediment Sampling Location

OFFSITE SAMPLING LOCATIONS

ROWE INDUSTRIES SUPERFUND SITE
SAG HARBOR, NEW YORK

TRC

Figure 5.



Source: Leggette, Brashears & Graham, 1992

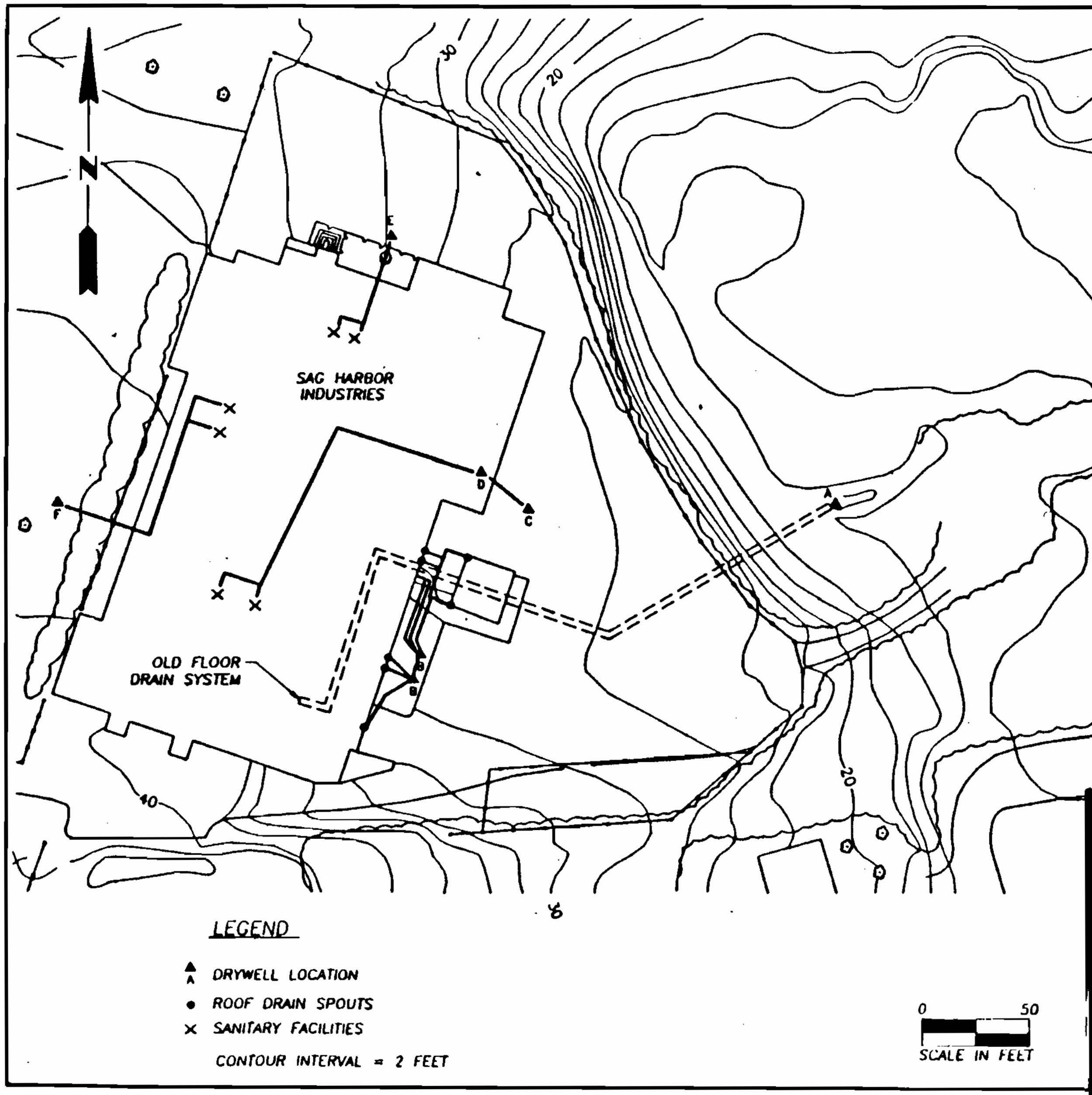
- Fence
- Tree Line
- ▨ Former Drum Storage Area
- ☐ Paved Area
- Φ Dry Well Sediment
- ● Soil Boring
- △ Pond Sediment (PSL-1)
- ○ Surface Soil Sampling Location (S-1)

ONSITE SOIL AND SEDIMENT SAMPLING LOCATIONS

ROWE INDUSTRIES SUPERFUND SITE
SAG HARBOR, NEW YORK

TRC

FIGURE 6



SKETCH OF DRY WELL SYSTEM
AT
ROWE INDUSTRIES

FIGURE 7

APPENDIX 2

TABLE 1-A
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK
FOR 1989

<u>SUMMARY OF VOLATILE ORGANIC COMPOUNDS</u>

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
WELL NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID					REPORTED	VALUES								
N-08	22	11/18/89	65	100B	37	23	ND5	4J	ND5	0.7BJR	ND5	ND5	ND5	ND5	ND100	10BR	164
N-11	21	11/20/89	64	ND1	ND1	ND1	ND1	ND1	ND1	0.8BJR	ND1	ND1	0.6JR	ND1	ND20	2BR	0
N-16	23	11/17/89	62	10B	13	8	0.9J	1	ND1	0.8BJR	ND1	ND1	ND1	ND1	ND20	2BR	32.9
N-17	22	11/20/89	63	1BR	14	21	8	0.4J	ND1	2BR	ND1	0.5JR	0.7JR	ND1	ND20	6BR	41.4
N-19	23	11/20/89	66	ND1	ND1	ND1	ND1	ND1	ND1	1BJR	ND1	ND1	ND1	ND1	ND20	2BR	0
N-20	23	11/20/89	67	ND1	ND1	ND1	ND1	ND1	ND1	0.8BJR	ND1	ND1	ND1	ND1	ND20	3BR	0
N-24	24	11/15/89	43	2100	140	130	ND100	ND100	ND100	22BJR	ND100	ND100	ND100	ND100	ND2000	60BJR	2370
N-25	24	11/14/89	41	110	25	83	ND5	ND5	ND5	1.7BJR	ND5	ND5	ND5	ND5	ND100	21BR	218
N-28 N-28	23 23	11/14/89 11/14/89	38 39	1500 1300	190 180	50 30	ND100 ND100	ND100 ND100	ND100 ND100	200BR 370BR	ND100 ND100	ND100 ND100	ND100 ND100	ND100 ND100	ND2000 ND2000	460BR 420BR	1740 1490
N-27	23	11/14/89	37	1200	180	30	ND100	ND100	ND100	140BJR	ND100	ND100	ND100	ND100	ND2000	370BR	370BR
N-28	23	11/14/89	35	3700	240	180	ND100	ND100	ND100	190BJR	ND100	ND100R	ND100	ND100	ND2000	530BR	4120
N-32	23	11/15/89	42	800	48	45	ND25	ND25	ND25	9JBR	ND25	ND25	ND25	ND25	ND500	110BR	891
N-33	23	11/14/89	34	80	17	ND5	ND5	ND5	ND5	9BR	ND5	ND5	ND5	ND5	100R	22BR	97
N-36	32	11/15/89	48	0.9JR	ND1	ND1	0.8J	ND1	ND1	0.3BJR	ND1	0.7JR	0.9JR	ND1	ND20	4BR	0.8
N-37	25	11/15/89	44	0.2JR	ND1	ND1	ND1	ND1	ND1	2BR	ND1	ND1	0.2JR	ND1	ND20	3BR	0
N-39	33	11/15/89	46	200	51	38	2J	ND5	4J	5JBR	ND5	ND5	1JR	ND5	ND100R	17BR	293
N-40	23	11/15/89	47	50	54	43	3J	5	5	5JBR	ND5	ND5	ND5	ND5	ND100R	10BR	160

TA[illegible]A
ROWE IND[illegible]RIES SITE
SAG HARBOR, NEW YORK
FOR 1989

SUMMARY OF VOLATILE ORGANIC COMPOUNDS

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
WELL NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID	••••••••REPORTED VALUES••••••••													
MW-42A	27	11/17/89	58	ND2	22	30	2	ND2	ND2	ND2R	ND2	ND2	ND2	ND2	ND40	5BR	54
MW-42A	27	11/17/89	57	658	49	54	4J	3J	ND5	1JBR	ND5	ND5	ND5	ND5	ND100	11BR	175
MW-42B	67	11/17/89	59	1BR	ND1	0.8J	ND1	ND1	ND1	0.4BJR	ND1	0.8JR	1R	ND1	ND20	2BR	0.8
MW-42C	98	11/17/89	61	0.3BJR	ND1	ND1	ND1	ND1	ND1	1BJR	ND1	0.9JR	1R	ND1	ND20	3BR	0
MW-43A	29	11/16/89	50	20	8	3	ND1	ND1	0.8J	0.5BJR	ND1	ND1	ND1	ND1	ND20	3BR	29.6
MW-43A	29	11/16/89	51	28	9	5	ND1	ND1	0.8J	0.6BJR	ND1	ND1	ND1	ND1	ND20	3BR	42.8
MW-43B	74	11/16/89	52	45	17	11	0.5J	ND1	2	0.48JR	ND1	2R	3R	0.5J	ND20	3BR	76
MW-43C	107	11/16/89	53	5R	2	1	ND1	ND1	ND1	0.5BJR	ND1	2R	4	0.5J	ND20	5BR	7.5

TABLE 1-A
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK
FOR 1990

SUMMARY OF VOLATILE ORGANIC COMPOUNDS

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
WELL NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID**********	**********	**********	**********	**********	**********	REPORTED	VALUES***********							
N-24	24	02/05/90	109	2400	160	140	ND100	ND100	ND100	ND50	ND50	ND50	ND100	ND100	ND200J	60BJ	2700
N-25	24	02/05/90	107	100	30	87	ND5	ND5	ND5	45BJ	ND5	ND5	ND5	ND5	24BR	4J	262
N-26	23	02/08/90	112	6900	440J	ND500	ND500	ND500	ND500	1500BJ	ND500	ND500	ND500	ND500	1000BR	260J	7340
N-27	23	02/08/90	111	760	90	ND50	ND50	ND50	ND50	100BJ	ND50	ND50	ND50	ND50	ND100	56BJ	850
N-28	23	02/08/90	113	12000	690	530	ND250	ND250	ND250	5000BJ	ND250	ND250	ND250	ND250	ND500	380BJ	13220
N-32	23	02/08/90	114	1200	46J	56	ND50	ND50	ND50	ND25	ND50	ND50	ND50	ND50	ND100	90BR	1302
N-33	23	02/05/90	105	78	16	ND5	ND5	ND5	ND5	35JR	ND5	ND5	ND5	ND5	ND10	5BR	94
N-36	32	02/09/90	133	ND1	ND1	ND1	0.6J	ND1	ND1	ND0.5	ND1	ND1	ND1	ND1	5B	ND1	5.6
N-37	25	02/08/90	117	ND1	ND1	ND1	ND1	ND1	ND1	3BR	ND1	ND1	ND1	ND1	3BR	ND1	0
N-39	33	02/08/90	115	290	48	38	ND10	ND10	ND10	30BR	ND10	ND10	ND10	ND10	ND20	16BR	376
N-40	23	02/09/90	123	25	22	20	2	2	0.6J	ND0.5	ND1	ND1	ND1	ND1	10B	ND1	81.6

TA[illegible] A
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK
FOR 1990

SUMMARY OF VOLATILE ORGANIC COMPOUNDS

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
WELL NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID••••••••••••	••••••••••••	••••••••••••	••••••••••••	••••••••••••	•••REPORTED	VALUES•••••••								
MW-42A	27	02/07/90	119	42	34	38	3	3	ND1	3BJ	ND1	ND1	ND1	ND1	ND2	18R	121
MW-42B	87	02/07/90	120	ND1	0.9J	ND1	ND1	ND1	ND1	3BJ	ND1	ND1	ND1	ND1	5R	18R	0.9
	87	02/07/90	121	28R	0.9J	ND1	ND1	ND1	ND1	ND.5J	ND1	ND1	ND1	ND1	58R	28R	0.9
MW-42C	98	02/07/90	123	18R	ND1	ND1	ND1	ND1	ND1	ND.5J	ND1	ND1	ND1	ND1	38R	ND1	0
MW-43A	29	02/08/90	125	41	12	8	ND1	1	ND1	ND.5J	ND1	ND1	ND1	ND1	ND2	ND1	62
MW-43B	74	02/08/90	128	70	27	15	ND5	ND6	ND5	ND.5J	ND5	ND6	ND5	ND6	168R	278R	112
MW-43C	107	02/08/90	127	88	3	1	ND1	ND1	ND1	0.68J	ND1	ND1	ND1	ND1	6B	12B	28.7

TABLE 1-A
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK
FOR 1991

SUMMARY OF VOLATILE ORGANIC COMPOUNDS

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLDRO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLDRO ETHENE	FREON 113	BENZENE	XYLENE	TDLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL DF DETECTED COMPOUNDS
WELL NUMBER VALUES	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID	REPORTED													
MW-28B	48	11/08/91	312	0.6J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	140B	0.4BJ	141.2
	48	07/29/91	231	0.9J	ND1J	ND1	ND1	ND1	ND1	ND1	ND1	NDJ	NDJ	ND1J	ND2	ND1	0.9
MW-42A	27	08/01/91	258	34D	29D	500	5D	1DJ	1DJ	ND2	ND2	ND2	ND2	ND2	4D	0.4BJD	125.3
	27	08/01/91	268	28	32J	57R	8	1	2	ND1	ND1J	ND1J	ND1J	ND1J	18JR	ND1	71
MW-42B	67	08/01/91	259	0.67	ND1	0.5J	ND1	ND1	ND1	ND1	ND1J	ND1J	ND1J	ND1J	0.78JR	ND1	1.1
MW-42C	98	08/01/91	260	ND1	ND1	0.6J	ND1	ND1	ND1	ND1	ND1J	ND1J	ND1J	ND1J	0.98JR	ND1	0.8
MW-43A	29	08/05/91	269	60	7	8	ND2	0.5J	ND2	2	ND1	ND1	ND1	ND1	ND2	0.6J	78
	29	08/05/91	268	140	17	13	ND6	ND5	ND6	4J	ND1	ND1	ND1	ND1	ND2	28J	198
MW-44B	49	11/05/91	292	25000	ND120	32DJ	ND120	ND120	ND120	ND120	ND120	ND120	ND120	ND120	ND250	ND120	2532
	49	11/05/91	292	4800E	ND100	57J	ND100	20J	ND100	ND100	ND100	ND100	ND100	ND100	ND200	22BJ	4899
	49	08/01/91	256	930R	41R	48R	0.7J	2	0.4J	ND2	ND1J	ND1J	ND1J	ND1J	ND2	ND1	5.4
	49	08/01/91	256	17000	ND120	28	ND120	ND120	ND120	ND120	ND120	ND120	ND120	ND120	ND250	ND120	1765.9
MW-44C	71	11/05/91	293	2	ND1	ND1	ND1	ND1	ND1	1.5J	ND1	ND1	ND1	ND1	4R	0.3BJ	8.8
	71	08/01/91	257	16	ND1	0.4J	ND1	ND1	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND2	ND1	16.8
MW-45A	29	11/04/91	282	8	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	120R	0.4BJ	8.7
	29	07/31/91	249	47	1J	ND5	ND5	ND5	ND6	2	ND6	1JY	ND6	ND5	ND10R	4BJ	57
MW-45B	51	11/04/91	261	24	0.2J	0.3J	ND1	0.2J	ND1	ND1	ND1	ND1	ND1	ND1	88R	0.5BJ	25.5
	51	07/31/91	250	7	ND1	ND1	ND1	ND1	ND1	0.5J	ND1	ND1	ND1	ND1	ND1	0.3BJ	8.2
MW-46A	14	11/05/91	289	6	9	18	0.2J	0.2J	ND1	ND1	ND1	ND1R	ND1	ND1	20R	0.4BJ	34.1
	14	07/30/91	236	18	7J	7	0.2J	ND1	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND2	ND1	30.5
MW-46B	43	11/05/91	290	ND1	ND1	ND1	ND1	ND1	ND1	2J	ND1	ND1R	ND1	ND1	14R	0.4BJ	2.6
	43	07/30/91	237	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND23	ND1	0
MW-47A	14	11/04/91	286	21	68	140	0 8J	0.4J	4	ND1	ND1	ND1	ND1	ND1	400R	0.4BJ	262.2
	14	11/04/91	286	22D	74D	1600	ND5	1DJ	4DJ	ND5	ND5	ND5	ND6	ND5	260R	3BJ0	264.0
	14	07/30/91	238	14	48	75	0.6J	ND2	2	ND2	ND2J	ND2J	ND2J	ND2J	ND4	ND2	138.3
MW-47B	38	11/14/91	285	3	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	170R	0.4BJ	4.1
	38	07/30/91	240	0.3J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	0.8
	38	07/30/91	239	0.3J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	0.5
MW-48A	35	11/04/91	284	ND1	ND1	ND1	ND1	D.2J	ND1	ND1	ND1	ND1	ND1	ND1	220R	0.6BJ	D.8
	35	08/02/91	263	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND2	0.4BJ	0.8
MW-48B	69	11/04/91	283	ND1	ND1	0.3J	ND1	0.2J	0 2J	ND1	ND1	ND1	ND1	ND1	39R	0.4BJ	1.5
	69	08/02/91	264	ND1	ND1	0.3J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND2	D.4BJ	1 2
MW-49A	23	11/07/91	320	2	2	1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	72R	0.4BJ	5.4
	23	07/30/91	241	3	4	3	0.4J	0.4J	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND1	ND	17.8
MW-49B	68	11/07/91	321	470	300	160	28	74	28	ND25	ND25	ND25	ND25	ND25	ND50	68J	1084
	68	07/30/91	242	370	330	170	27	62	28	ND10	ND10J	ND10J	ND10J	ND10J	ND20	ND10	994

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ROWE INDUSTRIES SITE

SAG HARBOR, NEW YORK
FOR 1991

SUMMARY OF VOLATILE ORGANIC COMPOUNDS

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
WELL NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID	REPORTED VALUES													
N-08	22	08/05/91	272	2000D	27D	24D	ND5	30J	ND5	ND1	ND1	ND1	ND1	ND1	ND2	ND1	254
	22	08/06/91	272	160E	22	21	0.8J	3	0.6J	3	ND1	ND1	ND1	ND1	ND2	ND1	210.4
N-16	23	11/07/91	323	ND5	3	2	0.4J	0.6J	ND1	ND1	ND1	ND1	ND1	ND1	75R	0.68J	6.6
	23	11/07/91	324	ND4	3	2	0.4J	0.5J	ND1	ND1	ND1	ND1	ND1	ND1	88R	0.58J	6.4
N-24	24	11/08/91	314	1200	ND50	30J	ND50	ND50	250	ND50	ND50	ND50	ND50	ND50	2700R	ND50	1480
	24	07/29/91	232T	59R	45J	52R	5.8J	3.6J	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND1R	ND1	54.5
	24	07/29/91	232T	1100R	25	47J	ND25	ND25	ND25	ND25	ND25J	ND25J	ND25J	ND25J	ND25R	ND25	47
	24	07/29/91	232N	26000	520J	720J	ND120	ND120	560D	ND120	ND120	ND120	ND120	ND120	ND250	ND120	3284
	24	07/29/91	232N	590R	46R	57R	5	4	270R	ND1	ND1J	0.5JY	ND1J	ND1J	ND2	ND1	9.5
N-27	23	11/08/91	308	8000	210J	62J	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND500	58BJ	6330
	23	11/08/91	307	5200	ND2500	ND2500	ND2500	ND2500	ND2500	ND2500	ND2500	ND2500	ND5000	ND2500	ND2500	540BJ	5740
	23	11/08/91	307	4200D	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND500	ND250	4200
	23	07/29/91	229T	1200JR	140J	ND100	ND100	ND100	ND100	ND100	ND100J	ND100J	ND100J	ND100J	ND100R	ND100	140
	23	07/29/91	229T	75R	83R	36J	1.2J	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND1J	ND1R	ND1	37.2
	23	07/29/91	229N	2200D	520J	260J	ND120	ND120	ND120	ND120	ND120	ND120	ND120	ND120	ND250	ND120	2278
	23	07/29/91	229N	1100R	110R	41R	1	0.8J	ND1	ND1	ND1	2Y	ND1	ND1	ND2	ND1	3.6
N-28	23	11/08/91	311	5800	100J	78J	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND250	ND500	170BJ	5948
	23	07/29/91	230N	640R	59R	49R	0.9J	3	94	ND1	ND1	ND1	ND1	ND1	ND2	ND1	4.3
	23	07/29/91	230T	1900R	ND100	ND100	ND100	ND100	ND100	ND100	ND100J	ND100J	ND100J	ND100J	ND100R	ND100	0
	23	07/29/91	230N	2400D	600J	530J	ND120	ND120	920J	ND120	ND120	ND120	ND120	ND120	ND250	ND120	2606
	23	07/29/91	230T	79R	46J	36J	ND1	1.7J	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND1R	ND1	83.7
N-32	23	11/08/91	313	390	ND25	14J	ND25	78J	15J	ND25	ND25	ND25	ND25	ND25	ND50	6BJ	432
	23	07/29/91	233	290	16	16	ND10	3J	37	ND10	ND10J	ND10J	ND10J	ND10J	ND20	ND10	362
N-33	23	11/05/91	294	47D	50	ND2	ND2	ND2	ND2	ND2	ND2	ND2	ND2	ND2	9D	18BJ	70
	23	11/05/91	294	46	5	0.2J	ND1	D.2J	ND1	1.9	ND1	ND1	ND1	ND1	16R	0.38J	58.6
	23	07/29/91	227	6	0.9J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	6.9
N-36	32	08/05/91	274	ND1	ND1	ND1	2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	5
N-37	25	07/31/91	251	0.2J	ND1	ND1	ND1	ND1	ND1	1	ND1	0.3JY	ND1	ND1	ND2R	ND1	1.5
N-39	33	08/02/91	265	600R	49E	41E	2	3	1	0.6J	ND1	ND1	ND1	ND1	ND2	0.4BJ	97
	33	08/02/91	265	1200D	ND100	36D	ND100	ND100	ND100	ND100	ND100	ND100	ND100	ND100	ND200	ND100	1200
N-40	23	08/05/91	273	4	3	4	1	0.3J	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	19.3

TABLE 1-A
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK
FOR 1991

SUMMARY OF VOLATILE ORGANIC COMPOUNDS

for MONITOR WELLS

PARAMETERS				TERTRA CHLORO ETHLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
WELL NUMBER VALUES***************	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID************************REPORTED														
MW-49C	99	11/07/91	322	29	11	7	0.8J	28	ND1	ND1	ND1	ND1	ND1	ND1	6R	0.4BJ	50.4
	99	07/30/91	243	28	15	8	0.9J	2	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND2	ND1	54.2
MW-50A	29	11/07/91	317	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	26R	0.4BJ	0.8
	29	07/31/91	246	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND2	0.3BJ	1.1
	29	07/31/91	246	0.8J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	0.5BJ	0.2BJ	2.6
MW-50B	59	11/07/91	318	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	39R	0.4BJ	1.2
	59	07/31/91	248	ND1	ND1	ND1	ND1	ND1	ND1	0.5J	ND1	ND1	ND1	ND1	ND2	0.3BJ	1.3
MW-50C	86	11/07/91	319	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	52R	0.3BJ	0.3
	86	07/31/91	248	ND1	ND1	ND1	ND1	ND1	ND1	0.5J	ND1	ND1	ND1	ND1	ND1	0.3BJ	1.7
MW-51A	28	11/08/91	309	140	6	2J	2J	ND5	ND5	ND5	ND5	ND5	ND5	ND5	13R	2BJ	154
	28	10/23/91	278	410	23	4J	4J	ND10	ND10	ND10	ND10	ND10	ND10	ND10	29R	ND5	444
	28	10/23/91	278	3100	160J	ND25	ND25	58DJ	ND25	ND25	ND25	ND25	ND25	ND25	290	128JD	372
MW-52A	29	11/08/91	310	38	3	0.8J	ND2	18J	ND2	ND2	ND2	ND2	ND2	ND2	ND4	0.88J	43.6
	29	10/23/91	277	59	2J	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND5	61

TABLE 1-B
SUMMARY OF METALS
FOR
HOMEOWNER & MONITOR
WELLS

PARAMETERS			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
WELL NO.	DATE	SAMPLE ID											REPORTED VALUES													
M-06	08/05/91	272	212	ND30	ND3	41.4	ND1	8.8	8430	ND5	ND5	196	66000	34.4J	4220	311	ND.2	14.2	1550	ND2	ND5J	30500J	ND2J	ND5	86.4J	NA
	11/16/89	55	400EJ*	5.4BR	ND2	33.5B	ND4	10NR	8400J	12.7*	ND10	ND6	22200J	22N	42800	179J	ND0.2	38.8BR	2000B	ND1	ND3	29700	ND3N	ND8	167	ND10
M-11	02/09/90	132	230	6.4BJ	ND4	ND35	ND2	15.2	8130EJ	16	ND15	14.7B	55200	24.6N*J	29400J	284	ND0.2	72	25400	ND2	ND9	10500	ND5	ND13	147*J	NA
M-11(D)	02/09/90	132	ND35	12.6BJ	ND4	ND35	ND2	ND4	7970EJ	ND7	ND15	6.5B	803	10.4BJ	28700J	288	ND0.2	ND18	23100	ND2	ND9	10700	ND5	ND13	52.8*J	NA
M-17	11/20/89	63	333EJ*	ND4	ND2	1330	ND4	0.1NR	18200J	13*	ND10	ND6	13200J	70.9N	5810	801J	ND0.2	15.4BR	28700	1.2B	ND3	119000	ND3N	ND8	195	ND10
M-19	02/09/90	131	47.4B	ND6	ND4	ND35	ND2	6.2	37400EJ	14.6	ND15	18.5B	17200	26.3N*J	18900J	163	ND0.2	25.4B	4570	ND2	ND9	11200	ND5	ND13	64.1*J	NA
M-19(D)	02/09/90	131	ND35	13.6BJ	ND4	ND35	ND2	ND4	39200EJ	ND7	ND15	7.1B	3080	19.9N*J	19200J	145	ND0.2	ND18	9500	ND2	ND9	11800	ND5	ND15	60.26*J	NA
M-24	07/29/91	232	3560	ND30J	ND3	59.8	ND1	17	9120	57.8	20.7	67	157000	37.8J	3100	4560	ND.2	53.2	2290	ND2	ND5J	11900J	ND2J	11.9	141J	NA
M-27	07/29/91	229	180	ND30J	ND3	45.0	ND1	0.9J	14700	34.7	ND5	46.0	82000	37.6J	2880	360	ND.2	43.3	1660	ND2	ND5J	11300J	ND2J	ND5	62.9J	NA
	02/06/90	111	70.4B	ND6	ND4	40.7B	ND2	4.6B	16700EJ	7.1B	ND15	ND5	8050	29.1N*J	49800	420	ND0.2	ND18	18400	ND2	ND9	11500	ND5	ND13	186.8*J	NA
	11/14/89	37	485JE*	6.1BE	ND2	51.9B	ND4	7.6R	23300	18.6*	ND10	ND6	11000J	60.1SN	7060	319J	ND0.2	35.6BR	17700	1.10	ND3	11600	ND3N	ND8	120	ND10
M-27(D)	02/06/90	111	ND35	8.6BJ	ND4	42.3B	ND2	ND4	16400EJ	ND7	ND15	ND5	3040	14.2N*J	47700	405	ND0.2	ND18	18200	ND2	ND9	14400	ND5	ND13	107*J	NA
M-20	07/29/91	230	182	ND30J	ND3	18.6	ND1	3.2J	5900	18.8	ND5	10	30500	11.5J	1610	337	ND.2	9	2080	ND2	ND5J	14900J	ND2J	ND5	778J	NA
MW-20D	07/29/91	231	766	ND30J	ND3	16.3	ND1	ND3J	20100	7.4	ND5	7.7	763	0.9J	2040	26.9	ND.2	6.7	4230	ND2	ND5J	12200J	ND2J	13.2	54.3J	NA
M-32	07/29/91	233	2840	ND30J	ND3	48.6	ND1	12.8J	6790	37.3	8.1	26.2	120000	46.8	2540	2060	ND.2	55.8	1920	ND2	ND5J	13300J	ND2J	10.2	167J	NA
M-33	07/29/91	227	150	ND30J	ND3	20.1	ND1	9.5J	4680	21	ND5	24.6	88700	30.3	1660	226	ND.2	48.4	580	ND2J	ND5J	11800J	ND2J	ND5	59.8J	NA
M-36	08/05/91	274	6350	40.9J	ND3	43.5	ND1	0.4	9750	61.0	11.2	35.3	55700	11.3J	3870	357	ND.2	66.2	1340	ND2	ND5J	3760J	ND2J	16.2	111J	NA
M-37	07/31/91	251	1680	ND30	ND3	98.4	ND1	32.1	8458	ND5	ND5	15.1	228000	13.3J	3770	268	ND.2	7.1	2260	ND2J	ND5J	58100J	ND2J	ND5	420J	NA
M-39	08/02/91	265	1570	ND30	ND3	34.6	ND1	13.6	43700	10.3	ND5	17.7	92800	12.2J	4850	1570	ND.2	18.2J	2620	ND2	ND5J	11800J	ND2J	ND5	100J	NA
	02/06/90	115	479	7.3BJ	ND4	ND35	ND2	0.1	39500EJ	14.6	ND15	6.8B	15700	20.6N*J	47800	1170	ND0.2	ND18	33103	ND2	ND9	15100	ND5	ND13	131*J	NA
	11/15/89	46	1740EJ*	ND4	ND2	53.6B	ND4	0.0NR	35900	98*	ND10	ND6	17400J	ND2N	43700	1490J	ND0.2	26.2BR	34800	1.6B	ND3	17700	ND3N	9.2B	81.1	ND10
M-39(D)	02/06/90	115	ND35	ND6	4.7BJ	ND35	ND2	ND4	40200EJ	7.3N	ND15	ND5	2120	32.5SN*J	48100	1110	ND0.2	ND18	33000	ND2	ND9	ND75	ND5	ND13	80.4*J	NA

TABLE 1-B
SUMMARY OF METALS
FOR
HOMEOWNER & MONITOR
WELLS

PARAMETERS			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
WELL NO.	DATE	SAMPLE ID	REPORTED VALUES																							
H-40	08/05/91	273	449	ND30	ND3	11.6	ND1	8	4940	17.4	ND5	15.5	58700	16.5J	1690	134	ND.2	29.9	1050	ND2J	ND5J	4900J	ND2J	ND5	152J	NA
MW-42A(D)	02/07/90	119	ND35	ND6	ND4	ND35	ND2	ND4	11100EJ	ND7	ND15	ND5	755	19.50J	25600	216	ND0.2	ND10	33400	ND2	ND9	9400	ND5	ND13	37.9*J	NA
MW-42A	08/01/91	258	7710	ND30J	13.9	50.1	ND1	10.6J	9740	87.6	7.5	59	108000	48.6	3810	347	ND.2	17.2	2330	ND2	ND5J	7800J	ND10J	21.6	63.9J	NA
	02/07/90	119	590	8.80J	ND4	ND35	ND2	ND4	11400J	8.40	ND15	ND5	4440	19.3N*J	24000	176	ND0.2	ND10	35200	ND2	ND9	9400	ND5	ND13	73.9*J	NA
	11/17/89	57	3730EJ*	5.00R	38J	ND21	ND4	ND3N	7700J	9.80*	ND10	ND6	4340J	5.6N	18600	180J	ND0.2	ND13	16700	1.10	ND3	11300	ND3	ND0	50.6	ND10
MW-42B(D)	02/07/90	121	ND35	ND6	ND4	ND35	ND2	5.1	49600EJ	7.10	ND15	ND5	4670	12.60J	19700	32.2	ND0.2	ND10	17800	ND2	ND9	11400	ND5	ND13	102*J	NA
	02/07/90	121	1090	ND6	ND4	ND35	ND2	5	5160EJ	14.6	ND15	22.7	5360	76.2N*J	19600	34.4	ND0.2	ND10	26300	ND2	ND9	11600	ND5	ND13	239*J	NA
MW-42B	08/01/91	259	148	ND30J	ND3	12	ND1	7.7J	5260	43.3	ND5	171	7670	49.3J	2170	49.6	ND.2	20.6	6420	ND2	ND5J	11300J	ND10J	7.6	69.8J	NA
	02/07/90	128	ND35	ND6	ND4	ND35	ND2	ND4	45500EJ	ND7	ND15	ND5	4590	28.7N*J	18600	31.7	ND0.2	ND10	18000	ND2	ND9	11500	ND5	ND13	118*J	NA
	02/07/90	128	1000	ND6	ND4	ND35	ND2	7.9	49400J	51.3	ND15	26	5670	50.2N*J	19600	41.6	ND0.2	45.4	24300	ND2	ND9	11300	ND5	ND13	211*J	NA
	11/17/89	99	480EJ*	4.60E	ND2	ND21	ND4	4.10NR	45700J	30*	ND10	18.90	5170J	104N	18000	46.7J	0.2	47.9R	20100	ND1	ND3	11100	ND3N	12.60	94	ND10
MW-42C	08/01/91	260	55.5	ND30J	ND3	20	ND1	ND3J	4570	11.4	ND5	50.5	14900	29	2000	43.7	ND.2	14.8	1150	ND2	ND5J	10000J	ND2J	ND5	60.5J	NA
	02/07/90	123	247	ND6	ND4	ND35	ND2	10.5	5350J	20.3	ND15	38.9	6630	95.3N*J	20600	38.6	ND0.2	43.8	12000	ND2	ND9	9940	ND5	ND13	192*J	NA
	02/07/90	123	ND35	ND6	ND4	ND35	ND2	6.0	48900J	7.20	ND15	ND5	4740	17.5N*J	20000	33.8	ND0.2	28.60	12100	ND2	ND9	10200	ND5	ND13	98.3*J	NA
	11/17/89	61	66,900EJ*	ND42	ND2	ND21	ND4	6.30NR	41200J	44*	ND10	9.50	13300J	14.80	17900	41.7J	ND0.2	47.2R	6060	ND1	ND3	9500	ND3N	ND0	66.5	ND10
MW-43A	08/05/91	269	10900	ND30	7.2	119	ND1	10.4	10400	7210	5.6	62.1	47300	39.2J	6340	342	ND.2	42.3J	3760	ND2	ND5J	31300J	ND10J	50.8	109J	NA
	08/05/91	268	12700	ND30	6.7	127	ND1	10.4	10000	5850	8.7	55.6	44500	36.6J	7070	501	ND.2	31.5J	3840	ND2	ND5J	29200J	ND10J	48	117J	NA
	02/08/90	125	1340	ND6	ND4	56.70	ND2	8.1	9060EJ	108	ND15	100	2950	20.4N*J	44300	109	ND0.2	19.10	24500	ND2	ND9	29100	ND5	ND13	65.8*J	NA
	11/16/89	51	2100EJ*	5.30R	ND2	35.10	ND4	ND3NR	8090	ND6*	10.40	6.40	501J	ND10N	37800	44.1J	ND0.2	ND13	18500	ND1	ND3	24100	ND3N	ND0	79.4	ND10
	11/16/89	50	4110EJ*	40R	ND2	74.60	ND4	ND3NR	8630	22*	11.60	41.9	5800J	56N	43900	217J	ND0.2	33.10R	25900	ND1	ND3	26300	ND3N	10.30	98.9	ND10
MW-43A(D)	02/08/90	125	ND35	20.80J	ND4	ND35	ND2	ND4	8480EJ	10.7	ND15	ND5	43.70	21.6N*J	42800	11.30	ND0.2	ND10	26100	ND2	ND9	28500	ND5	ND13	131*J	NA
MW-43B	08/05/91	270	161	ND30	ND3	26.9	ND1	33.4	10700	13.5	ND5	65.1	340	27J	4090	9	ND.2	11.2J	4100	ND2	ND5J	19500J	ND10J	ND5	302J	NA
	02/08/90	126	1150	ND6	ND4	ND35	ND2	4.20	9990EJ	10.7	ND15	22.20	148	57.2N*J	44000	9.80	ND0.2	ND10	5440	ND2	ND9	20600	ND5	ND13	114*J	NA
	11/16/89	52	435EJ*	ND4	ND2	26.20	ND4	ND3NR	11000	22.6*	11.20	27.4	260J	84.7N	44000	31.3J	ND0.2	36.80R	6010	1.20	ND3	22300	ND3N	ND0	62	ND10
MW-43B(D)	02/08/90	126	ND35	200J	ND4	ND35	ND2	ND4	9510J	ND7	ND15	ND5	ND40	26.5N*J	44000	3.40	ND0.2	ND10	5400	ND2	ND9	211ND	ND5	ND13	63*J	NA
MW-43B(P)	08/05/91	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-43C(D)	02/08/90	127	98.90	6.80J	ND4	ND35	ND2	ND4	7620J	ND7	ND15	20.50	106	25.2N*J	31900J	8.60	ND0.2	ND10	14800	ND2	ND9	15300	ND5	ND13	117*J	NA

TABLE 1-B
SUMMARY OF METALS FOR HOMEOWNER & MONITOR WELLS

PARAMETERS			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE		NA	TL	V	ZN	CN
WELL NO.	DATE	SAMPLE ID	REPORTED VALUES																							
MW-43C	08/05/91	271	130	ND30	ND3	22.1	ND1	ND3	8220	22.6	ND5	73.6	419	39.3J	3470	9.4	ND.2	22.6J	1160	ND2	ND5J	14900J	ND10J	ND5	118J	NA
	02/08/90	127	322	ND6	ND4	ND35	ND2	ND4	7430J	35.7J	ND15	47	628	52.1BN*J	32400J	22.5	ND0.2	36.6N	14500	ND2	ND9	15200	ND5	ND13	109*J	NA
	11/16/89	53	16500J*	4.4BR	ND2	21.6B	ND4	ND3NR	7360	6.4B*	ND10	32.3	348J	74.7BN	31200	28.7J	ND0.2	34.2BR	12000	ND1	ND3	14200	ND3	ND6	49.6	ND10
MW-44A	08/01/91	255	34500	ND30J	ND3	279	2.1	9.2J	13400	66.4	24.6	72.1	74400	39.3J	8000	4250	ND.2	34.3	6530	ND2	ND5J	11300J	ND2J	59.8	105J	NA
MW-44B	08/01/91	256	1910	ND30J	ND3J	43.6	ND1	ND3J	8340	5.6	ND5	11.3	11000	12.3J	2310	1090	ND.2	6.4	11600	ND2	ND5J	14800J	ND10J	10.8	67J	NA
MW-44B(P)	08/01/91	256	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-44C	08/01/91	257	46.7B	ND30J	ND3	17.5	ND1	ND3J	6270	ND5	ND5	ND5	519	ND2J	2230	26.4	ND.2	ND5	1650	ND2	ND5R	9810J	ND2J	ND5	21.9J	NA
MW-45A	07/31/91	249	10300	34.4	ND15	64.3	2.1	7.2	6450	71.3	6.7	46.7	31900	16.6J	4690	134	ND.2	9	2520	ND10	ND5J	16700J	ND2J	138	129J	NA
MW-45B	11/04/91	281	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND5	NA	NA	NA	NA	NA
	07/31/91	250	2320	ND30	9.3	53.3	ND1	ND3	9560	17.8	ND5	36.6	10200	13.1J	2740	82.3	ND.2	6.6	21500	ND2	54.0J	16900J	ND2J	40.5	82.3J	NA
MW-46A	07/30/91	236	2920	ND30J	ND3	31.3	ND1	ND3J	15300	12.0	ND5	28.1	8900	12.2J	3050	226	ND.2	ND5	1300	ND2	ND5J	10400J	ND2J	24.9	82.7J	NA
MW-46B	07/30/91	237	415	ND30J	ND3	10.9	ND1	ND3J	5700	6.8	ND5	6.4	1310	31.6J	2230	31.2	ND.2	5	1000	ND2	ND5J	10500J	ND2J	6.4	33.7J	NA
MW-47A	07/30/91	238	2320	ND30J	ND3	25.1	ND1	ND3J	21500	9.1	ND5	20.8	9110	7.4J	3130	60.8	ND.2	ND5	1370	ND2	ND5J	8690J	ND2J	15.5	51.8J	NA
MW-47A(P)	07/30/91	238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-47B	07/30/91	239	954	ND30J	ND3	10.6	ND1	ND3J	5000	8.4	ND5	6.5	2330	24.3J	2710	40.3	ND.2	ND5	1100	ND2	ND5J	10600J	ND10J	5.3	24.7J	NA
	07/30/91	240	477	ND30J	ND3	11.5	ND1	ND3J	6110	ND5	ND5	ND5	2220	31.4	2760	40.7	ND.2	ND5	ND400	ND2	ND5J	10600J	ND2J	ND5	36.8J	NA
MW-48A	11/04/91	284	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/91	263	12500	ND30	ND3	83.8	ND1	4.6	10100	36	5.2	38.7	20400	12.5J	5000	183	ND.2	9.8J	2600	ND2	ND5J	12700J	ND2J	56.3	149J	NA
MW-48B	11/04/91	283	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/91	264	338	ND30	ND3	37.2	ND1	ND3	6530	105	ND5	14.1	2720	18.3J	2900	44.3	ND.2	56.6J	945	ND2	ND5J	11200J	ND2J	ND5	71.8J	NA
MW-49A	07/30/91	241	5310	ND30J	ND3J	51.5	ND1	ND3J	9600	6	ND5	12.3	4270	11.2J	3340	213	ND.2	ND5	2500	ND2	ND5J	10000J	ND2J	6.1	55.9J	NA
MW-49B	07/30/91	242	84.2	ND30J	ND3	51.6	ND1	ND3J	8140	14.2	ND5	9.7	201	59.4J	4100	26.5	ND.2	ND5	3070	ND2	ND5J	14800J	ND2J	ND5	40.3J	NA
MW-49C	07/30/91	243	96.9	ND30J	ND3J	17.6	ND1	ND3J	8540	14.3	ND5	8.5	12600	62.1J	2130	117	ND.2	ND5	2200	ND2	ND5J	9450J	ND2J	ND5	44J	NA
MW-50A	07/31/91	246	40.3	ND30	ND3	10.4	ND1	ND3	16900	ND5	ND5	18.0	133J	7.4J	5490	22.3	ND.2	7.5	1160	ND2J	ND5J	13300J	ND2J	ND5	44.2J	NA
MW-50B	07/31/91	247	155	ND30	ND3	12.0	ND1	ND3	6520	96.7	ND5	69.3	1210	55.8J	2220	24	ND.2	82.5	733	ND2J	ND5J	9100J	ND2J	ND5	62.8J	NA
MW-50C	07/31/91	248	160	ND30	3.1	22.2	ND1	ND3	12000	70	ND5	47.6	5060	33.5J	3020	42.4	ND.2	57.1	1570	ND2J	ND5J	14600J	ND2J	ND5	54.3J	NA

TABLE 1-B
SUMMARY OF METALS
FOR
HOMEOWNER & MONITOR
WELLS

PARAMETERS			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU
WELL NO.	DATE	SAMPLE ID	REPORTED VALUES									
MW-51A	10/23/91	278	14000	ND30	ND2N	1030	ND1	ND3	6730	27.4	10.30	36.9
MW-52A	10/23/91	277	18200	ND30	ND2N	1400	4.30	9.9	6730	115	130	71.10
HOME1	12/06/89	95	ND50	ND4	ND2	33.20	ND4	ND3N	6100	ND6	ND10	ND6
	12/06/89	94	ND50	ND4	ND2	33.70	ND4	ND3N	6390	ND6	ND10	ND6
HOME6	12/06/89	96	51.40	ND4	ND2	500	ND4	ND3N	13800	98	ND10	ND6
HOME10	07/31/91	252	ND20	ND30	ND3	20.9	ND1	ND3	7950	ND5	ND5	27.0
HOME29	02/09/90	134	342	ND6	ND4	ND33	ND2	ND4	5920EJ	ND7	ND15	21.10
HOME44	02/09/90	135	ND33	ND6	ND4	ND33	ND2	4.10	14500EJ	ND7	ND15	29.2

PARAMETERS			FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
WELL NO.	DATE	SAMPLE ID	REPORTED VALUES													
MW-51A	10/23/91	278	21700	15	5520	642	ND.2	188	32100	ND2	ND5	15300	ND2	51.9	58.40	NA
MW-52A	10/23/91	277	62000	32.35	43300	305	ND.2	22.40	37900	ND2	ND5	12900	ND2N	204	60.2	NA
HOME1	12/06/89	95	2020JN*	9.6	35900	24.4	ND0.2	28.10R	17300	ND1	ND3	10400	ND3	ND6	907JN*	ND10
	12/06/89	94	2090JN*	10.2	34200	25.2	ND0.2	280R	18200	ND1	ND3	11000	ND3	ND6	909JN*	ND10
HOME6	12/06/89	96	2200JN*	14	5030	1050	ND0.2	ND13	30300	ND1	ND3	22700	ND3	ND6	467JN*	ND10
HOME10	07/31/91	252	553	5.5J	2150	4.2	ND.2	ND5	2060	ND2	ND5J	51100J	ND2J	ND5	73.4J	NA
HOME29	02/09/90	134	1630	22N*J	26200J	21.8	ND0.2	ND18	10400	ND2	ND9	8950	ND5	19.40	57*J	NA
HOME44	02/09/90	135	ND40	12.70N*	45400	ND3	ND0.2	ND18	15400	ND2	ND9	10100	ND5	ND13	287*J	NA

PARAMETERS ARE LISTED BY THEIR ELEMENTAL SYMBOLS
ALL CONCENTRATIONS REPORTED IN UG/L (PPB)
D = SAMPLES WERE FIELD FILTERED AND RESULTS REPRESENT DISSOLVED METALS
J = ESTIMATED VALUE
E = CONCENTRATION EXCEEDED THE CALIBRATION RANGE OF THE GC/MS INSTRUMENT
B = ANALYTE WAS FOUND IN ASSOCIATED BLANK
HOME1 = RESIDENTIAL WELL LOCATION

NOTE: IF TWO SETS OF RESULTS ARE SHOWN FOR A SINGLE DATE AT THE SAME SAMPLE LOCATION, THEN THE SECOND SET IS A DUPLICATE SAMPLE PROVIDED FOR QUALITY ASSURANCE

R = REJECTED BY VALIDATOR
S = VALUE DETERMINED BY THE METHOD OF STANDARD ADDITION
N = SPIKE SAMPLE RECOVERY NOT WITHIN CONTROL LIMITS
* = DUPLICATE ANALYSIS NOT WITHIN CONTROL LIMITS
ND# = SAMPLE BELOW DETECTION LIMIT (NUMBER IS DETECTION LIMIT)
NA = SAMPLE NOT ANALYZED
HOME1 = RESIDENTIAL WELL LOCATION

TABLE 2.

NABISCO BRANDS, INC.
ROME INDUSTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF RESIDENTIAL WELL SAMPLING

PARAMETERS			TETRA CHLORO ETHENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
HOUSE LOCATION	DATE	RI SAMPLEID	REPORTED VALUES								
01	12/06/89	93	ND25	ND25	ND25	ND25	ND25	ND25	ND50	7BR	0
	12/06/89	94	310	640	320	88	43	ND25	ND50	65BR	1401
	12/06/89	93	320	620	300	84	41	ND25	ND50	16BJR	1365
	06/08/83	0	20	780	470	NA	NA	ND4	NA	NA	1270
02	12/06/89	0	3B	21	24	0.9J	3	ND1	ND2	0.6BJR	51.9
	12/10/84	0	<10	50	56	<10	<10	<10	NA	NA	106
	01/04/84	0	4	190	170	NA	NA	ND4	NA	NA	364
04	12/10/84	0	ND10	203	94	14	16	ND10	NA	NA	327
	05/14/84	0	ND2	150	48	NA	NA	ND4	NA	NA	198
05	12/10/84	0	39	110	33	<10	11	ND10	NA	NA	193
	05/14/84	0	57	170	59	NA	NA	NA	NA	NA	286
06	12/06/89	96	510	180	150	28	20J	ND25	ND50	72BR	888
	12/10/84	0	1800	2600	910	130	330	92	NA	NA	5862
	04/09/84	0	1100	2300	840	300	310	100	NA	ND2	3850
07	12/06/89	98	56B	15	11	ND5	ND5	ND5	ND10	14BR	82
	12/10/84	0	68	72	21	ND10	<10	ND10	NA	NA	161
	04/09/84	0	44	70	17	ND2	4	ND2	NA	ND2	135
08	12/10/84	0	35	37	<10	ND10	<10	ND10	NA	NA	72
	04/18/84	0	42	88	19	ND2	7	ND2	NA	ND2	156
09	12/07/89	102	ND1	ND1	ND1	ND1	ND1	ND1	ND2	5BR	0
	04/18/84	0	ND2	ND2	ND2	ND2	ND2	ND2	NA	ND2	0

TABLE 2.

NABISCO BRANDS, INC.
ROME INDUSTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF RESIDENTIAL WELL SAMPLING

PARAMETERS HOUSE LOCATION	DATE	RI SAMPLEID	TETRA CHLORO ETHENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
			=====	=====	=====	REPORTED	VALUES	=====	=====	=====	=====
10	07/31/91	252	ND1	ND1	ND1	ND1	ND1	ND1	2	0.48J	2.4
	12/07/89	104	0.98JR	0.7J	0.8J	ND1	ND1	ND1	ND2	48R	1.5
	05/24/84	0	ND2	ND2	ND2	ND2	ND2	ND2	NA	ND2	0
12	12/10/84	0	37	76	18	ND10	10	ND10	NA	NA	141
	12/10/84	0	60	133	26	ND10	<10	ND10	NA	NA	219
	04/18/84	0	61	190	35	4	18	ND2	NA	ND2	308
	04/18/84	0	ND2	6	ND2	ND2	ND2	ND2	NA	ND2	6
13	05/08/84	0	2	6	ND2	ND2	ND2	ND2	NA	ND2	8
14	12/10/84	0	50	61	16	ND10	<10	ND10	NA	NA	127
	12/10/84	0	41	85	20	ND10	10	ND10	NA	NA	156
	12/10/84	0	43	60	17	ND10	<10	ND10	NA	NA	120
	07/16/84	0	31	83	20	ND2	5	ND2	NA	ND2	139
	04/09/84	0	44	110	23	4	13	ND2	NA	ND2	194
17	05/08/84	0	ND2	5	ND2	ND2	ND2	ND2	NA	ND2	5
	01/04/84	0	4	ND2	NA	NA	NA	ND4	NA	NA	4
21	12/10/84	0	<10	128	84	<10	<10	ND10	NA	NA	212
	04/09/84	0	3	170	78	27	6	ND2	NA	ND2	284
22	12/10/84	0	60	480	403	16	15	<10	NA	NA	974
	04/09/84	0	36	270	140	16	10	4	NA	ND2	476
23	12/10/84	0	ND10	<10	ND10	ND10	ND10	ND10	NA	NA	0
24	12/06/89	99	198	3	2	0.6J	ND1	ND1	ND2	48R	24.6
	12/10/84	0	420	220	97	<10	12	ND10	NA	NA	122
	12/10/84	0	410	190	95	<10	11	ND10	NA	NA	706
	04/18/84	0	65	42	15	ND2	ND2	ND2	NA	ND2	749
25	12/06/89	101	28	1	1	ND1	ND1	ND1	ND2	38R	4
29	02/09/90	134	ND1	ND1	ND1	ND1	ND1	ND1	68R	ND1	0
	05/01/84	0	ND2	ND2	ND2	ND2	ND2	ND2	NA	ND2	0
36	01/04/84	0	ND10	0	6	ND10	ND10	ND10	NA	NA	14
44	02/09/90	135	ND1	ND1	ND1	ND1	ND1	ND1	68R	ND1	0

ALL CONCENTRATIONS REPORTED IN UG/L (PPB)
J = ESTIMATED VALUE
B = ANALYTE WAS FOUND IN THE ASSOCIATED BLANK
R = REJECTED BY VALIDATOR
S = VALUE DETERMINED BY THE METHOD OF STANDARD ADDITION

ND# = SAMPLE BELOW DETECTION LIMIT (NUMBER IS DETECTION LIMIT)
NA = SAMPLE NOT ANALYZED

NOTE: IF TWO SETS OF RESULTS ARE SHOWN FOR
THEN THE SECOND SET IS A DUPLICATE SAMPLE
PROVIDED FOR QUALITY ASSURANCE

TABLE 3.

NABISCO BRANDS, INC.
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF LIGONEE BROOK/SAG HARBOR COVE SURFACE WATER SAMPLING

PARAMETERS SAMPLE LOCATION AND DESCRIPTION	DATE	RI SAMPLE ID	TETRA CHLORO ETHYLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
			REPORTED VALUES													
WAT1	11/05/91	303	ND1	0.7J	ND1	ND1	0.2BJ	ND1	ND1	4	0.7J	ND1	ND1	ND2R	0.4BJ	8.7
	07/24/91	215	ND1	ND1	ND1	ND1	ND1	ND1	ND1	1	ND1	ND1	ND1	ND8	ND1	11.4
	11/28/89	87	ND1	ND1	ND1	ND1	ND1	ND1	2R	ND1	ND1	ND1	ND1	ND2	20R	0
WAT2	11/05/91	301	ND1	ND1	ND1	ND1	0.2J	ND1	ND1	0.8J	ND1	ND1	ND1	ND2	0.2BJ	1.2
	07/24/91	216	ND1	ND1	ND1	ND1	ND1	ND1	ND1	0.2J	ND1	ND1	ND1	ND2	ND1	0.2
	11/28/89	79	0.3JR	ND1	ND1	ND1	ND1	ND1	10R	ND1	ND1	0.3JR	ND1	ND2	ND1	0
	11/28/89	80	0.3JR	ND1	ND1	ND1	ND1	ND1	8R	ND1	ND1	0.2JR	ND1	ND2	ND1	0
WAT3	11/05/91	299	12	21	14	4	4	6	ND1	0.2J	ND1	ND1	ND1	ND2	0.3BJ	61.5
	07/24/91	217	13	30	18	6	6	8	ND1	ND1	ND1	ND1	ND1	ND2	ND1	122
	11/28/89	85	3J	15J	7J	2J	2J	ND1	2R	ND1	ND1	ND1	ND1	ND2	20R	29
WAT4	11/05/91	297	4	3	2	0.3J	0.6BJ	0.3J	0.5J	0.2J	ND1	ND1	ND1	3R	0.4BJ	11.4
	07/24/91	218	5	6	3	0.9J	1	1	0.2J	ND1	ND1	ND1	ND1	ND2	ND1	17.6
	11/28/89	83	4J	13J	6J	2J	2J	ND1	3R	ND1	ND1	0.2JR	0.2JR	ND2	30R	27
WAT5	11/05/91	295	1	1	0.8J	0.2J	0.4J	0.2J	ND1	ND1	ND1	ND1	ND1	8R	0.3BJ	11.9
	07/24/91	219	2	3	2	ND1	ND1	ND1	ND1	ND1J	ND1J	ND1J	ND1J	ND2	ND1	7
	11/28/89	74	1R	4J	2J	0.4J	0.5J	ND1	2R	ND1	ND1	ND1	ND1	ND2	20R	6.9

ALL WATER CONCENTRATIONS REPORTED IN UG/L (PPB)
ALL SEDIMENT CONCENTRATIONS REPORTED IN UG/KG (PPB)
J = ESTIMATED VALUE

B = ANALYTE WAS FOUND IN THE ASSOCIATED BLANK
R = REJECTED BY VALIDATOR
ND# = SAMPLE BELOW DETECTION LIMIT (NUMBER IS DETECTION LIMIT)

NOTE: IF TWO SETS OF RESULTS ARE SHOWN FOR A SINGLE DATE AT THE SAME SAMPLE LOCATION, THEN THE SECOND SET IS A DUPLICATE SAMPLE PROVIDED FOR QUALITY ASSURANCE

T 4-A

NABISCO BRANDS, INC.
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF DRYWELL WASH & SEDIMENT SAMPLING RESULTS

PARAMETERS				TETRA CHLORO ETHYLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
DRYWELL AND DESCRIPTION	SAMPLING INTERVAL	DATE	RI SAMPLE ID	REPORTED VAULES													
ASLDG	2.0	06/05/91	165A	ND6	ND6	ND6	ND6	ND2	ND6	ND6	ND6	ND6	ND6	ND6	ND11	ND6	0
	2.0	06/05/91	164	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND12	ND6	0
	0.5	11/27/89	68	210J	150J	250J	6J	ND7	ND7	4BR	ND7	ND7	4JR	ND7	19BR	8BR	616
	0.5	11/27/89	68	180J	71J	130J	2J	ND7	ND7	220JR	ND7	ND7	15BR	ND7	9BJR	14BR	383
	0.5	11/27/89	69	170J	100J	170J	5J	ND7	ND7	4BR	ND7	ND7	2JR	ND7	24BR	9BR	445
CSLDG	2.0	06/05/91	165	1100	ND28	ND28	ND28	ND28	ND28	ND28	ND28	ND28	ND28	ND28	ND56	ND28	1100
	0.5	11/27/89	72	6900J	ND1300	ND1300	ND1300	ND1300	ND1300	790BJR	ND1300	ND1300	ND1300	ND1300	ND2600	ND1300	6900
DSLDG	4.0	06/05/91	163	ND28	ND28	ND28	ND28	ND28	ND28	ND28	ND28	7J	ND28	ND28	ND56	ND28	7
	2.0	07/09/91	195N	160	100	820	ND28	ND28	17J	ND28	ND28	89	30	20J	ND56	ND28	1236
	2.0	07/09/91	195T	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND630	ND310	0
	0.5	07/09/91	194N	9100	5300	27000	2400	ND930	28000	ND930	ND930	20000	7000	2300	19000	ND930	120470
	0.5	07/09/91	194T	1700J	5400J	3300J	2200	ND310J	23000	ND310J	ND310J	20000J	8900J	ND310J	2700J	ND310J	68050
	0.5	11/27/89	70	ND660	ND660	ND660	ND660	ND660	ND660	490BJR	ND660	3900	710	310J	ND1300	990BR	4920
	L	07/18/84	0	7	3	10	NA	NA	ND16	ND4	ND16	18	13	ND10	NA	NA	51
DWASH		08/22/89	2	1R	ND1	ND1	ND1	ND1	ND1	4.2BJR	ND1	ND1	ND1	ND1	ND2	2BR	0
ESLDG	2.0	06/05/91	167	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11	ND6	0
	0.5	11/27/89	73	ND400	ND400	ND400	ND400	ND400	ND400	2BR	ND400	ND400	230J	ND400	1400BR	360BJR	230
EWASH		08/22/89	3	ND1	ND1	ND1	ND1	ND1	ND1	24BJR	ND1	ND1	ND1	ND1	ND2	3BR	0
FSLDG	2.0	07/09/91	197N	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11	ND6	0
	2.0	07/09/91	197T	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND310	ND630	ND310	0
	2.0	06/05/91	168	ND320	ND320	ND320	ND320	ND320	ND320	2100	ND320	ND320	620	ND320	ND650	ND320	2720
	0.5	07/09/91	196N	ND1400	ND1400	ND1400	ND1400	ND1400	ND1400	230000	ND1400	2900	27000	ND1400	ND2800	440J	260340
	0.5	07/09/91	196T	ND310J	ND310J	ND310J	ND310J	ND310J	ND310J	26000R	ND310J	1500J	30000R	2300J	840J	ND310J	4640
	0.5	11/27/89	71	ND890	ND890	ND890	ND890	ND890	ND890	160BJR	ND890	ND890	13000J	ND890	6300BR	680BJR	13000
FSLDG	L	07/18/84	0	ND2	ND2	ND5	NA	NA	ND16	28	ND10	ND10	45	ND10	NA	NA	73
FWASH		08/22/89	5	ND1	ND1	ND1	ND1	ND1	ND1	9BJR	ND1	ND1	ND1	ND1	ND2	8BR	0

ALL WASH CONCENTRATIONS REPORTED IN UG/L (PPB)
ALL SEDIMENT CONCENTRATIONS REPORTED IN UG/KG (PPB)
J = ESTIMATED VALUE
B = ANALYTE WAS FOUND IN THE ASSOCIATED BLANK
R = REJECTED BY VALIDATOR
NA = SAMPLE NOT ANALYZED

RI SAMPLE ID
N= SAMPLE ANALYZED BY NET-CAMBRIDGE
T= SAMPLE ANALYZED BY TECHNICAL TESTING LABORATORY

NOTE: IF TWO SETS OF RESULTS ARE SHOWN FOR A SINGLE DATE AT THE SAME SAMPLE LOCATION, THEN THE SECOND SET IS A DUPLICATE SAMPLE PROVIDED FOR QUALITY ASSURANCE

L = SAMPLE COLLECTED FROM

TABLE 4-B.

NABISCO BRANDS, INC.
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF LIGONEE BROOK/SAG HARBOR COVE & POND SEDIMENT SAMPLING

PARAMETERS			TETRA CHLORO ETHYLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
SAMPLE LOCATION AND DESCRIPTION	DATE	RI SAMPLE ID	====REPORTED VALUES====													
SED1	11/05/91	304	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	5J	ND7	55	2J	62
	11/05/91	304	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	1J	ND7	14	2J	17
	07/24/91	220	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11	ND6	0
	11/28/89	88	ND6	ND6	ND6	ND6	ND6	ND6	3BJR	ND6	ND6	2BJR	ND6	ND11	5BJR	0
SED2	11/05/91	302	ND6	ND6	ND6	ND6	1BJ	ND6	ND6	ND6	ND6	ND6	3J	ND12	2BJ	6
	07/24/91	221	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND5	0
	11/28/89	81	ND7	ND7	ND7	ND7	ND7	ND7	4BJR	ND7	ND7	6JR	ND7	67BJR	10BR	0
	11/28/89	82	ND8	ND8	ND8	ND8	ND8	ND8	2BR	ND8	ND8	3JR	ND8	69BJR	12BR	0
SED3	11/05/91	300	4J	4J	2J	ND6	1J	ND6	ND6	ND6	ND6	ND6	ND6	ND12	2BJ	13
	07/24/91	222	ND6	ND6	ND6	3J	ND6	7	ND6	ND6	ND6	ND6	ND6	ND13	ND6	10
	11/28/89	86	ND6	ND6	2J	4J	9J	8J	2R	ND6	ND6	2BJR	ND6	ND6	5BJR	23
	11/28/89	86	2J	ND6	5J	ND6	9J	8J	5BJR	ND6	ND6	4BJR	ND6	7BJR	7BR	24
SED4	11/05/91	298	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	41	2BJ	43
	07/24/91	223	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND7	ND13	ND7	0
	11/28/89	84	340J	32J	30J	ND8	ND8	ND8	8BJR	ND8	ND8	6BJR	ND8	ND17	12BR	402
POND1	11/28/89	76	ND7	ND7	ND7	ND7	ND7	ND7	6R	ND7	ND7	5BJR	ND7	42BR	ND7	0
	11/28/89	76	ND7	ND7	ND7	ND7	ND7	ND7	6R	ND7	ND7	2BJR	ND7	14BR	6BJR	0
POND2	11/28/89	78	ND28	ND28	ND28	ND28	ND28	ND28	4BR	ND28	ND28	ND28	ND28	28BJR	28BR	0
POND3	11/28/89	77	ND8	ND8	ND8	ND8	ND8	ND8	5BR	ND8	ND8	ND8	2J	21BR	5BJR	2

NOTE: IF TWO SETS OF RESULTS ARE SHOWN FOR A SINGLE DATE AT THE SAME SAMPLE LOCATION, THEN THE SECOND SET IS A DUPLICATE SAMPLE PROVIDED FOR QUALITY ASSURANCE

ALL CONCENTRATIONS REPORTED IN UG/KG (PPB)
B = ANALYTE WAS FOUND IN THE ASSOCIATED BLANK
J = ESTIMATED VALUE
R = REJECTED BY VALIDATOR

POND1 = SAMPLE TAKEN FROM BENEATH DRUM IN POND
POND2 = SAMPLE TAKEN FROM SOUTH END OF POND
POND3 = SAMPLE TAKEN FROM NORTH END OF POND
ALL SAMPLES COLLECTED IN TOP 6 INCHES OF SAMPLE LOCATION

TABLE 5.

NABISCO BRANDS, INC.
ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF SURFACE SOIL SAMPLING RESULTS

PARAMETERS BORING NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID	TETRA CHLORO ETHYLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
				REPORTED VALUES													
DSGS	01.0	05/17/91	143	16J	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6J	ND6J	ND6J	ND11R	ND6	16
S01	00.5	07/23/91	202	ND6J	ND6	ND6J	ND6	ND6	ND6	ND6	ND6	ND6J	5J	ND6J	ND11	1JR	6
	00.5	07/23/91	202	ND6J	ND6J	ND6J	ND6	ND6	ND6	ND6	ND6J	ND6J	3J	ND6J	ND11	ND6R	5
S02	00.5	07/23/91	203	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	2J	ND5	ND11	ND5	2
S03	00.5	07/23/91	204	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	2J	ND5	ND11	ND5	7
S04	00.5	07/23/91	205	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND5	2
S05	00.5	07/23/91	206	ND6J	ND6J	ND6J	ND6J	ND6J	ND6J	ND6	ND6J	ND6J	4J	ND6J	ND12J	4J	8
S06	00.5	07/23/91	207	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11J	ND6	0
	00.5	07/23/91	208	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND11J	ND5	0
S09	00.5	07/23/91	210	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	4J	ND5	ND10J	1J	5
S10	00.5	07/23/91	211	ND5J	ND5J	ND5J	ND5	ND5	ND5	ND5	ND5J	ND5J	ND5J	ND5J	ND11	ND5	0
S11	00.5	07/23/91	212	ND5J	ND5J	ND5J	ND5J	ND5J	ND5J	ND5	ND5J	ND5J	2J	ND5J	ND11J	ND5J	2
S12	00.5	07/23/91	213	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND12	ND6	0
S13	00.5	07/23/91	214	ND6J	ND6J	ND6J	ND6J	ND6J	ND6J	ND6	ND6J	ND6J	ND6J	ND6J	ND11J	ND6J	0

CONCENTRATIONS REPORTED IN UG/KG (PPB)
SAMPLE ID NUMBER 13 IS A DUPLICATE ANALYSIS OF NUMBER 12
SAMPLE ID NUMBER 15 IS A CLAY PORTION FROM THE SAMPLER
SAMPLE ID NUMBER 17 IS A DUPLICATE ANALYSIS OF NUMBER 16
A LABORATORY REPLICATE ANALYSIS WAS PERFORMED ON SAMPLE NUMBER 9

J = ESTIMATED VALUE
R = REJECTED BY VALIDATOR
ND# = SAMPLE BELOW DETECTION LIMIT
(NUMBER IS DETECTION LIMIT)
DSGS = SAMPLE FROM STAINED SOIL IN DRUM STORAGE AREA

TABLE - 6

NABISCO BRANDS, INC.
ROW( )USTRIES SITE
SAG HARBOR, NEW YORK

SUMMARY OF SUBSURFACE SOIL SAMPLING RESULTS

PARAMETERS				TETRA CHLORO ETHYLENE	1,1,1 TRICHLORO ETHANE	TRICHLORO ETHENE	1,1 DICHLORO ETHANE	1,1 DICHLORO ETHENE	1,2 DICHLORO ETHENE	FREON 113	BENZENE	XYLENE	TOLUENE	ETHYL BENZENE	ACETONE	METHYLENE CHLORIDE	TOTAL OF DETECTED COMPOUNDS
BORING NUMBER	SAMPLE DEPTH (FT)	DATE	RI SAMPLE ID						REPORTED VALUES								
01	02.0	09/28/89	9	ND6	ND6	98J	ND6	ND6	ND6	2.3JR	ND6	ND6	ND6	ND6	55JR	33R	98
	02.0	09/28/89	9	ND6	8J	130J	ND6	ND6	ND6	2.6JR	ND6	ND6	ND6	ND6	66JR	15R	138
	12.0	09/28/89	10	ND5	ND5	ND5	ND5	ND5	ND5	1.5JR	ND5	ND5	ND5	ND5	ND10	28JR	0
02	00.5	09/28/89	11	100J	ND5	ND5	ND5	ND5	ND5	3.3JR	ND5	ND5	2JR	ND5	9JR	7R	100
	13.0	09/28/89	12	ND6	ND6	ND6	ND6	ND6	ND6	9.6JR	ND6	ND6	ND6	ND6	38R	88R	0
	13.0	09/28/89	13	ND6	ND6	ND6	ND6	ND6	ND6	1.6JR	ND6	ND6	ND6	ND6	ND12	68JR	0
	15.0	09/28/89	14	ND5	ND5	ND5	ND5	ND5	ND5	1.2JR	ND5	ND5	ND5	ND5	8JR	48JR	0
03	14.0	09/28/89	15	ND5	ND5	ND5	ND5	ND5	ND5	1.1JR	ND5	ND5	ND5	ND5	16R	68R	0
	14.0	09/28/89	16	ND5	ND5	ND5	ND5	ND5	ND5	1.6JR	ND5	ND5	ND5	ND5	ND11	48JR	0
	14.0	09/28/89	17	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	8JR	ND5	0
	16.0	09/28/89	18	ND5	ND5	ND5	ND5	ND5	ND5	1.4JR	ND5	ND5	ND5	ND5	ND10	38JR	0
04	08.0	09/29/89	19	ND5	ND5	ND5	ND5	ND5	ND5	1.5JR	ND5	ND5	ND5	ND5	18R	38JR	0
	22.0	09/29/89	20	ND5	ND5	ND5	ND5	ND5	ND5	1.1JR	ND5	ND5	ND5	ND5	13R	28JR	0
05	04.0	09/29/89	21	9J	ND5	ND5	ND5	ND5	ND5	1.7JR	ND5	ND5	ND5	ND5	ND11	38JR	9
	12.0	09/29/89	22	ND5	ND5	ND5	ND5	ND5	ND5	1.3JR	ND5	ND5	ND5	ND5	16R	ND5	0
06	04.0	09/30/89	23	ND5	ND5	ND5	ND5	ND5	ND5	1.1JR	ND5	ND5	ND5	ND5	ND11	ND5	0
	12.0	09/30/89	24	ND5	ND5	ND5	ND5	ND5	ND5	6.2JR	ND5	ND5	ND5	ND5	ND10	ND5	0
07	00.0	09/30/89	25	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11	108R	0
	02.0	09/30/89	26	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11	ND6	0
08	00.0	09/30/89	27	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND11	3JR	0
	02.0	09/30/89	28	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND11	ND5	0
09	06.0	05/16/91	140	19000	ND1000	ND1000	ND1000	ND1000	ND1000	ND1000	ND1000	ND1000	ND1000	ND1000	ND2100	ND1000	19000
	19.0	05/16/91	141	17	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND12J	ND6	17
	27.0	05/16/91	142	3J	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	15J	ND6	18
10	04.0	05/17/91	145	30000	ND1400	620J	ND1400	ND1400	ND1400	ND1400	ND1400	66000E	2100	ND3800	ND2800	ND1400	98720
	12.0	05/17/91	146	67000	ND2800	ND2800	ND2800	ND2800	ND2800	ND2800	ND2800	ND2800	ND2800	ND2800	1300BJ	ND2800	68300
	24.0	05/17/91	147	800	ND31	ND31	ND31	ND31	ND31	ND31	ND31	180	ND31	16J	ND62	ND31	996
	42.0	05/20/91	150	110	ND30	ND30	ND30	ND30	ND30	ND30	ND30	180	ND30	7J	29BJ	ND30	326
13	12.0	05/21/91	152	2100E	ND5	ND5	ND5	ND5	ND5	ND5	ND5	21	130	ND5	68J	ND5	3787
15	02.0	06/04/91	160	1J	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND5	1
16	02.0	06/05/91	162	ND5	ND5	ND5	ND10	ND10	ND10	ND10	ND10	1J	1J	2J	ND10	ND10	4
45	04.0	05/22/91	154	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10J	ND5	0
	24.0	05/22/91	155	ND30	ND30	ND30	ND30	ND30	ND30	ND30	ND30	ND30	ND30	ND30	ND60	ND30	0
47	26.0	05/30/91	157	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND6	ND12	2J	2

	Ground Water	Surface Soils	Shallow Subsurface Soils/Dry Well Sediments (<17')	Surficial Dry Well Sediments Sludges (0-2')	Onsite Pond Sediments	Ligonee Brook Surface Water	Ligonee Brook Sediments
Volatiles							
Acetone			X	X			
2-Butanone			X	X			
Carbon Disulfide						X	
Chlorobenzene			X				
Chloroethane			X	X			
Chloroform	X						
1,1-Dichloroethane	X		X	X		X	X
1,2-Dichloroethane		X					
1,1-Dichloroethylene	X					X	
1,2-Dichloroethylene (total)	X		X	X		X	X
Ethylbenzene	X		X	X			
Freon 113	X		X	X			
Methylene Chloride	X	X	X	X			
Toluene	X	X	X	X			
Tetrachloroethylene	X	X	X	X		X	X
1,1,1-Trichloroethane	X		X	X		X	X
Trichloroethylene	X		X	X		X	X
Total Xylenes	X		X	X			
Metals							
Antimony	X						
Arsenic	X	X					

TABLE 7 (CONTINUED)

	Ground Water	Surface Soils	Shallow Subsurface Soils/Dry Well Sediments (<17')	Surficial Dry Well Sediments Sludges (0-2')	Onsite Pond Sediments	Ligonee Brook Surface Water	Ligonee Brook Sediments
Barium			X				
Beryllium	X						
Cadmium	X						
Chromium		X	X				
Copper		X	X	X			
Iron	X						
Lead		X	X	X			
Manganese	X						
Mercury			X				
Nickel			X				
Selenium	X	X					
Silver		X	X				
Zinc		X	X				

TABLE 8 ROWE SITE: SUMMARY OF EXPOSURE PATHWAYS

Pathway	Receptor	Time-Frame Evaluated		Degree of Assessment		Rationale for Selection or Exclusion
		Present	Future	Quant.	Qual.	
Ground Water						
Ingestion of Ground Water	Resident	No	Yes	X		Vicinity homeowner wells that are not presently contaminated may become contaminated in the future.
Inhalation of Ground Water Contaminants During Showers	Resident	No	Yes	X		Present exposure precluded by absence of contamination in active vicinity homeowner wells. These wells may become contaminated by VOCs in the future.
Inhalation of Contaminants that Volatilize from Ground Water and Seep into Basements	Resident	No	No			Considered insignificant because the ground water table is 20-30 feet below the surface.
Dermal Contact with Ground Water	Resident	No	No			Considered insignificant compared to other ground water exposures.
Surface Soils (0-2 feet)						
Incidental Ingestion of Onsite Surface Soils	Resident	No	Yes	X		Present exposure precluded by pavement. Possible future exposures consider development of site for residential use.
Dermal Contact with Onsite Surface Soils*	Resident	No	No			The three contaminants with sufficient toxicity data to complete a quantitative assessment were not detected at the Rowe site (cadmium levels were near naturally-occurring levels).
Inhalation of VOC Emissions and Particulates from Surface Soil	Resident	No	No			Moisture content, vegetative cover, and presence of pavement limit VOC and particulate emissions. Concentrations in surface soils are trace (e.g., at analytical detection limit) precluding significant future exposures.
Subsurface Soils (2-17 feet)						
Incidental Ingestion of Onsite Subsurface Soils	Excavation Worker	No	Yes	X		Exposure to subsurface soils (2-17') may occur during excavations for utility maintenance/future development.
	Utility Worker	Yes	Yes	X		

TABLE 8 (CONTINUED)

Pathway	Receptor	Time-Frame Evaluated		Degree of Assessment		Rationale for Selection or Exclusion
		Present	Future	Quant.	Qual.	
Dermal Contact with Onsite Subsurface Soils	Excavation Worker	No	Yes	X		Exposure to subsurface soils (2-17') may occur during excavations for utility maintenance/future development.
	Utility Worker	Yes	Yes	X		
Sediments						
Incidental Ingestion of Ligonee Brook Sediments	Local Residents	Yes	Yes	X		Area is accessible to general public.
Dermal Contact with Ligonee Brook Sediments	Local Residents	No	No			The three contaminants with sufficient toxicity data to complete a quantitative assessment were not detected at the Rowe site (cadmium levels were near naturally-occurring levels).
Incidental Ingestion of Dry Well Sediments	Utility Worker	Yes	No	X		Future scenarios assume excavation of dry well. Exposures may occur during periodic maintenance.
Dermal Contact with Dry Well Sediments	Utility Worker	No	No			The three contaminants with sufficient toxicity data to complete a quantitative assessment were not detected at the Rowe site (cadmium levels were near naturally-occurring levels).
Incidental Ingestion of and Dermal Contact with Onsite Pond Sediments	Resident	No	No			No site-related contaminants were detected in sediments.
Surface Water						
Incidental Ingestion of Ligonee Brook Water	Resident	No	No			The creek is too shallow to support swimming activities, thus incidental ingestion is unlikely.
Dermal Contact with Surface Water from Ligonee Brook	Resident	No	No			Considered insignificant compared to sediment exposures.
Incidental Ingestion of and Dermal Contact with Dry Well Water.	Utility Worker	No	No			No dry well water samples collected. Anticipated method of maintenance involves negligible exposure via oral route.
Incidental Ingestion of Dermal Contact with Surface Water from Onsite Ponds	Resident	No	No			No pond water samples collected. Exposures considered negligible because sediments were not contaminated.

TABLE 9. TOXICITY VALUES FOR THE ROWE SITE CONTAMINANTS OF CONCERN.

Chemical	CARCINOGENIC			CHRONIC		SUBCHRONIC
	Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Inhal. Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Chronic Inhal. RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)
Volatiles						
Acetone	D a			1.00E-01 a		1.00E+00 b
2-Butanone (MEK)	D a			5.00E-02 b	9.00E-02 b	5.00E-01 b
Carbon disulfide	-- a			1.00E-01 a	2.86E-03 b,f	1.00E-01 b
Chlorobenzene	D a			2.00E-02 a	5.00E-03 b	2.00E-01 b
Chloroethane (ethyl chloride)	B2 d	2.90E-03 d		4.00E-01 d	2.86E+00 b,f	4.00E-01 n
Chloroform	B2 a	6.10E-03 a	8.05E-02 a,e	1.00E-02 a		1.00E-02 b
1,1-Dichloroethane	C a			1.00E-01 b	1.00E-01 b	1.00E+00 b
1,2-Dichloroethane	B2 a	9.10E-02 a	9.10E-02 a			
1,1-Dichloroethylene	C a	6.00E-01 a	1.20E+00 a	9.00E-03 a		9.00E-03 b
1,2-Dichloroethylene (total)	--			1.00E-02 a,o		1.00E-01 b,o
Ethylbenzene	D a			1.00E-01 a	2.86E-01 a,f	1.00E+00 b
Methylene chloride	B2 a	7.50E-03 a	a,i	6.00E-02 a	8.57E-01 b,f	6.00E-02 b
Tetrachloroethylene	B2 b	5.10E-02 b	1.82E-03 b,e	1.00E-02 a		1.00E-01 b
Toluene	D a			2.00E-01 b	5.71E-01 b,f	2.00E+00 b
1,1,1-Trichloroethane	D a			9.00E-02 b	3.00E-01 b	9.00E-01 b
Trichloroethylene	B2 b	1.10E-02 b	1.70E-02 b	6.00E-03 d		7.00E-03 n
Trichlorotrifluoroethane (Freon-113)	--			3.00E+01 a	7.72E+00 b,f	3.00E+00 b
Xylenes	D a			2.00E+00 a	8.57E-02 b,f	4.00E+00 b
Inorganics						
Antimony	-- a			4.00E-04 a		4.00E-04 b
Arsenic	A a	1.75E+00 g	1.51E+01 a,e	3.00E-04 a		1.00E-03 b
Barium	-- a			5.00E-02 b	1.00E-04 b	5.00E-02 b
Beryllium	B2 a	4.30E+00 a	8.40E+00 a	5.00E-03 a		5.00E-03 b
Cadmium	B1 a		6.30E+00 a,e	5.00E-04 a,h		5.00E-04 n
• Chromium, III	-- a			1.00E+00 a	5.71E-07 b,f	1.00E+01 b
Chromium, total	--		4.20E+01 m	8.76E-01 l	5.71E-07 l	8.75E+00 l
• Chromium, VI	A a		4.20E+01 a,e	5.00E-03 a	5.71E-07 b,f	2.00E-02 b
Copper	D a			4.00E-02 d		4.00E-02 n
Iron	D d			5.00E-01 d		5.00E-01 n
Lead	B2 a					
Manganese	D a			1.00E-01 a	1.14E-04 b,f	1.00E-01 b
Mercury	D a			3.00E-04 b	8.57E-05 b,f	3.00E-04 b
Nickel	A a		8.40E-01 a,j	2.00E-02 a,k		2.00E-02 b
Selenium	D a			5.00E-03 a		5.00E-03 n
Silver	D a			5.00E-03 a		3.00E-03 b
Zinc	D a			2.00E-01 b		2.00E-01 b

--: Not available

•: Not analyzed for, used in the development of total chromiun toxicity value.

a. U.S. EPA, Integrated Risk Information System (IRIS), March 1, 1992.

b. U.S. EPA, Health Effects Assessment Summary Tables (HEAST), FY1991.

c. U.S. EPA, Drinking Water Regulations and Health Advisories, November 1991.

d. Interim value from ECAO. (see text for specific references).

e. Inhalation slope derived from unit risk using a multiplier of 3.50E+03..

f. Inhalation RfD derived from RfC using a multiplier of 2.86E-01.

g. Arsenic oral slope factor derived from unit risk in IRIS.

TABLE 10-A. RECEPTOR-SPECIFIC SUMMARY OF TOTAL CANCER RISKS FOR THE ROWE SITE

Receptor	Scenario	Carcinogens Incremental Risk
Onsite Resident(1)	Ingestion of ground water and surface soils; Inhalation of volatile ground water contaminants	$7 \times 10^{-3*}$
Offsite Resident(1)	Ingestion of ground water and Ligonee Brook sediments Inhalation of volatile ground water contaminants	$7 \times 10^{-3*}$
Excavation Worker	Ingestion of site-wide subsurface soils and those from the former drum storage area	7×10^{-8}
Utility Worker	Ingestion of site-wide subsurface soils and those from former drum storage area; Ingestion of dry well sediments	6×10^{-8}

(1) Onsite and offsite resident receptor are not expected to be the same individual.

* Exceeds EPA's acceptable risk range of 10^{-4} to 10^{-6}.

** Exceeds EPA's acceptable Hazard Index of 1.

TABLE 10-B. SUMMARY MEDIUM-SPECIFIC CARCINOGENIC RISK ESTIMATES FOR THE ROWE SITE

Scenario	Receptor	Present/Future	Incremental Risk
Ground Water			
Ingestion	Resident	F	$7 \times 10^{-3**}$
Inhalation	Resident	F	$3 \times 10^{-4**}$
Surface Soil			
Ingestion	Child/Adult Resident	F	$2 \times 10^{-5*}$
Subsurface Soil			
Site-Wide			
Ingestion	Excavation Worker	F	6×10^{-9}
Ingestion	Utility Worker	P/F	5×10^{-9}
Former Drum Storage Area			
Ingestion	Excavation Worker	F	6×10^{-8}
Ingestion	Utility Worker	P/F	5×10^{-8}
Dry Well Sediments			
Ingestion	Utility Worker	P	2×10^{-9}
Ligonee Brook Sediments			
Ingestion	Child/Adult Resident	P/F	1×10^{-8}

** Exceeds 10^{-4} risk

* Exceeds 10^{-6} risk

TABLE 11-A. RECEPTOR-SPECIFIC SUMMARY OF TOTAL NON-CANCER RISKS

Receptor	Scenario	Noncarcinogens	
		Subchronic HI	Chronic HI
Onsite Resident(1)	Ingestion of ground water and surface soils; Inhalation of volatile ground water contaminants	--	$4 \times 10^{+1}$**
Offsite Resident(1)	Ingestion of ground water and Ligonee Brook sediments Inhalation of volatile ground water contaminants	--	$4 \times 10^{+1}$**
Excavation Worker	Ingestion of site-wide subsurface soils and those from the former drum storage area	2×10^{0}*	--
Utility Worker	Ingestion of site-wide subsurface soils and those from former drum storage area; Ingestion of dry well sediments	--	1×10^{-2}

(1) Onsite and offsite resident receptor are not expected to be the same individual.
HI Hazard Index

TABLE 11-B. SUMMARY MEDIUM-SPECIFIC NONCARCINOGENIC RISK ESTIMATES FOR THE ROWE SITE

Scenario	Receptor	Present/ Future	Subchronic HI	Chronic HI
Ground Water				
Ingestion	Resident	F	--	$4 \times 10^{+1}$*
Inhalation	Resident	F	--	2×10^{-2}
Surface Soil				
Ingestion	Child Resident	F	--	1×10^{0}
Ingestion	Adult Resident	F	--	1×10^{-1}
Subsurface Soil				
Site-Wide				
Ingestion	Excavation Worker	F	5×10^{-1}	--
Ingestion	Utility Worker	P/F	--	4×10^{-3}
Former Drum Storage Area				
Ingestion	Excavation Worker	F	1×10^{0}*	--
Ingestion	Utility Worker	P/F	--	9×10^{-3}
Dry Well Sediments				
Ingestion	Utility Worker	P	--	8×10^{-4}
Ligonee Brook Sediments				
Ingestion	Child Resident	P/F	--	2×10^{-4}
Ingestion	Adult Resident	P/F	--	1×10^{-5}

* Hazard Index exceeds one (1).
-- Pathway was not quantitatively evaluated.

LE 12

ROWE INDUSTRIES SITE
SAG HARBOR, NEW YORK

Chemical-Specific ARARs Considered for Ground-Water Cleanup Criteria

Compound	CAS Number	Minimum ARAR-Based Ground-Water Cleanup Criteria (µg/l)[1/]
ORGANICS		
Chloroform	67-66-3	7
1,1-Dichloroethane	75-34-3	5
1,1-Dichloroethylene	75-35-4	5
cis-1,2-Dichloroethylene	156-59-2	5
trans-1,2-Dichloroethylene	156-60-5	5
Ethylbenzene	100-41-4	5
Freon 113	76-13-1	50
Methylene Chloride	75-09-2	5
Tetrachloroethylene	127-18-4	5
Toluene	108-88-3	5
1,1,1-Trichloroethane	71-55-6	5
Trichloroethylene	79-01-6	5
Xylenes	1330-20-7	5†
INORGANICS		
Antimony	7440-36-0	6
Arsenic	7740-38-2	25
Beryllium	7440-41-7	1
Cadmium	7440-43-9	5
Iron	--	300
Magnesium	7439-96-5	300
Selenium	7782-49-2	10

[1/] Micrograms per liter.
NR Not regulated.
† Applies to each individual isomer.

Table 13

Soil Cleanup Objectives

Contaminant	Cleanup Objective (in ppm)
Benzene	0.05
Xylenes	1.2
Ethylbenzene	5.5
Toluene	1.5
PCE	1.5
TCE	1.0
1,1-Dichloroethane	0.2
TCA	1.0
1,1-DCE	0.5
1,2-DCE	0.5

APPENDIX 3

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233 -7010

SEP 28 1992

Ms. Kathleen Callahan
Director
Emergency & Remedial Response Division
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Rowe Industries Site ID No. 152106
Sag Harbor, Long Island
Draft Record of Decision

Dear Ms. Callahan:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed and concurs with the September 16, 1992 draft Record of Decision (ROD) for the Rowe Industries site.

The remedy presented in the draft ROD includes excavation and disposal of approximately 365 cubic yards of contaminated soil and the remediation of groundwater via extraction and air stripping with discharge to Sag Harbor Cove.

Please contact Mr. James Bologna at (518) 457-3976 if there are any questions.

Sincerely,

Ann Hill DeBar

Ann Hill DeBarbieri
Deputy Commissioner
Office of Environmental Remediation

cc: M. Hauptmann, USEPA-Region II
L. Wood, USEPA-Region II

APPENDIX 4

ROWE INDUSTRIES SITE
TOWN OF SAG HARBOR, NEW YORK

RESPONSIVENESS SUMMARY FOR THE PROPOSED PLAN

The U.S. Environmental Protection Agency (EPA) held a public comment period from August 26, 1992 to September 24, 1992 to receive comments from interested parties on the Remedial Investigation/Feasibility Study (RI/FS) report and the Proposed Plan for the Rowe Industries Superfund site in Sag Harbor, New York. A public meeting was held by EPA on September 9, 1992 at the Sag Harbor Village Office, Sag Harbor, New York to discuss the RI/FS report and EPA's preferred remedial alternative for the site.

This responsiveness summary provides a synopsis of citizens' comments and concerns about the site raised during the public comment period, along with EPA's responses to those comments. EPA considered all comments summarized in this document in making the final decision to select the remedial alternative for the Rowe Industries site.

This responsiveness summary is organized into the following sections:

I. OVERVIEW

This section briefly outlines the EPA'S preferred remedial alternative for the Rowe Industries site.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

This section provides a short history of the site and a brief account of community interest in site activities, as well as concerns raised throughout the investigation at the site.

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

This section summarizes oral comments received by EPA at the public meeting on September 9, 1992 as well as written comments received from interested parties during the public comment period. Interested parties may include local homeowners, businesses, the municipality, and potentially responsible parties (PRPs).

I. OVERVIEW

On August 26, 1992, EPA published the Proposed Plan for dealing with contaminants detected at the Rowe Industries site in Sag Harbor, New York. The Proposed Plan summarized the alternatives presented in the Feasibility Study (FS), stated EPA's preferred cleanup alternative for the site, and announced the public comment period.

The remedial alternatives described in the FS address contamination of soil and ground water separately. Ground water remediation alternatives address the plume of volatile organic compound (VOC) contamination at the site, while soil treatment alternatives address the contaminated soils in a former drum storage area as well as the sludge and underlying soils associated with the site's dry wells.

EPA evaluated possible alternatives to remediate soil and ground water contamination by considering nine key criteria:

- Threshold criteria
    - Overall protection of human health and the environment
    - Compliance with Federal, State, and local environmental and health laws
- Balancing criteria
    - Long-term effectiveness
    - Short-term effectiveness
    - Reduction of mobility, toxicity, or volume
    - Ability to implement
    - Cost

and

- Modifying criteria
    - State acceptance
    - Community acceptance

EPA carefully considered all of these criteria before reaching a final remedial decision regarding the Proposed Plan. Based on current information, EPA believes the preferred alternatives provide the best balance among the possible alternatives with respect to these nine criteria.

The agency's preferred remedial alternatives are Soil Treatment Alternative V - Soil Excavation and Disposal at Off-Site Chemical Waste Landfill and Ground Water Treatment Alternative IV - Air Stripping with Discharge to Sag Harbor Cove. This decision is based upon the review of all available data and the findings of the Remedial Investigation (RI) and the Risk Assessment.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

EPA's community relations efforts for the site began with the preparation of a community relations plan in December, 1989. This document, based on interviews with community members and representatives and on file research, presented a brief site history, identified key community concerns relating to the site, and outlined upcoming EPA community relations activities.

EPA established site information repositories at the John Jeramin Library in Sag Harbor, New York and at the U.S. EPA Region II Superfund Records Center in New York City. These repositories contain the Administrative Record for the site, a collection of all documents used by EPA in selecting a site remedy, including the community relations plan, RI/FS report, and Proposed Plan.

Other community relations activities conducted by EPA for the Rowe Industries Site include the following:

- Preparation and maintenance of a computerized public information mailing list in September 1989
- Preparation and distribution of a fact sheet describing upcoming Remedial Investigation activities in September 1989
- Preparation and announcement of the Proposed Plan in August 1992

EPA conducted a public comment period on the Proposed Plan from August 26, 1992 to September 24, 1992. This public comment period was announced by display advertisements placed in the Suffolk County Edition of *Newsday*. In addition, on September 9, 1992, EPA held a public meeting to discuss the Proposed Plan and to receive public comments at the Sag Harbor Village Office. EPA notified area residents, State, County, and local officials, and news media representatives on EPA's site mailing list for this meeting.

Community interest and concern about the site have been moderate throughout EPA's involvement.

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

This section summarizes oral comments received by EPA at the public meeting as well as written statements received during the public comment period. EPA's responses to all comments and questions are included. The major issues and concerns regarding the Rowe Industries site that were expressed at the September 9, 1992 meeting can be grouped into the following categories:

1. Health effects and water hookup
2. Property values
3. Spread of contamination and extent of testing
4. Litigation issues
5. Clarification of proposed remedial alternative technique
6. Ecological effects of remediation

A. SUMMARY OF QUESTIONS AND RESPONSES FROM THE PUBLIC MEETING CONCERNING THE ROWE INDUSTRIES SITE

1. Health effects and water hookup

Comment: A citizen asked if EPA could help him get hooked up to public water. Of the houses on Hildreth Road, he said his alone was not hooked up by EPA in 1985. His well has been sampled and has shown traces of contaminants. In particular he is concerned about the iron level, which is twice the normal content. He fears the excess iron may have caused him to experience strokelike, atypical migraines and his wife to develop a heart condition. His wife has also had a kidney tumor. The citizen pointed out that test wells with the highest concentration of contaminants, according to the Suffolk County Health Department, were very close to his property.

EPA Response: In 1985, EPA extended public water supply mains and connected 25 homes to public water. These wells were determined to be within the groundwater plume and contained concentrations of contaminants exceeding the federal and state maximum contaminant levels (MCLs) which are considered safe concentrations for consumption of drinking water. The groundwater plume is approximately 600 feet wide and 2700 feet long and migrates from the Sag Harbor Industries facility at a depth of 50-60 feet below ground. Residential wells which are outside the plume will not be provided with public water. This citizen's well has been determined to be outside of the contaminant plume.

NYSDOH Response: High levels of iron, which are naturally occurring in the area, cause aesthetic and taste problems but are not known to cause health problems.

Comment: Another citizen, who was also denied access to public water in 1985, complained of rotting plastic and copper pipes and ruined clothing as a result of his unusable water. He also has tried many times to get public water, but has been unsuccessful. In 1987 the Suffolk County Health Department found acceptable contaminant levels in his water, but he has not been able to get it tested since. His property is also close to the test wells that appeared most highly contaminated.

NYSDOH Response: The New York State Department of Health (NYSDOH) will arrange to have this citizen's well retested.

Comment: A third citizen, who lives off Noyack Road, questioned whether he too could be connected to public water. He thought he might be affected by the plume, especially as his wife died of cancer 8 years ago and he himself had a cancerous tumor. He also mentioned that when the water company laid the public water line in 1985, they tore up about 200 feet of sidewalk near his home and never replaced it, causing a hazard to his grandchildren and others.

EPA Response: First EPA needs to determine exactly where this house is relative to the plume. EPA does not have the authority to have residences connected to public water unless their wells have been directly affected by the plume, meaning the well contains contaminants sidewalk and will contact this citizen with a response.

NYSDOH Response: NYSDOH will arrange to have this citizen's well retested. In addition, anyone who suspected they might be a victim of health problems due to the site contamination should contact or have their physicians contact Geoffrey Lacetti of NYSDOH, Albany.

Comment: One citizen described a severely deformed litter of dogs which he took to a New York City veterinarian to examine. He stated that the veterinarian said the defects were caused by trichloroethylene in the water.

EPA Response: EPA has reviewed the literature on teratogenesis/fetotoxicity for this widely-used solvent. EPA's Health Assessment Document for Trichloroethylene indicates that available information does not show that the fetus is uniquely susceptible to the effects of trichloroethylene.

It should be noted that EPA's evaluation is based on rodent/rabbit animal models and human epidemiology, and does not specifically cite studies in canines. However, scientific extrapolation would suggest that in the absence of any evidence to indicate otherwise, EPA cannot draw any conclusions from the diagnosis of this veterinarian.

Comment: Two employees who work in the telephone company building near the site asked if the building's private water supply had ever been tested. They said they are provided with bottled water for drinking, but they are worried about the effects of washing their hands in the discolored and odorous water.

NYSDOH Response: This water had been tested and nothing was found except high levels of iron and manganese which naturally occur in the area. These metals cause aesthetic and taste problems, but are not known to cause any health problems.

Comment: The two telephone company employees asked about the relation between heart conditions and high iron levels. They wondered if perhaps they should appeal to OSHA.

NYSDOH Response: As stated previously, iron and manganese are not known to cause health problems, only aesthetic ones. OSHA could be approached with the matter but they probably would not offer a substantial means of recourse. In addition NYSDOH promised to check to see when the water was last tested.

Comment: One citizen asked if other employees of the telephone company who were involved in digging two-to-four-foot trenches for new telephone lines might have been exposed to contamination.

NYSDOH Response: There is no possibility of exposure to contamination since the offsite contamination, which is groundwater contamination, is much deeper than two-to-four-feet down in the soil. As the contamination leaves the Site it is present at a depth of about 50-60 feet.

2. Property values

Comment: One citizen stated that he had his property assessed and discovered that it was worth only half of its assessed value because of the area contamination. He also explained how he had given up his garden and cut down his fruit trees because he feared contaminated. He asked if, as a property owner, he must indicate on the deed that the property is polluted.

EPA Response: This homeowner need not have given up his garden because the water table in the area is too deep to affect plants. The groundwater plume is below the ground at a depth of 50-60 feet. Furthermore, solvents do not tend to accumulate in produce such as fruit. Unless the garden was growing directly on contaminated soils onsite, his garden would have remained unaffected. In addition, it is also likely that property values would be reestablished to former conditions upon remediation of the contamination.

Comment: Several citizens pointed out that they might not be alive when the cleanup is completed, but that they are upset that they cannot leave their children valuable property. The citizens wanted to know there is anything EPA can do to compensate them for their losses. Some citizens remarked that they received tax benefits because of their proximity to the site, but others said they had received no such compensation.

EPA Response: EPA does not have the authority under the statute to award compensatory damages to homeowners near Superfund Sites, nor does the statute authorize EPA to seek reimbursement for any reduction in property values which may have resulted from the location of the property near a superfund site.

3. Spread of contamination and extent of testing

Comment: One citizen recalled the Rowe Industries facility before it was destroyed by a fire in 1964. He claimed that the drum storage area was in a different location than the one focused on in the Remedial Investigation. The citizen also expressed concern that there might still be drums buried beneath the current building and leaching into the soil there. He asked if any bulldozing beneath the structure had occurred during the investigations.

EPA Response: Aerial photography performed during the remedial investigation did not indicate that there were other areas used for drum storage. The area beneath the building was tested and revealed no contamination. The drum storage area, which is several feet away from the building, is the primary source of groundwater contamination.

Comment: A citizen who was employed at the facility for seven years described the leaching process occurring at the south end around the dry well and storage areas. He stated that the dry well DW-A was contaminated with detergents which tend to contain the degreasing agents, but that when it rains, the detergents loosen and the allow the degreasers to disperse. The citizen did not understand how this area could not be highly contaminated.

EPA Response: Based on the history of the Site EPA also expected to find heavy contamination in the area of dry well DW-A, but the Remedial Investigation did not support this expectation. Only low levels of solvents were detected at this dry well. It is possible that since these chemicals are volatile organics, meaning that they have a tendency to vaporize off into the atmosphere, over time much of the original contamination may have undergone this process and volitalized.

Comment: Two citizens asked where the current owner of the site, Sag Harbor Industries, is storing its wastes.

EPA Response: Sag Harbor Industries stores the solvents that they use, inside its building.

Comment: A citizen whose home is situated on top of the contaminated ground water plume was concerned about the effects of the contamination on her garden. Although she does not use the groundwater to water her plants, she wanted to know if they could be contaminated by the water they obtain through their roots or by the soil they grow in.

EPA Response: The water table in the area of this citizen's garden is too deep to affect plants. The chemicals in question do not tend to accumulate in produce; only metals may accumulate. Furthermore, the metal contamination is only present in on-site soils, around the dry wells and storage areas. Unless the garden was growing directly on the contaminated soils, the garden should be unaffected.

Comment: One citizen asked if the Board of Health would permit him to build on a half-acre lot even though the town of Southampton gave him a $500 property tax deduction because of its proximity to the site. He indicated that there is a public water line close by to which he could probably gain access.

NYSDOH Response: Building on this lot would be allowed if a connection to a water supply is made.

Comment: A citizen asked how EPA could say ground water contamination in a particular spot is 40 to 50 feet down if a well in that area is only 22 feet deep.

EPA Response: The well that was described is a private well. The data obtained from private wells was not enough to draw any conclusions about the horizontal and vertical extent of the groundwater contamination plume. Therefore, as part of the remedial investigation, monitoring wells were installed to depths of 30, 70 and 100 feet. It is the data from these wells that offers conclusive evidence that the highest contamination is at a depth of 40 to 50 feet.

Comment: One resident who lives behind the site facility on Lily Pond Road asked about tests that were performed on her property. She wanted to know how to get the results of these tests and how often she should be retested to confirm that contamination is not reaching her property.

NYSDOH Response: Contamination had never been found in this woman's drinking water well. The test reports are contained in the Remedial Investigation Report which can be reviewed at the Jeramin Library. The recommendation under the federal Safe Drinking Water Act it is annual sampling of wells where volatile organic contamination is a concern.

EPA Response: Ground water hydrology determines the movements of contaminants in the aquifer. The contaminants move with the groundwater flow patterns in the area. If the water is flowing away from the home carrying the contaminants with it, which is the case, the contaminants cannot simply change direction. However, EPA will review the specific results of the well testing.

Comment: Two citizens mentioned another possible source contributing to the plume, a small pond where some drums of trichloroethylene were allegedly buried. They asked if that area had been investigated.

EPA Response: The surface water and sediments in the pond were tested and found to be uncontaminated.

Comment: A citizen asked how the plume has changed during the course of the investigation. She also asked if anything was currently feeding it and why it was still so heavily concentrated.

EPA Response: The size and shape of plume has not increased in size over time. Concentrations actually are slightly lower due to the effects of infiltration which act to dilute the plume. The source of the groundwater are the contaminants which are bound with the soil and then released by the infiltration of rainwater. Since solvent disposal on the ground has long since been discontinued there is no new contamination to feed the plume. However, residual contamination of the soils in the drum storage area and the dry wells affected by earlier disposal practices must be removed to eliminate the cause of this groundwater plume.

4. Litigation issues

Comment: Several citizens discussed the possibility of bringing a lawsuit to obtain compensation for lowered property values and to pay for additional public water hookup. They wanted to determine if indeed a case exists for them and asked if EPA could help them with it. A few residents suggested the possibility of a class-action suit, but acknowledged the difficulties of organizing and funding it. A few had actually consulted with law firms and reported that they would be willing to take such a case. The citizens wanted to know whom they should sue.

EPA Response: EPA cannot assist in such a case. EPA is only authorized by the statute to sue for remediation or cost recovery at the site. Citizens must bring their own suit for damages to their property or health.

Comment: One citizen asked for clarification about Nabisco's role in the site contamination and the implications of signing a Consent Decree. Another citizen who had worked at the site facility stated that Nabisco did continue discharging waste when it acquired the site, although he could not recall what year they stopped. He wanted to know if this practice made them liable.

EPA Response: Nabisco was notified that EPA considers it to be a potentially reponsible party for the Site, based on its past ownership of the property, and its or its predecessors role in the disposal of hazardous substances at the site. contamination was limited to the purchase of contaminated property. Their signing of a Consent Decree, need not constitute an admission of liability for the site, but it would bind them to perform the RD/RA with EPA oversight.

Comment: One of the citizens still on private water asked if EPA received money from Nabisco to pay for the installation of the public water in 1985, and if they could ask for additional money to pay for his hookup to the public water supply. A town trustee asked what had motivated the payment on Nabisco's part. He questioned whether it had implied their guilt and liability.

EPA Response: EPA has been reimbursed by Nabisco and Sag Harbor Industries for the costs of connecting residences to the public water supply. Documents memoralizing their payment indicate that it was made to avoid litigation. EPA cannot provide money for or hook up wells located outside of the plume.

Comment: One resident who had worked with trichloroethylene wanted to know if the people who make or use the chemical could be held responsible for site contamination.

EPA Response: Producers of pure product chemicals are not held responsible in this situation. The users of the product are held responsible to properly dispose of used chemicals as required by Federal and State laws.

5. Clarification of proposed remedial alternative

Comment: Two citizens asked where the excavated soil would be taken. One wanted to know how EPA can justify moving contaminated soil from one place to another and polluting another area. The citizens requested a description of other options.

EPA Response: It has not yet been exactly determined where the excavated soil will be taken. However, in order to comply with Land Disposal Regulations under the Resource Conservation and Recovery Act (RCRA), EPA believes that the soils will need to be treated before they are disposed of at a secure and permitted chemical landfill that has double liners, and a water-collection system beneath it. The other option that was discussed in the FS, vacuum extraction of contaminants, would only potentially work on the soil beneath the drum storage area and not the dry wells.

Comment: A citizen asked if something could be done immediately to stop the leaching still going on at the site.

<u>EPA Response:</u> EPA plans to have the contaminated soil removed as the first stage of the remedial action.

<u>Comment:</u> A few citizens wanted to know where the contaminated water would be taken and where exactly the discharge pipe would be located.

<u>EPA Response:</u> The location of the water treatment plant and the exact location of the treatment plant discharge to Sag Harbor Cove will be determined in the design phase .

<u>Comment:</u> A town trustee stated that as protectors of the bottom lands and water bodies of Sag Harbor, the town trustees prohibit any discharge to Ligonee Brook or other local waters. However, he also recognized that the contaminated water was currently emptying into Ligonee Brook anyway, but just wanted to ensure that the Proposed Plan includes the better alternative when its long term effects are taken into account. The trustee requested that the EPA keep the town trustees informed as decisions are made.

<u>EPA Response:</u> The water which will be discharged into the Cove will be treated to federal and state MCLS which are considered safe for drinking water. In addition, before any discharges can take place they must be in compliance with the requirements of the State Pollutant Discharge Elimination System (SPDES) Program. The town is currently on EPA's mailing list and they will be informed of any decisions. In addition, copies of all reports will be made available in the repository.

<u>Comment:</u> Two citizens asked how clean the contaminated water would be following treatment.

<u>EPA Response:</u> The contaminated water will be treated to meet State Pollutant Discharge Elimination System Standards which are discharge levels for effluent promulgated by the New York State Department of Conservation (NYSDEC) which have been determined to by protective of aquatic life.

<u>Comment:</u> A few citizens asked how long the ground water cleanup will take. Those not on public water are concerned that a long time frame will not help their immediate concerns and they repeated their request to receive public water.

<u>EPA Response:</u> EPA has estimated that the groundwater would have to be pumped and treated for about 15 years in order to clean up the entire plume. However this is just an estimate. In addition pumping and treating the groundwater will prevent the plume from migrating any further and affecting any more private wells.

<u>Comment:</u> A town trustee recalled another local site (Atlanticville spill) where a treatment and discharge system became clogged. He inquired whether the proposed system for the Rowe Industries site would experience clogging as well. The trustee also asked what kind of monitoring would occur at the site.

<u>NYSDOH Response:</u> EPA is not exactly sure as to which site the commentor is referring

to. The treatment system may or may not be similar to the one that EPA is recommending be implemented at the Rowe site. Air stripping treatment is a proven technology that has been used at many sites. Regular operation and maintenace will ensure that the system will operate correctly. In addition, during the initial operation of the treatment system, sampling will occur on a frequent basis to determine if the systmen is operational. Furthermore, the groundwater treatment system will be monitored as a part of operation and maintenance.

<u>Comment:</u> Several citizens wanted to know approximately when work would actually begin at the site.

<u>EPA Response:</u> EPA plans to sign the ROD by September 30, 1992. Before the remedy can be implemented negotiations will take place with potentially responsible parties to determine if they are interested in signing a Consent decree to perform the Remedial Design and Remedial Action (RD/RA). According to the Superfund Law, PRPs have 60 days from the date that negotiations commence to submit to EPA a proposal for undertaking the RD/RA. If EPA accepts this proposal, an additional 60 days is granted in the order to conclude the negotiations. If an agreement is reached, and the Consent Decree is signed, Nabisco would begin designing the remedy. Design of the groundwater pumping and treatment system may take up to one year. The soil remedy will most likely have a much shorter design timeframe. Under this scenario, actual on-site work may not take place until early 1994. However, EPA will try and expedite this schedule as much as possible. If EPA were to undertake the remedy itself, the timeframes would be very similar, howeever, some time would be saved as no negotiations would take place.

<u>Comment:</u> A citizen asked if all further work reports, analyses, health and safety plans, etc. would be made available to the public.

<u>EPA Response:</u> Yes, all further reports will be made available to the public through the information repository in Jeramin Library.

6. Ecological effects of remediation

<u>Comment:</u> A town trustee asked if any studies had been conducted to determine the effects, if any, of the discharge might have on a salt-water body like Sag Harbor Cove, which has been designated a water-fowl sanctuary.

<u>NYSDOH Response:</u> No studies have been undertaken to study the effects of discharges on the Cove. However, the Cove will be protected by SPDES requirements. In addition, sediment samples taken in the creek indicated that high concentrations of solvents were not present. Furthermore, these solvents don't have a tendency to bioaccumulate.

<u>Comment:</u> The town trustee also asked if shoreline and shellfish contamination had been studied, and whether EPA would recommend stocking shellfish from the area.

<u>EPA Response:</u> Surface water and sediment sampling in the Cove indicated that overall there are very low levels of solvents present where the plume discharges to the Cove.

Furthermore as stated previously, these chemicals do not have a tendency to bioaccumulate in fish or wildlife.

Comment: A citizen representing a local environmental group stated that removing ground water from one area and discharging into Sag Harbor Cove is a major redistribution. The citizen wanted to know how this will affect local wetlands and whether there has been a hydrological assessment of either the drawdown or cone of influence for the pumping area.

EPA Response: The Upper Glacial Aquifer is highly productive and no depletion of the wetland should occur. However,a wetlands delineation report will be completed during the early stages of the remedial design process. If it is determined that remedial actions may adversely impact wetlands, a wetland functional values assessment will be completed and used to develop a Wetland Impact Mitigation Plan if necessary.

B. SUMMARY OF WRITTEN COMMENTS RECEIVED BY EPA DURING THE PUBLIC COMMENT PERIOD FOR THE ROWE INDUSTRIES SITE

EPA received one letter from the consulting firm, Leggette, Brashears and Graham, who performed the RI/FS, dated Sept. 14, 1992. That letter raised some issues and concerns about the preferred alternative as described in the Proposed Plan. These issues and concerns are described below along with EPA's responses.

- One major concern raised in the letter was that EPA's ROD allow for flexibility in dealing with the contaminated soils. The comment called for setting remedial targets and requested flexibility in the remedial design stage to allow for treatment technology selection, characteristics and volume of contaminated soils, and potential difficulties with excavation relative to unknown buried objects.

EPA Response

The preferred alternative as described in the Proposed Plan calls for excavating contaminated soils, treating if necessary to meet RCRA Land Disposal Requirements (by incineration or an alternative technology), and subsequent disposal in a RCRA Subtitle C landfill. The VOCs in these soils came from degreasing operations and are therefore, when excavated, RCRA listed hazardous wastes (F001). The RCRA LDRs require that F001 wastes and soils which contain them comply with certain concentration requirements prior to being land disposed. These concentrations requirements are expressed in terms of the toxic characteristic leaching procedure (TCLP) analysis which measures concentration levels in the waste extract as a result of the TCLP test. Therefore, in compliance with the LDR requirements, the soils to be excavated will be analyzed using the TCLP analysis. If the extract concentrations for these soils are higher that those listed above, the soils will be treated (either by incineration or an alternative technology) to meet the TCLP concentrations.

EPA is not specifying the pretreatment technology. EPA is specifying that the selected technology must be capable of attaining TCLP concentrations. However, an FS is not necessary in order to select an effective technology. Limited TCLP testing in conjunction with the investigation of soil treatment technologies will be sufficient. If no viable alternative can be found incineration is a proven technology. It is not in the public's interest to perform a treatibility study to clean up 365 cu yards of soil. Given the low volume of soil in question, EPA believes treatment offsite will be the most feasible.

The volume of contaminated soils to be excavated is described in some detail in the Proposed Plan. During excavation activities, confirmatory soils sampling will be performed to ensure that the remedial action objectives for soil have been achieved. EPA has no reason to believe that difficulties will encumber soils removal activities. A magnetometry survey was performed during the RI which did not indicate there were any obstructions present in the former drum storage area. However if, during excavation activities, buried objects are encountered , sound professional engineering judgement will be applied to ascertain how excavation activities can proceed in the former drum storage area in accordance with all applicable environmental statutes and regulations.

. The other major concern raised in the letter was that the ROD should allow for flexibility in dealing with the contaminated groundwater. The comment called for setting remedial targets and a reasonable time frame for achieving these goals. The comment went further, and called for selecting the groundwater alternative with extraction wells on the SHI property and no extraction for the further downgradient end of the plume. The comment also suggested reinjection at the downgradient end of the SHI property. The comment went on with suggested language for the ROD that would allow for discontinuance of groundwater pumping if the remedy was not "producing significant reductions" in plume constituents.

EPA response

The Proposed Plan contained language that allows for flexibility with the groundwater alternatives. It calls for careful monitoring of the groundwater during the implementation of pumping and treatment to "determine the feasibility of achieving" the remedial targets which are MCLs. It goes on to describe various different pumping scenarios like "continuous pumping, pulsed pumping, and flexibility in placing pumping wells at strategic locations".

The comment that recommends pumping the groundwater plume on the SHI property with reinjection, and letting the downgradient end of the plume be subject to natural attenuation is a variation on Alternative 3-I and 4-I and was not evaluated in the Feasibility Study (the draft of which was prepared by the commentor) or the Proposed Plan . In any event, EPA is not inclined to actively restore only part of the Rowe Industries Superfund Site groundwater plume because that remedial action would not be as protective of public health or the environment as the preferred groundwater alternative. The commentor's approach would result in a significant amount of residual groundwater contamination beyond the property boundaries. In addition, EPA does not see the advantage of using groundwater reinjection since this technology requires extensive operation and maintenance.

EPA appreciates the intent of the language suggested in the letter; however the failure to achieve significant reductions of contaminants need not cause EPA to discontinue operation of the groundwater remedy. Page 4 of the ROD contains the following language that allows for flexibility in the groundwater remedy. "The ultimate goal of the EPA Superfund Program's approach to groundwater remediation is to return usable groundwater to beneficial uses within a reasonable time frame. EPA's Groundwater Protection Strategy establishes different degrees of protection for groundwater based on their vulnerability, use, and value. For the aquifer beneath the Site, the final remediation goals will be drinking water standards. Therefore, EPA's goal in remediating groundwater at the Site is to reduce concentration levels in groundwater to meet the Maximum Contaminant Levels promulgated under the Safe Drinking Water Act. In order to achieve this goal any contaminated soil which is leaching contaminants into the groundwater must also be remediated. However, EPA recognizes that the final selected remedy may not achieve this goal because of potential difficulties associated with removing contaminants from groundwater to cleanup levels. The results of the selected remedy will be monitored carefully to determine the feasibility of achieving this final goal. The remedial action may require continuous pumping, pulsed pumping, and flexibility in placing pumping wells at strategic locations." A decision to modify the groundwater remedial action may be made during a periodic review, which will occur at intervals of no less than once every five years.

EPA received a letter from the Town of SouthHampton dated September 22, 1992 requesting that EPA require the extension of public water mains to homowners on Hildreth Street whose wells are outside the plume.

EPA RESPONSE

EPA appreciates the Town Supervisor's concerns for the people living on Hildreth Street. However, EPA has carefully reviewed the data which indicates that these wells have not been affected by the groundwater plume. Groundwater contamination was first discovered in the Sag Harbor area in 1983. The Suffolk County Department of Health Services (SCDHS) sampled water from a private well on Noyack Road which revealed contamination by three solvents, 1,1,1-trichloroethane, 1,1,2-trichloroethylene, and tetrachloroethylene and the metal iron. As a result of these findings, the SCHDS and EPA conducted further investigations to determine the extent and the cause of the groundwater contamination in the Sag Harbor area. Forty-three private wells and twenty-one monitoring wells were monitored from March 1984 until October 1984. The results of the study indicated a groundwater contamination plume that was approximately 600 feet wide and 2700 feet long extending to Ligonee Brook flowing northwest from the facility and containing chlorinated hydrocarbons, primarily solvents.

The results of the remedial investigation (RI) confirmed these earlier findings. In addition, as part of the RI, the wells on Hildreth Street were sampled and the data indicated that they were within drinking water standards. All of the data collected to date does not indicate that the size of the plume would change and contamination would be drawn into these wells.

As indicated at the public meeting, NYSDOH has offered to test any private wells upon request.

APPENDIX 5