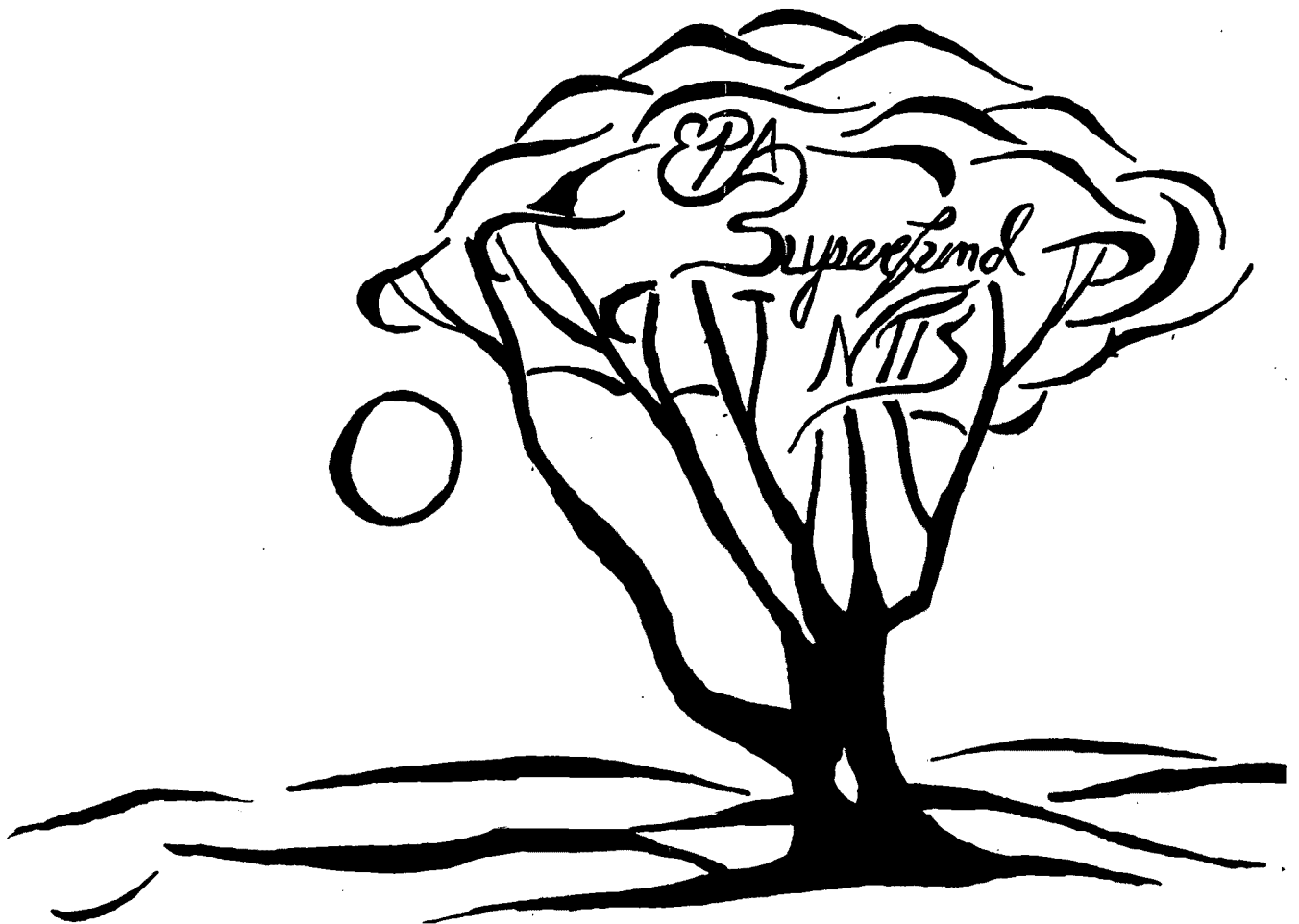


PB94-963802
EPA/ROD/R02-94/225
July 1994

EPA Superfund Record of Decision:

**Kenmark Textile Printing Corp.,
Babylon, NY**



**RECORD OF DECISION
DECISION SUMMARY**

**Kenmark Textiles Printing Corporation
East Farmingdale
Town of Babylon
Suffolk County, New York**

**United States Environmental Protection Agency
Region II
New York, New York**

ROD FACT SHEET

SITE

Site name: Kenmark Textiles Printing Corporation
Site location: East Farmingdale, Suffolk County, New York
HRS score: 31.72

ROD

Date Signed: March 30, 1994
Selected remedy: No Action
Capital cost: N/A
O & M cost: N/A
Present-worth cost: N/A

LEAD

Fund: Environmental Protection Agency
Primary contact: Sharon Trocher (212-264-8476)
Secondary contact: Doug Garbarini (212-264-0109)
Main PRP: S.J. & J. Service Stations, Inc.

WASTE

Waste types: Dyes and Solvents
Inorganics (arsenic, chromium, lead, etc.)
Organics (tetrachlorethene)
Waste quantity: Limited
Contaminated media: Soils and groundwater (minimal contamination)

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Kenmark Textiles Printing Corporation
East Farmingdale, Town of Babylon, Suffolk County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Kenmark Textiles Printing Corporation (Kenmark) site (Site), which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675, and the National Contingency Plan (NCP), 40 CFR Part 300. This decision document explains the factual and legal bases for selecting the remedy for this Site. The information supporting this remedial action decision is contained in the administrative record for this Site. The administrative record index is attached (Appendix III).

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy, as per the attached letter (Appendix IV).

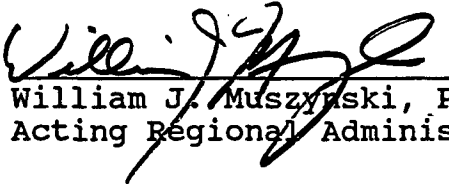
DESCRIPTION OF THE SELECTED REMEDY - NO ACTION

The United States Environmental Protection Agency (EPA), in consultation with the State of New York, has determined that the Site does not pose a significant threat to human health or the environment and, therefore, remediation is not appropriate. Thus, "No Action" is the selected remedy for the Site. This determination is based on the results of remedial investigation activities conducted by a potentially responsible party (PRP) for the Site under NYSDEC supervision from 1987 to August 1990 and under EPA supervision from August 1991 through December 1993.

DECLARATION

In accordance with the requirements of CERCLA, as amended, and the NCP, it has been determined that no remedial action is necessary to protect human health and the environment at the Site. Since this remedy will not result in hazardous substances remaining on-Site above health-based levels, the five-year review will not apply to this action.

Since EPA has determined that no remedial action is necessary at the Site, the Site now qualifies for inclusion in the "Sites Awaiting Deletion" subcategory of the Construction Completion category of the National Priorities List.



William J. Muszynski, P.E.
Acting Regional Administrator.

3/30/94

Date

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APPENDIX II.-----TABLES
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APPENDIX IV.-----STATE LETTER OF CONCURRENCE
APPENDIX V.-----RESPONSIVENESS SUMMARY

SITE NAME, LOCATION AND DESCRIPTION

The Site, now occupied by the Susquehanna Textile Company, is located in a light industrial area at 921 Conklin Street in East Farmingdale, New York (see Figure 1). The waste disposal areas at the Site include a leaching pit, sludge drying beds and three leaching pools. The Site building and a paved parking lot occupy the majority of the Site. The leaching pools are located underneath the parking lot, and the leaching pit and sludge drying beds are located in the unpaved area of the Site. Figure 2 provides the layout of the Site.

Since at least 1917, the Site has been the location of several successive silk and textile dye, printing and screening operations. The areas north and east of the Site are characterized by light industry. Residential developments are located to the south and west, with an estimated 6,200 residents living within one mile of the Site.

Public supply wells are the primary source of drinking water in the area. Groundwater flow at the Site is generally towards the south. With the exception of a parkland and an undeveloped area adjacent to the parkland, both located upgradient of the Site, the area within one mile of the Site obtains drinking water from public water supplies. Three public supply wellfields are located within 0.5 to 1.0 mile of the Site. Two of the wellfields are located upgradient of the Site, and the third wellfield is located cross-gradient of the Site. The closest downgradient public supply well is located about 1.5 miles from the Site.

The nearest surface water body to the Site is an artificial pond (recharge basin) located 0.2 miles south of the Site. The artificial pond is the subject of a separate NYSDEC investigation. The headwaters of the Massapequa Creek are located 1.9 miles southwest and 1.6 miles south-southwest of the Site. There are several small reservoirs located in Bethpage State Park which is upgradient of the Site.

There are no designated New York State significant habitats, agricultural lands, or historic landmarks directly or potentially affected by the Site. There are no endangered species or critical habitats within close proximity of the Site.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

As early as 1972, process wastewater generated at the Site was chemically treated, resulting in the precipitation of solids from the wastewater. The sludge from the wastewater was distributed to outdoor concrete-lined beds for settling and drying. The sludge was periodically removed from the sludge drying beds and

placed in drums. The resulting wastewater (supernatant) was discharged to the leaching pit located on-Site and east of the building. Beginning in November 1984, the wastewater was discharged to the Suffolk County Publicly Owned Treatment Works.

Three subsurface leaching pools are located south of the building beneath a paved parking lot. Access to each of the leaching pools is through a manhole. The original function of these leaching pools is not known, although it is suspected that they were used to collect parking-lot surface runoff and also textile-printing process wastewater.

Sampling conducted between January 1974 and May 1984 by the Suffolk County Department of Health Services and a contractor hired by Kenmark, revealed that wastewater discharged into the on-Site leaching pit contained hexavalent chromium, copper, iron, lead, silver, and phenols in violation of New York State groundwater discharge standards. Based on these findings, the Site was added to EPA's National Priorities List (NPL) in June 1986.

In 1987, S.J. & J. Service Stations, Inc. (SJ&J) who is the current property owner and a potentially responsible party (PRP) for the Site, entered into an Administrative Consent Order (ACO) with NYSDEC to conduct a Remedial Investigation (RI) to determine the nature and full extent of the Site contamination, and a Feasibility Study (FS) to evaluate cleanup alternatives. The ACO set forth the terms and schedule of the study to be carried out by SJ&J under the supervision of the NYSDEC.

In August 1990, NYSDEC requested that EPA assume the role of lead agency for the remedial activities at the Site. In December 1990, EPA sent "special notice" letters to seven PRPs, affording them the opportunity to complete the RI/FS for the Site. The PRPs were given 60 days in which to submit a good faith offer to undertake or finance the RI/FS. During the 60-day period, a good faith offer was received by SJ&J to continue the Site investigation and to evaluate cleanup alternatives. The agreement to perform this work was finalized in an ACO signed by EPA and SJ&J in July 1991.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI report and the Proposed Plan for the Site were released to the public for comment on February 11, 1994. These documents, as well as other Site-related documents, have been made available to the public in the administrative record file at EPA's Superfund Records Center, 26 Federal Plaza, New York, New York and the East Farmingdale Fire House, 930 Conklin Street, East Farmingdale, Suffolk County, New York. A press release announcing the availability of these documents was issued on February 17, 1994. The public comment period for the Proposed Plan ended on March 12,

1994. The public notice announcing a public meeting for the Site was published in The Farmingdale Observer and in Newsday on February 18, 1994.

On February 28, 1994, EPA conducted a public meeting at the East Farmingdale Fire House to inform local officials and interested citizens about the Superfund process, discuss the RI findings, present the Proposed Plan, and respond to questions from area residents and other attendees. At this meeting, representatives from EPA and the New York State Department of Health answered questions about concerns related to the Site and the remedial alternative under consideration. Responses to the oral comments received at the public meeting and written comments received during the public comment period are included in the Responsiveness Summary (Appendix V).

SCOPE AND ROLE OF OPERABLE UNIT

This ROD addresses the first and only operable unit planned for the Site. The primary objectives of this operable unit are to determine the nature and extent of contamination at the Site and to identify measures, as appropriate, to ensure protection of human health and the environment.

The specific objectives of the RI and the risk assessment which are the bases of this ROD were:

- to identify all potential source areas of contamination;
- to characterize the nature and extent of possible contamination in environmental media (surface and subsurface soils, and groundwater) on-Site;
- to determine the hydrogeologic characteristics of the Site by assessing potential current and/or future impacts on downgradient receptors; and
- to assess the current and future potential risks to public health and the environment caused by Site contamination in the absence of remedial action.

Based on EPA's analysis of data generated during the RI and the results of EPA's risk assessment, as well as other supporting documentation, EPA has concluded that the nature and extent of soil and groundwater contamination at the Site do not pose a significant threat to human health or the environment.

SITE CHARACTERISTICS

From 1987 to August 1990, SJ&J conducted a Site investigation under the supervision of the NYSDEC. In July 1991, EPA entered into an ACO with SJ&J to complete the RI/FS. The RI was completed in December 1993. Fanning, Phillips and Molnar Engineers (FP&M), a contractor hired by SJ&J, conducted the RI. The RI, consisted of drilling borings and constructing monitoring wells, collecting soil and groundwater samples, and conducting geophysical and air-monitoring surveys to characterize the geology, groundwater hydrology and chemical quality of the soil, groundwater and air at the Site. A summary of the RI findings follows.

Groundwater

The Site is at an approximate elevation of 80 feet above mean sea level. The shallowest groundwater, the Upper Glacial Aquifer, occurs approximately 25 feet below ground level at the Site, and is estimated to be approximately 60 to 80 feet thick. The Magothy Aquifer underlies the Upper Glacial Aquifer and is estimated to be over 500 feet thick. The Upper Glacial and Magothy Aquifers form a thick sequence of sand with varying amounts of silt and clay. Groundwater movement across the Site is generally towards the south. The velocity of the horizontal groundwater flow in the Upper Glacial Aquifer is estimated to be 2.4 feet per day.

In May and June of 1988, five monitoring wells were installed just below the groundwater table to obtain groundwater samples for analyses of organic and inorganic compounds. Four of the wells were installed on-Site, and the fifth well was installed hydraulically upgradient of the Site. Due to various analytical protocol deviations, the NYSDEC rejected the data for the volatile organic compounds and required further sampling. Lead was detected in unfiltered groundwater samples at levels above the State groundwater drinking water standard of 25 parts per billion (ppb) and the Federal action level of 15 ppb in two of the on-Site wells. Lead was not detected at levels above the State groundwater drinking water standard and the Federal action level in the filtered groundwater samples.

In August 1992, five additional groundwater monitoring wells were installed as required by the EPA-issued AOC, increasing the total number of Site-related wells to ten. Two wells were drilled upgradient of the Site's operations, and three wells were drilled downgradient of the Site. All the wells were installed just below the groundwater table except for one of the downgradient wells (DW-6). DW-6 was installed 56 feet below the groundwater table (or 81 feet below the ground surface). Figure 2 shows the location of the ten monitoring wells.

In September and December 1992, two rounds of groundwater samples were collected from the ten monitoring wells and analyzed for inorganic and organic compounds. Antimony, thallium, and cadmium were detected above the State or Federal primary drinking water standards (also referred to as the maximum contaminant levels (MCLs)). These compounds were each only detected above these standards on one occasion during the two rounds of groundwater sampling. Antimony was detected in an upgradient well at 65.9 parts per billion (ppb), which is higher than the Federal primary drinking water standard of 6 ppb and the State drinking water standard of 3 ppb. Thallium was detected in one of the seven downgradient wells at 2.4 ppb which is slightly above the Federal primary drinking water standard of 2 ppb but below the State drinking water standard of 4 ppb. Cadmium was detected in one of the seven downgradient wells at 6.7 ppb which is below the State primary drinking water standard of 10 ppb but slightly higher than the Federal primary drinking water standard of 5 ppb. Figure 3 depicts all the compounds detected above the State or Federal primary drinking water standards.

During the two rounds of groundwater sampling, aluminum, iron, and manganese were consistently detected above the State or Federal secondary drinking water standards¹ (secondary MCLs (SMCLs)). Aluminum was detected at an average concentration of 707 ppb (maximum concentration of 4,140 ppb) in the downgradient wells, and an average concentration of 422 ppb (maximum concentration of 1,120 ppb) in the upgradient wells. The Federal secondary drinking water standard of 200 ppb for aluminum was exceeded in downgradient and upgradient wells during both rounds of groundwater sampling. A State secondary drinking water standard does not exist for aluminum.

Iron was detected at an average concentration of 3,840 ppb (maximum concentration of 14,400 ppb) in the downgradient wells, and an average concentration of 809 ppb (maximum concentration of 2,510) in the upgradient wells. The State and Federal secondary drinking water standards of 300 ppb for iron were exceeded in downgradient and upgradient wells during both rounds of groundwater sampling.

Manganese was detected at an average concentration of 152 ppb (maximum concentration of 716 ppb) in the downgradient wells and an average concentration of 85 ppb (maximum concentration of 172 ppb) in the upgradient wells. Manganese was detected above the State secondary drinking water standard of 300 ppb in one of the seven downgradient wells during one of the two rounds of ground-

¹State and Federal secondary drinking water standards are set for aesthetic purposes (e.g., taste, odor and visual quality) and do not represent maximum allowable levels required to protect public health.

water sampling, at a concentration of 716 ppb. The Federal secondary drinking water standard of 50 ppb was exceeded for manganese in upgradient and downgradient wells during both rounds of groundwater sampling.

The groundwater was also analyzed for organic compounds during the 1992 groundwater sampling. During the first round of sampling, organic compounds were detected below drinking water standards with two exceptions. Bis(2-ethylhexyl)phthalate (BEHP), which has a Federal MCL of 6 ppb, was detected at a concentration of 1,100 ppb in one of the seven downgradient wells. It is important to note, however, that two duplicates of this sample were collected (one by EPA and the other by FP&M), and BEHP was not detected in either sample. This suggests that the detection of BEHP was the result of field or laboratory contamination and not indicative of its presence in the groundwater.

The second exception concerns total organic compounds that were detected in both upgradient and downgradient wells above the State drinking water standard of 100 ppb. Total organic compounds were detected in two of the three upgradient wells at 119 and 167 ppb, and in four of the seven downgradient wells at levels that ranged from 110 to 242 ppb. The total organic compounds detected in the groundwater consisted primarily of unidentified and tentatively identified organic compounds. During the second round of groundwater sampling for organic compounds, the State and Federal drinking water standards were not exceeded. The highest concentration of total organic compounds detected during the second round was in an upgradient well at 91 ppb. Figure 3 depicts the organic compounds detected above drinking water standards.

Tables 1 through 4 provide the analytical results of the two rounds of unfiltered groundwater samples collected in September and December 1992.

Surface/Subsurface Soils

Soil samples were also obtained during the Summer of 1988. In total, 57 soil samples were collected from the areas of the sludge drying beds, leaching pit and leaching pools. In addition, two background soil samples were collected from an area not impacted by the Site. These samples were analyzed for inorganic and/or organic constituents.

The average concentrations of the most prevalent inorganic compounds included arsenic at 7.6 milligrams/kilogram (mg/kg) (maximum concentration of 220 mg/kg), chromium at 27.6 mg/kg (maximum concentration of 252 mg/kg), copper at 71.4 mg/kg (maximum concentration of 790 mg/kg), lead at 91.7 mg/kg (maximum concentration of 890 mg/kg), nickel at 26 mg/kg (maximum concen-

tration of 940 mg/kg), and zinc at 124.7 mg/kg (maximum concentration of 860 mg/kg). Total organic compounds were detected in the soils samples at concentrations less than 25 mg/kg. Tables 5 and 6 contain the concentration ranges and average concentrations for the soil at the Site and background soil for inorganic and organic compounds, respectively.

During August 1992, pursuant to the EPA-issued AOC, twenty-one soil borings were drilled at the Site in order to obtain additional information on Site geology and the extent of horizontal and vertical contamination in the soil. Twenty-nine samples (which include two background samples) were collected from the soil borings and analyzed for inorganic and organic constituents.

Numerous inorganic contaminants were detected above background soil levels. The average concentrations of the most prevalent inorganic compounds included aluminum at 3,490 mg/kg (maximum concentration of 19,400 mg/kg), chromium at 16.2 mg/kg (maximum concentration of 197 mg/kg), iron at 6,940 mg/kg (maximum concentration of 18,700 mg/kg), lead at 60.6 mg/kg (maximum concentration of 495 mg/kg), and manganese at 76.3 mg/kg (maximum concentration 266 mg/kg). Several organic compounds were also detected with a majority of them found in the leaching pools. All organic compounds were detected below NYSDEC's soil cleanup guidance levels except for acetone, which was detected at a level three times NYSDEC's soil cleanup guidance level in one sample collected from a leaching pool. Tables 7 and 8 contain the concentration ranges and average concentrations for inorganic and organic compounds in soil at the Site and background soil, respectively.

Air Monitoring and Geophysical Surveys

A geophysical survey (borehole natural gamma logging) and air monitoring were also conducted at the Site. The geophysical survey provided additional information on the Site geology. The air monitoring and air modelling data indicated that the Site does not have an adverse impact on air quality.

SUMMARY OF SITE RISKS

A baseline risk assessment was conducted to estimate the risks associated with current and future Site conditions. The baseline risk assessment evaluated the potential impacts on human health and the environment at the Site which could result from the contamination at the Site, if no remedial action were taken. This information was used to make a determination as to whether remediation of the Site may be required. In the risk assessment, only the 1992 groundwater sampling data were used to determine the groundwater exposure concentrations, since these data are considered to be more representative of current Site conditions

than earlier data due to the mobility of the groundwater. The soil exposure concentrations are based on both the 1988 and 1992 sampling data.

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

The baseline risk assessment began with selecting contaminants of concern which are representative of Site conditions. Chemicals of concern were identified for Site surface soils, subsurface soils and groundwater underlying the Site (see Table 9).

The baseline risk assessment evaluated the health effects which could result from exposure to contamination at the Site under current and future land-use scenarios. The potential exposure pathways of concern for current land use include exposure of workers through incidental ingestion, inhalation and dermal contact with soils during their designated work activities. Worker exposure to groundwater was not evaluated because workers currently utilize the public water supply for drinking and wash water. Worker exposure to groundwater does not occur with the possible exception of inconsequential exposure to process water from the on-Site production well. Since the area around the Site is light industrial, it is unlikely that the future land use at the Site will be residential, however, a future residential land use was evaluated as a conservative assumption. The potential exposure pathways of concern for future land use include residents' exposure to chemicals in groundwater through ingestion of drinking water, and dermal contact and inhalation of volatile organic compounds during showering or bathing; this conservative assumption supposes that the upper aquifer would serve as a drinking water source in the future. The Magothy Aquifer which underlies the upper aquifer, is currently used as a drinking water source. Future on-Site residents might also be exposed to contaminants in surface soils through ingestion and dermal contact. A summary of the exposure pathways evaluated at the Site as part of the risk assessment is provided in Table 10.

Under current EPA guidelines, the likelihood of carcinogenic (cancer-causing) and noncarcinogenic effects due to exposure to Site chemicals are considered separately. Potential carcinogenic risks were evaluated using the cancer potency factors developed by EPA for the compounds of concern. Cancer slope factors (SFs) have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of $(\text{mg/kg-day})^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day , to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes the underestimation of the risk highly unlikely. The SFs for the compounds of concern are presented in Table 11.

For known or suspected carcinogens, EPA considers excess upper bound individual lifetime cancer risks of between 10^{-4} to 10^{-6} to be allowable. This can be interpreted to mean that an individual may have an approximately one in ten thousand to a one in a million increased chance of developing cancer as a result of a Site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at the Site.

The results of the baseline risk assessment indicate that under the current-use scenarios, the estimated carcinogenic risks are within or less than EPA's acceptable cancer risk range based on the potential exposure pathways and routes evaluated for workers (see Table 12). The highest carcinogenic risk was estimated to be eight in one million (8×10^{-6}) for ingestion of chemicals in the soil by workers.

Under the future-use scenarios, all pathways evaluated have estimated carcinogenic risks within EPA's acceptable cancer risk range. The exposure pathway with the highest risk is for the ingestion of chemicals in the groundwater by residents. The estimated carcinogenic risk for this case is one in ten thousand (1×10^{-4}), which is at the upper bound of EPA's risk range. However, since the future use of the Site is likely to remain light industrial; the ingestion of groundwater by Site workers would be unlikely under this scenario, and the carcinogenic risk would not increase beyond the current baseline risk associated with the ingestion of contaminants in the soil (8×10^{-6}). Other carcinogenic future risks within EPA's acceptable range include four in one hundred thousand (4×10^{-5}) for dermal contact with groundwater by a resident while bathing and seven in one hundred thousand (7×10^{-5}) for the ingestion of soil by a resident. The majority of the carcinogenic risk is attributable to the presence of arsenic and beryllium for the groundwater pathways and to arsenic for the ingestion of soil pathway. Arsenic and beryllium were not detected above drinking water standards at the Site.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference doses, or 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). 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 (HQ) for the contaminant in the particular medium. The HQ's are then summed to give a pathway HI. When the HQ, or sum of subthreshold exposures (HQs) exceed one, there may be concern for potential noncarcinogenic health effects, if the contaminants in question are believed to cause a similar toxic effect. The reference doses for the compounds of concern at the Site used to evaluate the noncarcinogenic risks are contained in Table 11.

The results of the baseline risk assessment indicate that under the current-use scenarios, noncarcinogenic health effects are not likely based on the potential exposure pathways and routes evaluated for workers. The calculated HIs for these scenarios are significantly less than one.

For the noncarcinogenic future risk, the HI was below one for all scenarios² except for the ingestion of groundwater by an adult resident (HI=6) and the ingestion of surface soil by a child resident (HI=2) (see Table 13). As noted previously, these exposure scenarios are unlikely since future Site use will likely remain light industrial. For the ingestion of groundwater by an adult resident (HI=6), the primary driver of the noncarcinogenic future risk is manganese (HQ=4). The calculation was based on a single sampling point measurement (out of a total of 14 samples) of 716 ppb which was several times higher than the average concentration of 152 ppb of manganese in the groundwater. This average concentration is below the State secondary groundwater drinking water standard of 300 ppb and is not believed to be associated with any adverse health effects. Excluding manganese, the remaining contaminants individually do not exceed an HQ of one, and the addition of the contaminants with the same toxic endpoints also does not exceed one. For the future ingestion of surface soil by a child resident (HI=2), the major contributors to the HI of 2 were arsenic (HQ=0.9) and antimony (HQ=0.5). Collectively, arsenic and antimony have an HI that exceeds one.

²Di-n-octylphthalate was not considered because this compound was determined not to be associated with the groundwater. Di-n-octylphthalate was detected in one sample, but not in the two associated duplicates or in any other groundwater samples.

However, the critical toxic endpoints for arsenic (skin disorders) and antimony (alterations in blood glucose and cholesterol) are sufficiently different to make adverse health effects unlikely.

An ecological risk assessment considers potential exposure routes of contamination to terrestrial wildlife. Since the majority of the Site is paved or covered with structures, there is little, if any, potential for wildlife to be exposed to contaminated surface soils on-Site. The only potential route of exposure to wildlife in the Site's vicinity would be if contaminants were transported via groundwater and discharged into surface waters some distance from the Site. Off-Site monitoring wells, however, did not indicate the presence of contaminants at significant levels. Therefore, no significant effect would be found on aquatic organisms in the area's surface waters from groundwater discharge off-Site.

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 concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure. Uncertainties in toxicological data occur in extrapolating both from laboratory animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals.

These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the Risk Assessment provides upper

bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

DESCRIPTION OF THE "NO ACTION" REMEDY

The risk assessment indicates that the levels of contaminants present in the soils and groundwater at the Site present risks which fall within or below EPA's 10^{-4} to 10^{-6} carcinogenic risk range. All current land-use exposure scenarios resulted in risks that are within EPA's noncarcinogenic risk range. Some of the future land-use exposure scenarios exceed an HI of 1. The calculation for manganese, the only contaminant with an HQ greater than one, was based on only one sampling measurement (out of fourteen samples) of 716 ppb which was several times higher than the average manganese concentration of 152 ppb. For those future land-use exposure scenarios that resulted in an HI greater than one, the calculations that were used to reach this conclusion conservatively assumed that, in the future, the Site would be used for residential purposes. The Site, however, has been used for light industrial purposes since at least the early part of this century, and EPA believes that it would be more reasonable to assume that land uses similar to those which currently exist will be retained at the Site in the future. Under such a land-use scenario, the chemicals present in each of the exposure pathways would not pose any unacceptable risks. In addition, groundwater sampling results indicate that the majority of contaminants do not exceed drinking water standards, and that it is unlikely that the levels of inorganic contaminants detected at the Site would result in adverse health effects. Therefore, EPA and NYSDEC recommend a no action remedy for this Site.

Based upon the findings of the RI performed at the Site, EPA, in consultation with NYSDEC, has determined that the Site does not pose a significant threat to human health or the environment. EPA, therefore, has selected a "No Action" remedy for the Site. Since this remedy will not result in hazardous substances remaining on-Site above health-based levels, the five-year review will not apply to this action.

DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes from the preferred alternative, as presented in the Proposed Plan.

APPENDIX I

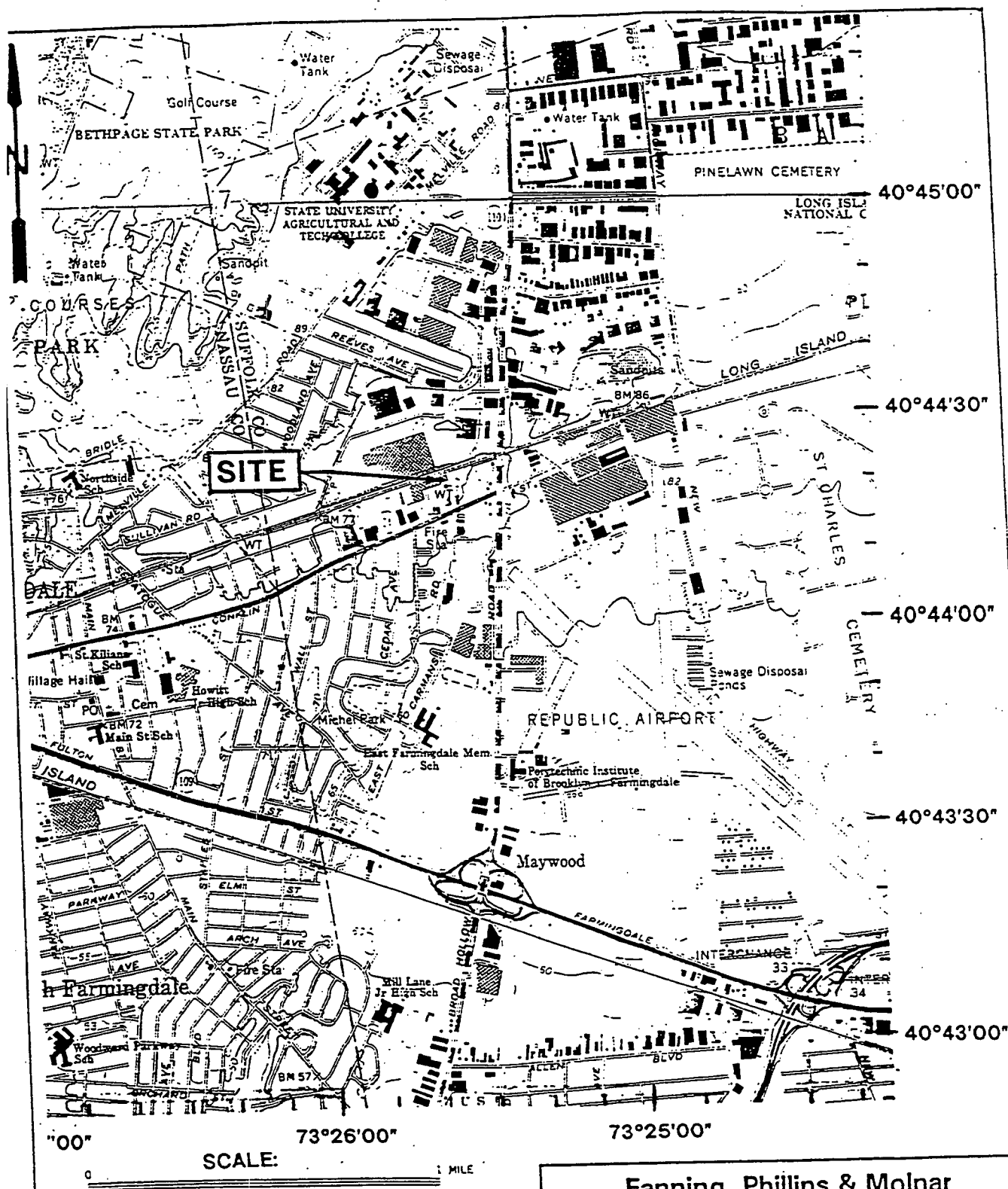
FIGURES

FIGURES

Figure 1 - Site Location

Figure 2 - Site Layout

**Figure 3 - Contaminants Detected above State and Federal Primary
Drinking Water Standards**



source U.S.geological survey 7.5 minute
topographic maps (Huntington 1979 and
Amityville, 1979 quadrangles)

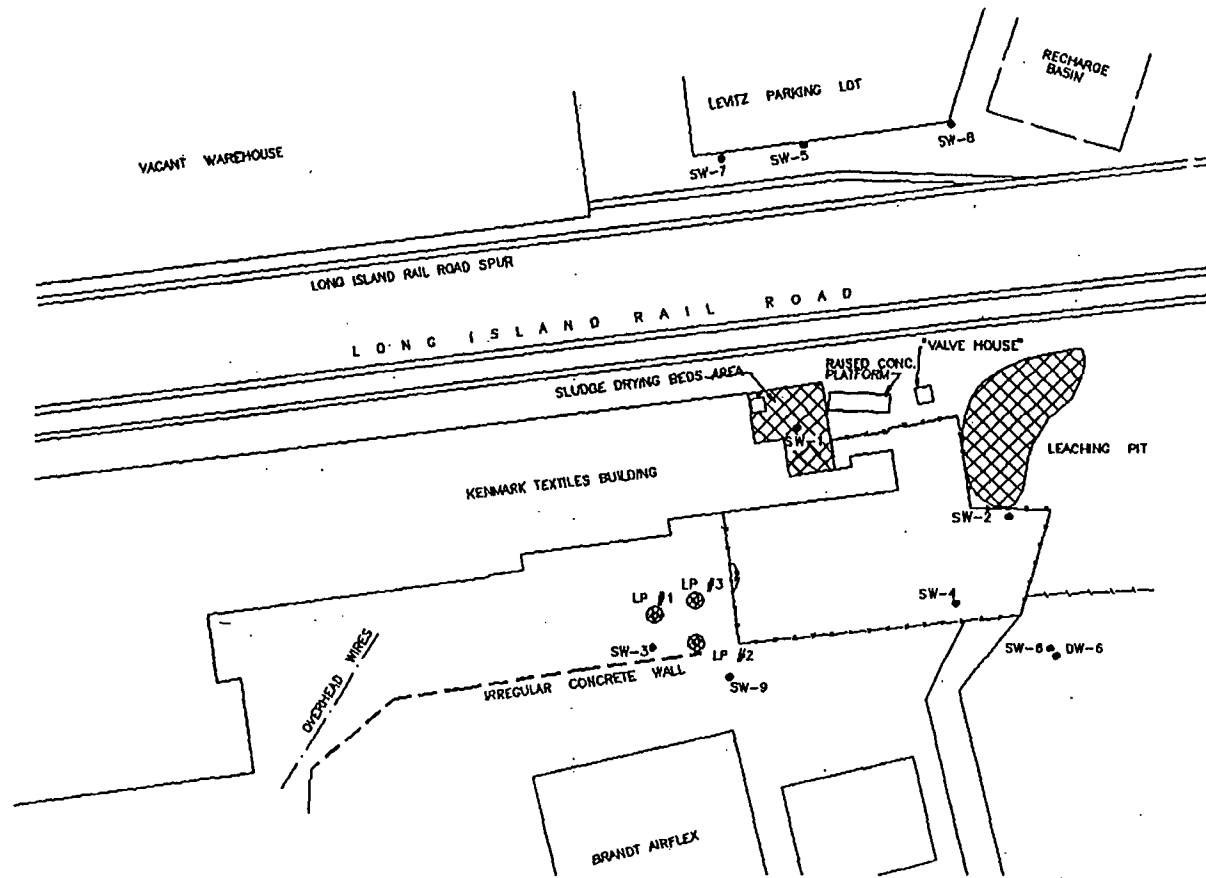
Fanning, Phillips & Molnar
Engineers

FIGURE 1
SITE LOCATION

Drawn By: H.C.

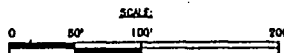
Checked By: T.D.

Date: 1/6/93



LEGEND

- SW-5 DENOTES GROUND WATER MONITORING WELL
- ⊗ DENOTES AREA OF CONCERN
- LP #1 DENOTES LEACHING POOL LOCATION



1. FENCES LOCATIONS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT COMPLETE.

Fanning, Phillips & Molnar
Engineers

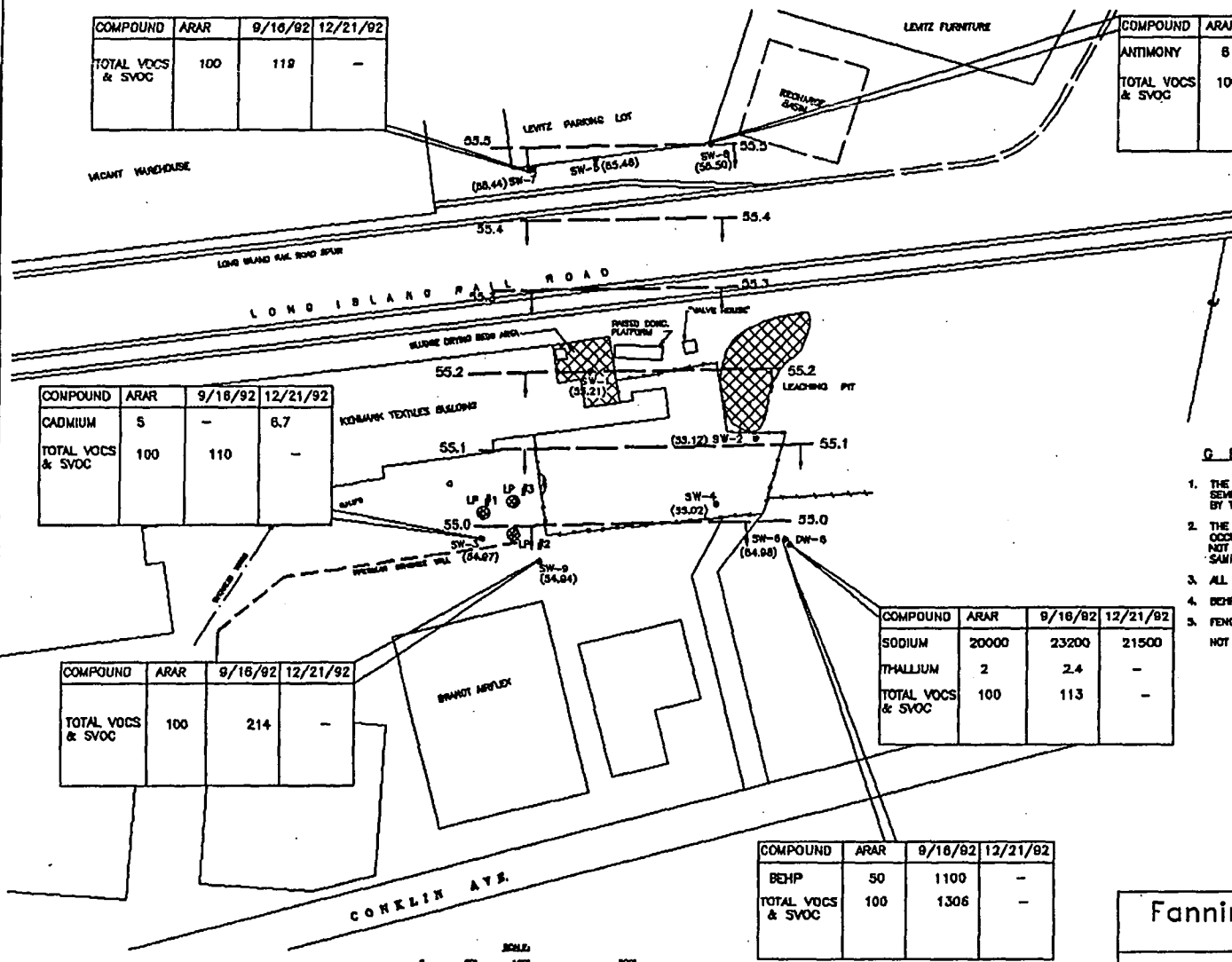
FIGURE 2

SITE LAYOUT

Drawn By: H.C. Checked By: T.D. Date: 12/27/93

COMPOUND	ARAR	9/16/92	12/21/92
TOTAL VOCs & SVOC	100	119	-

COMPOUND	ARAR	9/16/92	12/21/92
ANTIMONY	8	65.9	-
TOTAL VOCs & SVOC	100	187	-



COMPOUND	ARAR	9/16/92	12/21/92
CADMIUM	5	-	6.7
TOTAL VOCs & SVOC	100	110	-

COMPOUND	ARAR	9/16/92	12/21/92
TOTAL VOCs & SVOC	100	214	-

COMPOUND	ARAR	9/16/92	12/21/92
SODIUM	20000	23200	21500
THALLIUM	2	2.4	-
TOTAL VOCs & SVOC	100	113	-

COMPOUND	ARAR	9/16/92	12/21/92
BEHP	50	1100	-
TOTAL VOCs & SVOC	100	1306	-

LEGEND

- SW-1 (55.1) DENOTES GROUND WATER MONITORING WELL & LOCATION OF WATER TABLE
- ⊗ DENOTES AREA OF CONCERN
- LP #1 DENOTES LEACHING POOL BORING
- GROUNDWATER CONTOUR LINE
- GROUNDWATER FLOW DIRECTION

GENERAL NOTES:

1. THE DETECTED LEVELS OF THE TENTATIVELY IDENTIFIED, UNKNOWN, SEMI-VOLATILE ORGANIC COMPOUND (T.L.V.K.S.VOC) ARE ALL QUALIFIED BY THE J QUALIFIER, ESTIMATED.
2. THE DETECTION OF b16 (2-ETHYL NONYL) PHTHALATE IN SW-6 OCCURRED IN THE DUPLICATE SAMPLE OF THE WELL WATER. IT WAS NOT DETECTED IN THE SAMPLE AND NOT DETECTED IN THE SPLIT SAMPLE OBTAINED BY THE USEPA OVERSIGHT CONTRACTOR.
3. ALL DETECTION VALUES ARE FROM THE UNFILTERED SAMPLES.
4. BEHP IS 615 (2-ETHYL NONYL) PHTHALATE
5. FENCES LOCATIONS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT COMPLETE.

Fanning, Phillips & Molnar
Engineers

FIGURE 3
CONTAMINANTS DETECTED ABOVE
STATE & FEDERAL PRIMARY DRINKING
WATER STANDARDS

Drawn By: H.C. Checked By: T.D. Date: 3/21/84

APPENDIX II

TABLES

TABLES

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TABLE 1
DETECTED METALS IN GROUNDWATER SAMPLES - SEPTEMBER 16, 1992
KENMARK TEXTILES SITE - FARMINGDALE, NEW YORK
 [All values in micrograms per liter - ug/l]

PARAMETER	STANDARDS		GROUNDWATER SAMPLES										QUALITY ASSURANCE- QUALITY CONTROL SAMPLES	
			SW-1	SW-2	SW-3	SW-4	SW-6	DW-6	SW-9	UPGRADIENT				
Federal 40 CFR 141 & 143 MCLs	State 6NYCRR Parts 700 to 705 11-91 TOGS	SW-5								SW-7	SW-8	SW-10 Dup of SW-6	Field Blank Bailer	
Aluminum	200***	-	120B	244	644	1120	1030	33.0B	4140	392	219	57.1B	1260	22.8B
Antimony	6	3*	U	U	U	U	U	U	U	U	U	65.9	U	U
Arsenic	50	25	U	1.1UWJ	1.1B	1.1B	2.4BWJ	1.1UJ	2.3BWJ	1.1UWJ	1.1UWJ	1.1UWJ	1.9B	U
Barium	2000	1000	35.4B	10.5B	27.6B	34.8B	19.1B	30.3B	60.9B	29.0B	29.7B	17.1B	21.3B	U
Beryllium	4	3*	0.50B	U	0.50B	0.50B	0.50B	0.50B	1.0B	0.40B	0.40B	U	0.40B	0.50B
Cadmium	5	10	U	2.6B	U	1.9B	2.5B	U	3.1B	U	U	U	2.5B	U
Calcium	-	-	29500	48900	34300	25100	12300	12800	28600	34800	30800	16800	13600	37.0B
Chromium	100	50	U	U	7.5BR,	U	9.4BR,	U	11.9R,	U	5.8BR,	U	U	10.1
Cobalt	-	-	U	U	U	7.1B	5.5B	5.2B	4.4B	U	U	U	U	U
Copper	TT	200	3.3B	6.4B	10.5B	7.6B	8.7B	2.9B	19.8B	4.5B	2.7B	3.9B	6.8B	5.4B
Iron	300***	300**	224	2390	1430	6220	7270	97.6B	9010	405	453	420	7180	13.2B
Lead	TT	25	U	2.2BR,	7.6	7.0	2.2B	U	9.4	U	U	U	3.5	UWJ
Magnesium	-	35,000*	3630B	2380B	6540	4040B	1410B	3270B	4630B	4430B	5240	2830B	1530B	19.8B
Manganese	50***	300**	53.0	94.9	15.8	716J	231	299	70.9	102	67.9	19.3	229	U
Mercury	2	2	U	U	U	U	U	U	U	U	U	U	U	U
Nickel	100	-	U	U	U	U	4.5B "	4.1B	11.1B	U	U	U	4.5B	U
Potassium	-	-	3840B	1410B	3200B	2770B	1780B	2740B	5050	4140B	4870	1970B	1990B	U
Silver	100	50	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	-	20000	9460	3950B	9940	9080	4140B	23200	9310	9450	9510	6910	4590B	109B
Thallium	2	4*	U	U	U	U	U	2.4B	U	U	U	UWJ	UWJ	U
Vanadium	-	-	U	U	5.7B	3.8B	4.0B	U	9.9B	U	U	U	4.1B	U
Zinc	5000***	300	10.1B	10.9B	50.2	43.6	24.3	42.9BR,	68.1	7.1B	62.7	14.0BR,	21.7	5.8B

* Guidance Value

** If both parameters are present, the total of both concentrations may not exceed 500 ug/l.

*** Secondary Maximum Contaminant Level

TT Treatment Technique (Action Level for Copper is 1300 ug/l, lead is 15 ug/l).

R₁ Rejected by data validation process due to the presence of the analyte in the field blank.

R₂ Rejected by data validation process due to the difference between levels in the filtered samples compared to the levels in the unfiltered samples.

U The analyte was not detected at the Instrument Detection Limit (IDL).

W Post digestion spike for Furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.

B Reported value is less than the Contract Required Detection Limit (CRDL), but greater than the IDL.

J Indicated an estimated value.

TABLE 2
DETECTED VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES - SEPTEMBER 16, 1992
KENMARK TEXTILES SITE - FARMINGDALE, NEW YORK
[All values in micrograms per liter - ug/l]

PARAMETER	STANDARDS			GROUNDWATER SAMPLES										QUALITY ASSURANCE/QUALITY CONTROL SAMPLES				
	Federal 40 CFR 141 & 143 MCLs	State 6NYCRR Parts 700 to 705	10NYCRR Subpart 5-1	SW-1	SW-2	SW-3	SW-4	SW-6	DW-6	SW-9	UPGRADIENT			SW-10 Dup of SW-6	Field Blank Baller	Trip Blank Vial 1	Trip Blank Vial 2-DL	Trip Blank Vial 2-Re
											SW-5	SW-7	SW-8					
VOCs																		
Methylene Chloride	5	5	-	U	U	U	U	U	U	U	U	U	U	U	U	0.8J	U	U
Acetone	-	50*	50*	5U	11U	5U	7U	5U	5U	6U	5U	5U	5U	5U	9	160	1J	6
Carbon Disulfide	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	0.6J	U	U
1,1-Dichloroethane	-	5	-	U	U	2J	U	U	U	U	U	1J	U	U	U	U	U	U
1,1,1-Trichloroethane	200	5	-	U	U	4	U	U	U	1	U	2	U	U	U	U	U	U
4-Methyl-2-pentanone	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	11	U	U
Total	-	-	-	U	U	6	U	U	U	1	U	3	U	U	9	172.4	1	6
VOCs TICs																		
Methyl Propene isomer	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	4J	U	U
Trichlorofluoromethane	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	2J	U	U
Pentadiene Isomer	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	2J	U	U
Dimethyl Hexanol isomer	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	3J	U	U
Dimethyl Propanoic Acid Isomer	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	0.6J	U	U
Unknown	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	5.5J	U	U
Unknown Hydrocarbon	-	50*	50*	U	2J	U	U	U	U	U	U	U	U	U	U	U	U	U
Total TICs	-	-	-	U	2J	U	U	U	U	U	U	U	U	U	U	17.1	U	U
Total VOCs	-	-	-	U	2	6	U	U	U	1	U	3	U	U	9	189.5	1	6
SVOCs																		
Bis(2-Ethylhexyl) phthalate	6	50	50*	10U	10U	41U	19U	10U	10U	10U	14U	10U	15U	1700	16	NT	NT	NT
Di-n-butylphthalate	-	50*	50*	U	U	U	U	U	U	U	U	U	U	12	U	NT	NT	NT
Total	-	-	-	U	U	U	U	U	U	U	U	U	U	1100	16	NT	NT	NT
SVOCs TICs																		
Unknown ¹	-	50*	50*	30J	53J ¹	62J ¹	52J ¹	182J ¹	98J ¹	207J ¹	U	116J ¹	126J ¹	146J ¹	U	NT	NT	NT
Dodecanamide N,N-bis(2-hydr)	-	50*	50*	41N	101N	301N	301N	401N	U	61N	U	U	201N	101N	U	NT	NT	NT
Tetramethylbutylphenol Isomer	-	50*	50*	U	10J	U	U	U	U	U	U	U	U	7J	U	NT	NT	NT
Phenol 4-nonyl (9 Cl)	-	50*	50*	U	101N	U	U	71N	U	U	U	U	U	6J	U	NT	NT	NT
Unknown Acid	-	50*	50*	U	U	7J	3J	U	6J	U	U	U	3J	U	U	NT	NT	NT
Phenol nonyl (8 Cl, 9 Cl)	-	50*	50*	U	81N	U	U	51N	U	U	U	U	U	U	U	NT	NT	NT
2,5,8,11,14 Pentaoxahexadeca	-	50*	50*	U	U	51N	51N	U	91N	U	U	U	101N	U	U	NT	NT	NT
Unknown Phthalate	-	50*	50*	U	4J	U	U	4J	U	U	U	U	U	37J	U	NT	NT	NT
Cocaine	-	50*	50*	U	U	U	U	41N	U	U	U	U	U	U	U	NT	NT	NT
Total TICs	-	-	-	34	93	104	90	242	113	213	U	116	159	206	U	NT	NT	NT
Total SVOCs	-	-	-	34	95	104	90	242	113	213	U	116	159	1306	16	NT	NT	NT
Total VOC & SVOC	-	100	100	34	97	110	90	242	113	213	U	119	167	1306	25	-	-	-

* Unspecified Organic Contaminants (UOCs)

NT Not Tested

¹ Category includes all unknowns at different retention times. There were no exceedances of the 50 ug/l standard for any specific unknown.

U The compound was not detected at the Instrument Detection Limit (IDL).

J Indicates an estimated value.

N Indicates presumptive evidence of a compound (tentatively identified compounds).

TABLE 3
DETECTED METALS IN GROUNDWATER SAMPLES - DECEMBER 21, 1992
KENMARK TEXTILES SITE - FARMINGDALE, NEW YORK
 [All values in micrograms per liter - ug/l]

PARAMETER	STANDARDS		GROUNDWATER SAMPLES										QUALITY ASSURANCE QUALITY CONTROL SAMPLES	
			SW-1	SW-2	SW-3	SW-4	SW-6	DW-6	SW-9	UPGRADIENT			SW-10 Dup of SW-6	FB-1 Field Blank Bailer
	Federal 40 CFR 141 & 143 MCLs	State 6NYCRR Parts 700 to 705 11-91 TOGS								SW-5	SW-7	SW-8		
Aluminum	200***	-	528	318	148B	827	465	21.6B	135B	520	1120	226	476	U
Arsenic	50	25	U	2.2B	1.4B	3.2B	6.9B	U	U	U	U	U	5.5B	U
Barium	2000	1000	34.5B	14.0B	22.4B	14.8B	11.2B	31.0B	6.3B	26.0B	34.5B	19.1B	11.2B	U
Beryllium	4	3*	0.53B	0.40B	0.40B	U	0.53B	0.40B	U	U	U	0.40B	0.53B	0.40B
Cadmium	5	10	1.2B	1.4B	6.7	U	U	U	U	1.1U	U	U	U	U
Calcium	-	-	27500	47100	31800	10200	6710J	12100	28600	33100	33200	21500	7410J	14.6B
Copper	TT	200	4.2B	8.7B	4.1B	6.6B	3.7B	2.6B	2.6B	3.1B	U	U	6.7B	U
Iron	300***	300**	866	3010	428	5960	14400	68.2B	351R ₂	719	2510	347	11600	18.1B
Lead	TT	25	2.9B	3.9	3.7	7.3	U	U	U	U	U	U	U	U
Magnesium	-	35000*	3850B	1960B	5500	1500B	976B	3130B	3870B	4350B	5460	3610B	1050B	U
Manganese	50***	300**	76.6	90.1	6.3B	247R ₂	208	118	6.1B	107	172	43.8	194	U
Nickel	100	-	U	U	U	4.9B	U	U	U	U	U	U	7.9B	U
Potassium	-	-	3530 BEJ	1280 BEJ	3250 BEJ	1370 BEJ	873 BEJ	2340 BEJ	3930 BEJ	3750 BEJ	6800 EJ	1910 BEJ	968 BEJ	U
Sodium	-	20000	8630 EJ	2410 BEJ	9030 EJ	2700 BEJ	2350 BEJ	21500 EJ	9380 EJ	7370 EJ	10800 EJ	7790 EJ	2520 BEJ	110BEJ
Thallium	2	4*	U	U	U	1.2B	U	U	U	1.0B	U	U	U	U
Vanadium	-	-	U	U	4.4B	4.3B	5.9B	U	4.3B	U	U	U	4.2B	U
Zinc	5000***	300	12.8B	51.7	20.1	33.0	12.6B	21.3	12.5B	5.4B	6.3B	6.0B	25.0	U

* Guidance Value

** If both parameters are present, the total of both concentrations may not exceed 500 ug/l.

*** Secondary Maximum Contaminant Level

TT Treatment Technique (Action Level for Copper is 1300 ug/l, lead is 15 ug/l).

R₂ Rejected by data validation process due to the difference between levels in the filtered samples compared to the levels in the unfiltered samples.

U The analyte was not detected at the Instrument Detection Limit (IDL).

B Reported value is less than the Contract Required Detection Limit (CRDL), but greater than the IDL.

J Indicated an estimated value.

E Reported value is estimated because of the presence of interference.

TABLE 4
DETECTED VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES
DECEMBER 21, 1992
KENMARK TEXTILES SITE - FARMINGDALE, NEW YORK
[All values in micrograms per liter - ug/l]

PARAMETER	STANDARDS		10 NYCRR Sub Part 5-1	GROUNDWATER SAMPLES										QUALITY ASSURANCE/ QUALITY CONTROL SAMPLES		
	FEDERAL 40 CFR 141 & 143 MCLS	STATE 6NYCRR PARTS 700 TO 705		SW-1	SW-2	SW-3	SW-4	SW-6	DW-6	SW-9	UPGRADIENT			SW-10 DUP OF SW-6	FB-1 BAILER	TB-1 TRIP BLANK
											SW-5	SW-7	SW-8			
VOCS																
Acetone	-	50*	50*	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	UR ₁	13	8
1,1-Dichloroethane	-	5	-	U	U	2	U	U	U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	200	5	-	U	U	3	U	U	U	2	U	U	U	U	U	U
Tetrachloroethene	5	5	-	U	U	U	U	U	U	3	U	U	U	U	U	U
TOTAL	-	-	-	U	U	5	U	U	U	5	U	U	U	U	13	8
VOCs TICs																
Unknown	-	-	50*	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs TICs	-	-	-	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs	-	-	-	U	U	5	U	U	U	5	U	U	U	U	13	8
SVOCs																
Naphthalene	-	10**	-	U	U	U	2J	U	U	U	2J	U	U	U	U	NT
Dibenzofuran	-	50*	50*	U	U	U	U	2J	U	U	U	10J	U	U	U	NT
bis(2-Ethylhexyl)phthalate	6	50	50*	10U	10U	31U	10U	14U	4J	10U	2J	5J	4J	10U	29	NT
TOTAL	-	-	-	U	U	U	2J	2J	U	U	2J	10J	U	U	29	NT
SVOC TIC																
Unknown	-	50*	50*	4J	U	2J	U	11J	4J	U	30J	37J	11J	U	U	NT
Unknown Hydrocarbon	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	U	NT
Unknown Acid	-	50*	50*	U	20J	10J	3J	27J	U	U	2J	U	U	13J	U	NT
Unknown Alcohol	-	50*	50*	U	U	U	U	U	U	U	3J	28J	U	U	U	NT
Unknown Alcohol MWT 170	-	50*	50*	U	U	U	U	U	U	U	U	5J	U	U	U	NT
Unknown MWT 227	-	50*	50*	U	U	U	U	U	U	U	12J	U	U	U	U	NT
Unknown MWT 171	-	50*	50*	U	U	U	U	U	U	U	2J	U	U	U	U	NT
Hexanoic Acid	-	50*	50*	U	U	3JN	2JN	U	U	U	20JN	U	U	U	U	NT
Tetramethylbutyl-pheno Isomer	-	50*	50*	U	20J	U	U	11J	U	U	U	U	U	12J	U	NT
Nonylphenol Isomer	-	50*	50*	U	48J	U	U	20J	U	U	U	U	U	20	U	NT
Xanthone (ACN)	-	50*	50*	U	U	U	U	U	U	U	U	6JN	U	U	U	NT
2-Pentanone, 4-hydroxy-4-met	-	50*	50*	U	U	U	U	U	U	U	U	U	U	U	2JNA	NT
Total SVOCs TICs	-	-	-	4J	88J	15JN	5JN	69J	4J	U	69JN	76JN	11J	45J	2JNA	NT
Total SVOCs	-	-	-	4J	88	15	7	71	8	U	73	91	15	45	31	NT
Total VOCs and SVOCs	-	100	100	4	88	20	7	71	8	5	73	91	15	45	44	-

* Unspecified Organic Contaminants (UOCs)

** Guidance Value (1.1.1 TOGS Part 702)

NT Not Tested

R₁ Rejected by the data validation process due to the presence of the analyte in the field blank.

U The compound was not detected at the Instrument Detection Limit (IDL).

J Indicates an estimated value.

N Indicates presumptive evidence of a compound (tentatively identified compound).

A Indicates that a tentatively identified compound is a suspected aldol-condensation product.

TABLE 5
1988 ANALYTICAL SOIL DATA
INORGANIC COMPOUNDS

ANALYTE	SITE SOIL		BACKGROUND SOIL ³	
	RANGE (mg/kg)	AVERAGE ² (mg/kg)	RANGE (mg/kg)	AVERAGE (mg/kg)
Aluminum	NT	NT	926-2,450	1,688
Antimony	11.3U-15	7.1	2.6U-2.7U	U
Arsenic	1.4U-220	7.6	1.4U-40.0	10.4
Barium	NT	NT	4.1-10	7.1
Beryllium	0.42-0.75	0.59	0.1U-0.1U	U
Cadmium	0.5U-6.7	0.69	0.6U-0.91	0.65
Calcium	NT	NT	204-1,310	757
Chromium	3.2-252	27.6	2.2-26.1	9.6
Cobalt	NT	NT	0.85-2.1	1.5
Copper	1.5-790	71.4	2.3-6.6	4.3
Iron	70*	70	2,010-3,440	2,725
Lead	0.8-890	91.7	1.1-59.1	21.6
Magnesium	NT	NT	192-930	561
Manganese	NT	NT	27.1-55	41.1
Mercury	0.1U-7.0	0.23	0.11U-0.24	0.1
Nickel	0.7U-940	26	2.0-10.7	5.3
Potassium	NT	NT	100-324	212
Selenium	0.6U-0.8U**	0.35U	0.16U-0.17U	U
Silver	0.3U-8.1	0.92	1.4U-0.28	0.54
Sodium	NT	NT	39.5-48.1	43.8
Thallium	0.15U-0.6U**	0.19U	0.17U-0.18U	U
Vanadium	NT	NT	4.0-8.4	5.2
Zinc	3.5-860	124.7	9.2-39.3	24.1
Cyanide	NT	NT	1.1U-1.1U	U
Hexavalent Chromium	1.0U-1.0U	0.5U	1.1U-1.1U	U

crc147/soildat2

- ¹ From RI/FS Work Plan for Kenmark Textiles, January, 1992.
- ² The number used for non-detects in the averaging process was one-half the Contract Required Quantification Limit (CRQL).
- ³ Background soil samples includes 1988 and 1992 background soil data.
- NT Not Tested
- * Only tested in samples TB2 16'-18' and HB-3 0"-6"
- ** Only tested in samples TB2 16'-18'
- U Undetected.

TABLE 6
1988 ANALYTICAL SOIL DATA¹
ORGANIC COMPOUND

COMPOUND	SITE SOIL		NYSDEC TAGM (mg/kg)
	RANGE (mg/kg)	AVERAGE ² (mg/kg)	
Volatile Organic Compounds (VOCs)			
Methylene Chloride	0.005UD-1.9	0.1	0.1
1,1,1-Trichloroethane	0.005UD-0.003	0.0025	0.8
1,2-Dichloroethene (total)	0.005UD-1.2	0.14	0.3
Acrolein	0.46*	0.46*	-
Chloroform	0.005UD-0.013	0.003	0.3
Trichlorofluoromethene	0.002-0.006	0.004	-
Toluene	0.005UD-4.2	0.47	1.5
Chlorobenzene	0.005UD-0.038	0.008	1.7
Ethylbenzene	0.005UD-0.69	0.23	5.5
Dibromochloromethane	0.005UD-0.004	0.004	NA
1,1,2,2-Tetrachloroethane	0.005UD-0.003	0.0026	0.6
Tetrachloroethene	0.005UD-0.059	0.0085	1.4
VOC TICs	UD-16.31	2.31	-
Total VOCs	0.02-22.314	2.63	10
Semi-Volatile Organic Compounds (SVOCs)			
Phenanthrene	0.33UD-0.21**	0.19**	50
Fluoranthene	0.33UD-0.25**	0.21**	50
Pyrene	0.33UD-0.24**	0.20**	50
Diethylphthalate	0.33UD-0.34**	0.25**	7.1
Bis (2-Ethylhexyl) Phthalate	0.5-1.7**	1.1**	50
Total SVOC	0.84-2.4**	1.62**	500

NA

*

**

¹

mg/kg

TAGM

--

²

Not Available

Only tested in Sample TB-2 16'-18'

Only tested in Sample TB-2 16'-18' and HB-3 6"-12"

From RI/FS Work Plan - Kenmark Textile, January, 1992

Milligrams per Kilogram

NYSDEC Technical and Administrative Guidance Memorandum HWR-92-4046, Determination of Soil Cleanup Objectives and Cleanup Levels

Cleanup objectives not established by NYSDEC for this compound.

The number used for non detects was one-half the Contract Required Quantification Limit (CRQL).

ccr147

TABLE 7
1992 ANALYTICAL SOIL DATA¹
INORGANIC COMPOUNDS

ANALYTE	SITE SOIL		BACKGROUND SOIL ³	
	RANGE (mg/kg)	AVERAGE ² (mg/kg)	RANGE (mg/kg)	AVERAGE (mg/kg)
Aluminum	480-19,400	3,490	926-2,450	1,688
Antimony	2.5U-5.2	1.6	2.6U-2.7U	U
Arsenic	0.37U-5.9	1.9	1.4U-40	10.4
Barium	3.6-1,360	85.4	4.1-10	7.1
Beryllium	0.04U-3.5	0.31	0.1U-0.1U	U
Cadmium	0.35U-6.7	2.0	0.6U-0.91	0.65
Calcium	69.3-228,000	11,800	204-1,310	757
Chromium	1.0-197	16.2	2.2-26.1	9.6
Cobalt	0.63U-9.2	2.6	0.85-2.1	1.5
Copper	2.3-990	81.4	2.3-6.6	4.3
Iron	448-18,700	6,940	2,010-3,440	2,725
Lead	0.84-495	60.6	1.1-59.1	21.6
Magnesium	82.2-11,900	1,470	192-930	561
Manganese	4.2-266	76.3	27.1-55	41.1
Mercury	0.09U-0.44	0.09	0.11U-0.24	0.1
Nickel	1.1-36.0	8.60	2.0-10.7	5.3
Potassium	89.9-786	239	100-324	212
Selenium	0.07-0.44	0.15	0.16U-0.17U	U
Silver	0.23-9.7	1.1	1.4U-0.28	0.54
Sodium	17.7-597	75.5	39.5-48.1	43.8
Thallium	0.09U-0.19	0.08	0.17U-0.18U	U
Vanadium	3.7U-320	28.7	4.0U-8.4	5.2
Zinc	3.7-669	178.3	9.2-39.3	24.1
Cyanide	1.0U-1.3	0.62	1.1U-1.1U	U
Hexavalent Chromium	0.5U-1.3U	U	1.1U-1.1U	U

crc147soildata2

¹ From "Preliminary Remedial Investigation Report," December, 1993.

² The number used for non-detects in the averaging process was one-half the Contract Required Quantification Limit (CRQL).

³ Background soil range and average includes 1988 and 1992 background soil data.

U Undetected.

TABLE 8
1992 ANALYTICAL SOIL DATA¹ ORGANIC COMPOUNDS

COMPOUND	SITE SOIL		NYSDEC TAGM (ug/kg)
	RANGE (ug/kg)	AVERAGE ² (ug/kg)	
Volatile Organic Compounds (VOCs)			
Acetone	10U-600	38.9	200
Methylene Chloride	10U-2	5.6	100
Xylene	10U-1,100	50.8	1,200
Toluene	10U-26	5.3	1,500
Ethylbenzene	10U-260	16.5	5,500
2-Butanone	10U-200	15.3	300
1,1,1-Trichloroethane	10U-5	7.3	800
Tetrachloroethene	10U-1,000	54.9	1,400
Carbone Disulfide	10U-56	7.6	2,700
1,2-Dichloroethene	10U-20	6.4	300
Trichloroethene	10U-29	6.7	700
4-Methyl 2-Pentanone	10U-1	7.1	1,000
Tentatively Identified SVOCs			
Cyclotetrasiloxane, Octameth	U-8	0.58	--
Unknown	U-80	8.6	--
Unknown Aromatic	U-450	20.3	--
Unknown Hydrocarbon	U-460	35.8	--
Benzene, Propyl	U-200	13.3	--
Propane, 1-Chloro-2,Methyl	U-20	0.83	--
Ethylmethyl benzene (Isomer)	U-400	17.5	--
Decahydronaphthalene (Isomer)	U-10	0.42	--
Cyclo hexane, 1,3-Dimethyl	U-100	4.2	--
Unknown Decane	U-10	0.42	--
Total VOCs	U-4941	265	10,000
Semi-Volatile Organic Compounds (SVOCs)			
Bis (2-ethylhexyl) phthalate	170U-25,000	1,731	50,000
Butylbenzylphthalate	170U-270	186	50,000
Fluoranthene	150-220U	180	50,000
Pyrene	160-220U	180	50,000
Tentatively Identified SVOCs			
Unknown	U-3,400	297	--
Unknown Hydrocarbon	U-200	18.8	--
Unknown Cyclic CPD	U-300	25.0	--
Benzene, Propyl	U-80	5.0	--
Ethylmethylbenzene (Isomer)	U-600	37.5	--
Phenol, 4-(1,1,3,3-tetrameth)	U-100	6.3	--
Phenol, 2-(phenylmethyl)	U-80	5.0	--
2-Nonylphenol	U-100	6.3	--
Sulfur	U-300	18.8	--
Unknown Phthalate	U-3,200	244	--
Binaphthyl Sulphone	U-100	6.3	--
Trimethylbenzene (Isomer)	U-200	12.5	--
Benzene 1-1'-(1-2 cyclobuta)	U-300	18.8	--
Tetramethylbutylphenol (Isomer)	U-400	25.0	--
Total SVOCs	U-33,070	2,324	500,000

¹ From "Preliminary Remedial Investigation Report," December, 1993

ug/kg Micrograms per Kilogram

TAGM NYSDEC Technical and Administrative Guidance Memorandum HWR-92-4046, Determination of Soil Cleanup Objectives and Cleanup Levels

-- Cleanup objectives not established by NYSDEC for this compound.

² The number used for non detects was one-half the Contract Required Quantification Limit (CRQL).

TABLE 9 KENMARK TEXTILES SITE: CONTAMINANTS OF CONCERN

	Ground Water (a)	Surface Soils	Leaching Pit Surface Soils	Surface and Subsurface Soils (b)
Volatiles				
1,1 Dichloroethane	X			
1,1,1 Trichloroethane	X			
2-Butanone				X
Acetone			X	X
Acrolein				X
Carbon Disulfide				X
Ethylbenzene				X
Methylene Chloride	X	X	X	X
Tetrachloroethene	X			X
Toluene				X
Trichloroethene				X
Xylenes (Total)				X
BNAs				
Bis(2-ethylhexyl) phthalate	X	X		X
Butylbenzylphthalate				X
Dibenzofuran	X			
Diethylphthalate				X
Di-n-octylphthalate	X			
Fluoranthene		X		X
Naphthalene	X			
Phenanthrene		X		X
Pyrene		X		X

TABLE 9 (CONTINUED)				
	Ground Water (a)	Surface Soils	Leaching Pit Surface Soils	Surface and Subsurface Soils (b)
Pesticides/PCBs				
Aroclor-1254				X
Endosulfan I		X		X
Heptachlor		X		X
Heptachlor Epoxide		X		X
Inorganics				
Aluminum	X		X	X
Antimony		X		X
Arsenic	X	X		X
Barium	X		X	X
Beryllium	X	X	X	X
Cadmium	X	X	X	X
Chromium		X	X	X
Cobalt	X		X	X
Copper	X	X	X	X
Iron	X		X	X
Lead	X	X		X
Manganese	X		X	X
Mercury		X		X
Nickel	X	X		X
Selenium			X	X
Silver			X	X
Thallium	X			
Vanadium	X		X	X
Zinc	X	X	X	X

- a. This grouping represents data collected during 1992 sampling rounds—see Section 4.2.5.1 for discussion.
- b. This grouping also includes all surface and subsurface soils from the leaching pools and the leaching pit but does not include samples SB-15 and SB-20.

TABLE 10. KENMARK TEXTILES PRINTING SITE: SUMMARY OF EXPOSURE PATHWAYS

TABLE 10. KENMARK TEXTILES PRINTING SITE: SUMMARY OF EXPOSURE PATHWAYS							
Pathway	Receptor	TIME-FRAME EVALUATED		DEGREE OF ASSESSMENT		Rationale for Selection or Exclusion	Data Grouping
		Present	Future	Quant.	Qual.		
Ground Water							
Ingestion of Ground Water	Resident	No	Yes	X		Although area is serviced by public water supply, private supply wells and public well fields exist within a 1 mile radius of the site. Residential areas are located near the site. Current exposure is not known to exist. Exposure to future employees expected to be less significant than exposure to future site residents.	All 1992 ground water data. (Due to mobility of ground water contaminants 1988 data may not reflect current site conditions and is not evaluated quantitatively.)
	Employee	No	Yes		X		
Dermal Contact with Ground Water	Resident	No	Yes	X		Although area is serviced by public water supply, private supply wells and public well fields exist within a 1 mile radius of the site. Residential areas are located near the site. Current exposure is not known to exist. Exposure to future employees is expected to be less significant than exposure to future site residents.	All 1992 ground water data. (Due to mobility of ground water contaminants 1988 data may not reflect current site conditions and is not evaluated quantitatively.)
	Employee	No	Yes		X		
Inhalation of Ground Water Contaminants	Resident	No	Yes	X		Although area is serviced by public water supply, private supply wells and public well fields exist within a one-mile radius of the site. Residential areas are located near the site. Current exposure is not known to exist.	All 1992 ground water data. (Due to mobility of ground water contaminants 1988 data may not reflect current site conditions and is not evaluated quantitatively.)
	Employee	No	No				
Inhalation of Contaminants that Volatilize from Ground Water and Seep into Basements	Resident	No	Yes		X	Exposure through this pathway is expected to be minimal compared to other pathways. Depth to ground water at the site is 25 feet and below the depth of most subgrade building structures (i.e., basements).	

TABLE 10 (CONTINUED)

Pathway	Receptor	TIME-FRAME EVALUATED		DEGREE OF ASSESSMENT		Rationale for Selection or Exclusion	Data Grouping
		Present	Future	Quant.	Qual.		
Surface Soils							
Incidental Ingestion of Surface Soils	Employee	Yes	NA	X		Site is active facility. Employees may be exposed during routine maintenance activities.	All surface soil (0'-2') samples (except leaching pit and leaching pools)
	Maintenance Worker	Yes	NA	X		Maintenance workers may be exposed during occasional maintenance activities in the leaching pit.	Leaching pit surface soil (0'-2') samples.
	Resident	No	Yes	X		Future site development may occur.	All surface soil (0'-2') samples (except leaching pit and leaching pools).
Dermal Contact with Surface Soils*	Employee	Yes	NA	X		Site is active facility. Employees may be exposed during routine maintenance activities.	All surface soil (0'-2') samples (except leaching pit and leaching pools).
	Maintenance Worker	Yes	NA	X		Maintenance workers may be exposed during occasional maintenance activities in the leaching pit.	Leaching pit surface soil (0'-2') samples.
	Resident	No	Yes	X		Future site development may occur.	All surface soil (0'-2') samples (except leaching pit and leaching pools).
Inhalation of Particulates from Surface Soils (Gaseous Emissions from Subsurface Soils)	Employee	Yes	NA	X		Wind erosion may result in suspension of contaminated surface soil particulates. Certain organic compounds may volatilize and migrate from subsurface to surface air.	For particulate emissions - all surface soil (0" - 6") samples (except leaching pit and leaching pools). For volatile emissions - all subsurface soil samples.
	Maintenance Worker	No	No			Leaching pool soils are not at surface and not subject to wind erosion.	
	Resident	No	No			Not expected under future conditions due to landscaping and pavement.	

TABLE 10 (CONTINUED)							
Pathway	Receptor	TIME-FRAME EVALUATED		DEGREE OF ASSESSMENT		Rationale for Selection or Exclusion	Data Grouping
		Present	Future	Quant.	Qual.		
Surface and Subsurface Soils							
Incidental Ingestion of Surface and Subsurface Soils	Excavation Worker	No	Yes	X		Exposure to surface and subsurface soils may occur during excavations for future site development.	All surface and subsurface soils (including leaching pit and leaching pool samples).
Dermal Contact with Surface and Subsurface Soils*	Excavation Worker	No	Yes	X		Exposure to surface and subsurface soils may occur during excavations for future site development.	All surface and subsurface soils (including leaching pit and leaching pool samples).
Inhalation of VOC Emissions and Particulates from Surface and Subsurface Soils	Excavation Worker	No	Yes		X	Expected to be insignificant compared to other exposures. Average concentration of detected volatile organics does not exceed 263 ppb. Excavation activity is usually of short duration and, as a result, not expected to generate significant quantities of respirable particulate matter. Pathway will be evaluated qualitatively.	

*Cadmium, PCHs, and dioxin only (if present).

NA: Not Applicable (Future site conditions are assumed to be identical to current site conditions).

TABLE 11. TOXICITY VALUES FOR CONTAMINANTS OF CONCERN AT THE KENMARK TEXTILES SITE.

CHEMICAL	CARCINOGENIC			CHRONIC		SUBCHRONIC	
	Weight	Oral Slope	Inhal. Slope	Chronic	Chronic	Subchronic	Subchronic
	of Evidence	Factor	Factor	Oral RfD	Inhal. RfD	Oral RfD	Inhal. RfD
	Classification	(mg/kg/day) ⁻¹	(mg/kg/day) ⁻¹	(mg/kg/day)	(mg/kg/day)	(mg/kg/day)	(mg/kg/day)
Volatiles							
Acetone	D a			1.00E-01 a		1.00E+00 b	
Acrolein	C a			2.00E-02 b		2.00E-01 b	
2-Butanone (MEK)	D a			6.00E-01 a		5.00E-01 b	
Carbon disulfide	-			1.00E-01 a	2.86E-03 b,e	1.00E-01 b	2.86E-03 b,e
1,1-Dichloroethane	C a			1.00E-01 b	1.00E-01 b	1.00E+00 b	1.00E+00 b
Ethylbenzene	D a			1.00E-01 a	2.86E-01 a,e	1.00E+00 b	2.86E-01 b,e
Methylene chloride	B2 a	7.50E-03 a		6.00E-02 a	8.58E-01 b,e	6.00E-02 b	8.58E-01 b,e
Tetrachloroethylene	B2-C c	5.20E-02 c	2.00E-03 c	1.00E-02 a		1.00E-01 b	
Toluene	D a			2.00E-01 a	1.14E-01 b,e	2.00E+00 b	5.72E-01 b,e
1,1,1-Trichloroethane	D a			9.00E-02 b	3.00E-01 b	9.00E-01 b	3.00E+00 b
Trichloroethylene	B2-C c	1.10E-02 c	6.00E-03 c	6.00E-03 c		6.00E-03 f	
Xylenes	D a			2.00E+00 a		4.00E+00 b	
BNAs							
Benzylbutylphthalate	C a			2.00E-01 a		2.00E+00 b	
Bis(2-ethylhexyl)phthalate	B2 a	1.40E-02 a		2.00E-02 a		2.00E-02 b	
Dibenzofuran	D a			4.00E-03 c	1.00E-03 c	4.00E-03 f	
Diethylphthalate	D a			8.00E-01 a		8.00E+00 b	
Di-n-octylphthalate	-			2.00E-02 b		2.00E-02 b	
Fluoranthene	D a			4.00E-02 a		4.00E-01 b	
Naphthalene	D a						
Phenanthrene	D a						
Pyrene	D a			3.00E-02 a		3.00E-01 b	
Pesticides/PCBs							
Aroclor - 1254	B2 a	7.70E+00 a,b					
Endosulfan I(s)	-			5.00E-05 a		2.00E-04 b	
Heptachlor	B2 a	4.50E+00 a	4.55E+00 a,d	5.00E-04 a		5.00E-04 b	
Heptachlor epoxide	B2 a	9.10E+00 a	9.10E+00 a,d	1.30E-05 a		1.30E-05 b	
Inorganics							
Aluminum	D n			1.00E+00 c		1.00E+00 f	
Antimony	-			4.00E-04 a		4.00E-04 b	
Arsenic	A a	1.75E+00 i	1.51E+01 a,d	3.00E-04 a		3.00E-04 b	
Barium	-			7.00E-02 a	1.00E-04 b	7.00E-02 b	1.00E-03 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,d	5.00E-04 a,j		5.00E-04 f	
Chromium, total	-		4.20E+01 o,d	8.76E-01 p		8.77E-01 p	
Cobalt	-						
Copper	D a			5.50E-02 c		5.50E-02 f	
Iron	D n			5.00E-01 c		5.00E-01 f	
Lead	B2 a						
Manganese	D a			5.00E-03 a,k		1.00E-01 b	1.14E-04 b,e
Mercury	D a			3.00E-04 b	8.58E-05 b,e	3.00E-04 b	8.58E-05 b,e
Nickel	A a		8.40E-01 a,l	2.00E-02 a,m		2.00E-02 b	
Selenium	D a			5.00E-03 a		5.00E-03 b	
Silver	D a			5.00E-03 a		5.00E-03 b	
Thallium	-			7.00E-05 b,q		7.00E-04 b,q	
Vanadium	D n			7.00E-03 b		7.00E-03 b	
Zinc	D a			3.00E-01 b		3.00E-01 b	

- a. From IRIS.
b. From HEAST.
c. Interim value from ECAO.
d. Inhalation slope derived from unit risk.
e. Inhalation RfD derived from RfC.
f. Chronic RfD used as Subchronic RfD if no Subchronic value is available per RAGS.
g. EPA Weight of Evidence Classification obtained from Health Effects Assessment document, not IRIS or HEAST.
h. Oral slope factor is based on Aroclor-1260 study.
i. Arsenic oral slope factor derived from unit risk in IRIS.
j. Cadmium RfD is for water. 1.0E-05 mg/kg/day is RfD for food.
k. Manganese RfD is for water. RfD for food is 1.4E-1.
l. Value is for metal refinery dust. Nickel subsulfide has an inhalation slope factor in IRIS of 1.70E+00 (mg/kg-day)⁻¹.
m. Value is for metal soluble salts.
n. From NCL HA listing.
o. Value is for hexavalent chromium.
p. Value is weighted-average value of the Hex and Tn RfDs assuming 7 parts Tn to 1 part Hex.
q. Value is for Thallous Oxide.

TABLE 12

SUMMARY OF CARCINOGENIC RISK ESTIMATES FOR THE
KENMARK TEXTILES SITE

Scenario	Receptor	Present/Future	Total Risk
Ground Water			
Ingestion	Resident	F	1×10^{-4}
Dermal Contact	Resident	F	4×10^{-5}
Inhalation	Resident	F	8×10^{-9}
		Total	1×10^{-4}
Surface Soil			
Ingestion	Employee	P	8×10^{-6}
Inhalation - Particulates	Employee	P	3×10^{-7}
Inhalation - VOCs**	Employee	P	5×10^{-10}
		Total	8×10^{-6}
Ingestion	Resident	F	7×10^{-5}
Leaching Pit Surface Soil			
Ingestion	Maintenance Worker	P	1×10^{-8}
All Surface and Subsurface Soils			
Ingestion	Excavation Worker	F	2×10^{-7}
Dermal Contact	Excavation Worker	F	$1 \times 10^{-9(a)}$
		Total	2×10^{-7}

**Source of VOCs is subsurface soils

(a)Risk for Aroclor-1254 only

TABLE 13

SUMMARY OF NONCARCINOGENIC RISK ESTIMATES FOR THE
KENMARK TEXTILES SITE

Scenario	Receptor	Present/Future	Chronic HI
Ground Water			
Ingestion	Resident	F	6×10^0
Dermal Contact	Resident	F	$1 \times 10^{+1} (c)$
Inhalation	Resident	F	2×10^{-4}
			Total $2 \times 10^{+1}$
Surface Soil			
Ingestion	Employee	P	6×10^{-2}
Dermal Contact	Employee	P	$3 \times 10^{-3} (a)$
Inhalation - Particulates	Employee	P	9×10^{-7}
Inhalation - Volatiles**	Employee	P	1×10^{-5}
			Total 6×10^{-2}
Ingestion	Resident (adult)	F	2×10^{-1}
Dermal Contact	Resident (adult)	F	$1 \times 10^{-2} (a)$
			Total 2×10^{-1}
Ingestion	Resident (child)	F	2×10^0
Dermal Contact	Resident (child)	F	$2 \times 10^{-2} (a)$
			Total 2×10^0
Leaching Pit Surface Soils			
Ingestion	Maintenance Worker	P	1×10^{-3}
Dermal Contact	Maintenance Worker	P	$4 \times 10^{-4} (a)$
			Total 1×10^{-3}
All Surface and Subsurface Soils			
Ingestion	Excavation Worker	F	$4 \times 10^{-1} (b)$
Dermal Contact	Excavation Worker	F	$5 \times 10^{-3} (a)(b)$
			Total 4×10^{-1}

**Source of VOCs is subsurface soils

(a) - HI is for cadmium only.

(b) - HI is based on Subchronic Protective Body Dose.

(c) - This value includes a high reported concentration for di-n-octylphthalate. Di-n-octylphthalate is not considered to be associated with the groundwater because it was detected in only one sample but not in the two associated duplicates or in any other groundwater sample.

APPENDIX III

ADMINISTRATIVE RECORD INDEX

THE KENMARK TEXTILES SITE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

3.0 REMEDIAL INVESTIGATION

3.3 Work Plans

- P. 300001- Report: Health and Safety Plan for Site
300100 Activities Related to the Kenmark Textiles Site
RI/FS, prepared for SJ&J Service Stations,
prepared by Fanning, Phillips & Molnar, July,
1992.
- P. 300101- Report: Sampling and Analysis Plan Including the
300233 Field Sampling Plan and Quality Assurance Project
Plan for The Kenmark Textiles Site, Farmingdale,
New York, prepared for SJ&J Service Stations,
Inc., prepared by Fanning, Phillips & Molnar,
July, 1992.
- P. 300234- Report: RI/FS Work Plan for the Kenmark Textile
300386 Site in Farmingdale, New York, prepared for SJ&J
Service Stations, Inc., prepared by Fanning,
Phillips & Molnar, January, 1992.
- P. 300387- Report: RI/FS Work Plan for the Kenmark Textile
300653 Site in Farmingdale, New York, Appendices,
prepared for SJ&J Service Stations, Inc., prepared
by Fanning, Phillips & Molnar, January, 1992.
- P. 300654- Report: Remedial Investigation/Feasibility Study
300869 Sampling Plan, prepared for SJ&J Service Stations,
Inc., prepared by Fanning, Phillips & Molnar, May,
1988.

3.4 Remedial Investigation Reports

- P. 300870- Report: Preliminary Remedial Investigation Report
301041 for The Kenmark Textiles Site, Farmingdale, New
York, prepared for SJ&J Service Stations, Inc.,
prepared by Fanning, Phillips & Molnar, December,
1993.
- P. 301042- Report: Preliminary Remedial Investigation for
301573 The Kenmark Textiles Site, Farmingdale, New York,
Appendices A-I, prepared for SJ&J Service
Stations, Inc., prepared by Fanning, Phillips &
Molnar, December, 1993.

- P. 301574- Report: Preliminary Remedial Investigation for
301859 The Kenmark Textiles Site, Farmingdale, New York,
Appendices J-L, prepared for SJ&J Service
Stations, Inc., prepared by Fanning, Phillips &
Molnar, December, 1993.
- P. 301860- Report: Remedial Investigation/Feasibility Study,
301978 Phase I Sampling Report, Results, Conclusions, and
Recommendations, prepared for SJ&J Service
Stations, Inc., prepared by Fanning, Phillips &
Molnar, June, 1990.

3.5 Correspondence

- p. 301979- Letter to Ms. Sharon Trocher, Remedial Project
301983 Manager, Eastern New York/Caribbean Section I,
U.S. Environmental Protection Agency, from Mr.
Thomas P. Doriski, C.P.G., Senior Geohydrologist
and Mr. Peter Dermody, Department Manager,
Geohydrologist, Fanning, Phillips & Molnar,
Engineers and Geohydrologists, re: USEPA
Administrative Order on Consent RI/FS Index No.:
II CERCLA- 10204 Remedial Investigation Report,
January 24, 1994. Attachment: Tables of Detected
Volatile and Semi-Volatile Organic Compounds in
Groundwater Samples.
- p. 301984- Memo to Kenmark Textiles Superfund Site Files,
301984 from Sharon Trocher, Remedial Project Manager,
Eastern New York/Caribbean Section I, re:
Correction to June 1990 RI/FS Phase I Sampling
Report and the January 1992 RI/FS Work Plan-
Kenmark Textiles Superfund Site, East Farmingdale,
New York, January 21, 1994.
- P. 301985- Letter to Ms. Sharon Trocher, New York/Caribbean
302003 Superfund Branch I, Emergency and Remedial
Response Division, United States Environmental
Protection Agency (USEPA), from Mr. Peter Dermody,
Hydrogeologist, Fanning, Phillips & Molnar, re:
Changes to the data for the RI/FS Work Plan for
the Kenmark Textiles Printing Corporation Site,
December 17, 1991. Attachment: Data Analysis
Sheets.
- P. 302004- Minutes of Conference Call with USEPA, NYSDEC,
302006 H₂M, and Fanning, Phillips & Molnar, re: Data
Validation and Usability of the Data which was
presented in the Phase I Remedial Investigation
Report, June 18, 1991.

- P. 302007- Memorandum to Mr. John Greco, Bureau of Eastern
302017 Remedial Action, from Mr. George Momberger, Bureau
of Hazardous Site Control, New York State
Department of Environmental Conservation, re:
Review of the data validation report containing
data from May, 1988 through July, 1988, May 1,
1991.

7.0 ENFORCEMENT

7.3 Administrative Orders

- P. 700001- Administrative Order on Consent for Remedial
700044 Investigation/Feasibility Study, In The Matter Of:
The Kenmark Textiles Printing Corporation Site,
Index No. II CERCLA-10204, July 31, 1991.

10.0 PUBLIC PARTICIPATION

10.6 Fact Sheets and Press Releases

- P. 1000001- Fact Sheet #1, Kenmark Textile Site, East
1000005 Farmingdale, Suffolk County, New York, July, 1992.

10.9 Proposed Plan

- p. 1000006- Report: Superfund Proposed Plan, Kenmark Textiles
1000012 Printing Corporation Superfund Site, East
Farmingdale, Town of Babylon, Suffolk County, New
York, prepared by the United States Environmental
Protection Agency, Region 2, February, 1994.

10.10 Correspondence

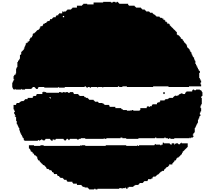
- p. 1000013- Letter to Mr. George Pavlou, Acting Director,
1000013 Emergency and Remedial Response Division, United
States Environmental Protection Agency, Region II,
from Mr. Michael J. O'Toole, Jr., Director,
Division of Hazardous Waste Remediation, New York
State Department of Environmental Conservation,
re: Kenmark Textiles a.k.a. S.J.&J Service
Stations ID No. 152032- Proposed Plan, February 4,
1994.

APPENDIX IV

STATE LETTER OF CONCURRENCE

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

MAR 30 1994



Langdon Marsh
Acting Commissioner

Ms. Jeanne M. Fox
Regional Administrator
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: S.J. & J. Service Stations a.k.a. Kenmark Textiles
ID No. 152032

Dear Ms. Fox:

The New York State Department of Environmental Conservation has reviewed the draft final Record of Decision (ROD) which was sent on March 17, 1994 from your office. We concur with the remedy outlined in the Declaration For The ROD.

If you have any questions, please contact Jonathan Greco, of my staff, at (518) 457-3976.

Sincerely,

Ann Hill DeBarbieri
Deputy Commissioner
Office of Environmental Remediation

cc: A. Carlson, NYSDOH

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
KENMARK TEXTILES PRINTING CORPORATION SUPERFUND SITE
EAST FARMINGDALE, TOWN OF BABYLON, NEW YORK

Introduction

This Responsiveness Summary, in accordance with 40 CFR Part 300.430(f)(3), provides (1) a summary of citizens' comments and concerns on the U.S. Environmental Protection Agency's (EPA's) Proposed Plan for the Kenmark Textiles Printing Corporation Superfund Site (Site) which were received during the public comment period for the Proposed Plan, and (2) EPA's responses to those comments and concerns. All comments and concerns summarized in this document have been considered in EPA's selection of the "No Action" remedy for the Site.

Summary of Community Relations Activities

The first phase of the Remedial Investigation (RI) for the Site began in 1987 under the supervision of the NYSDEC and was completed in June 1990. The RI was continued in August 1991 under the supervision of EPA and was completed in December 1993. The RI and Risk Assessment reports and the Proposed Plan for the Site were released for public review and comment on February 11, 1994. These documents were made available to the public at the East Farmingdale Fire House, 930 Conklin Street, East Farmingdale, New York, and EPA's Superfund Records Center, 26 Federal Plaza, New York, New York. A public meeting was held at the East Farmingdale Fire House on February 28, 1994 to present the results of the RI, Risk Assessment and the Proposed Plan for remediation of the Site. A period for public review and comment on these documents was held from February 11, 1994 to March 12, 1994.

Public notices appeared in Newsday and in the Farmingdale Observer on February 18, 1994. These notices announced the availability of the Proposed Plan and RI and Risk Assessment reports at the information repositories, provided a summary of the Proposed Plan, and identified the dates for the public meeting and the public comment period.

Attached to the Responsiveness Summary are the following Appendices:

- Appendix A - Proposed Plan,
Kenmark Textiles Printing Corporation
East Farmingdale, Town of Babylon
Suffolk County, New York
- Appendix B - Public Notice
- Appendix C - February 28, 1994 Public Meeting
Attendance Sheet
- Appendix D - Written Comments Received during the
Public Comment Period

Summary of Comments and Responses

The following is a summary of EPA's responses to significant comments and questions raised at the public meeting and written comments and questions received during the public comment period.

COMMENT #1: EPA should consider the cumulative impact to groundwater by the various Superfund sites that exist in the area of the Site.

RESPONSE: Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA is authorized to investigate individual sites listed on the National Priorities List (NPL) to determine if remedial actions should be undertaken at these sites. In the event that several CERCLA sites in an area have plumes of groundwater contamination which have comingled, EPA, if appropriate, can consider a single comprehensive groundwater remedy. As part of its remedial investigation, EPA conducts a risk assessment for each NPL site to determine if an unacceptable risk to human health and the environment exists which would require remedial action. In conducting risk assessments at sites with contaminated groundwater, EPA does consider, in effect, the cumulative impact of contamination from site-related and nearby, nonsite-related sources.

COMMENT #2: At the public meeting, a citizen suggested that the groundwater flow direction is south-southeast in the vicinity of the Site. A written comment submitted by another citizen suggested that the groundwater flow direction is southeast in the vicinity of the Site. Both citizens questioned why monitoring wells were not located southeast of the leaching pit at the Site.

RESPONSE: During the course of the EPA-ordered RI, the groundwater flow direction across the Site was determined six times over a period of a year, and the direction was consistently found to be towards the south. A March 1992 Regional Water Table Contour Map obtained from the Suffolk County Department of Health Services also depicts the horizontal groundwater flow direction in the area of the Site as generally to the south. Two shallow wells and one deep well were placed directly south (downgradient) of the leaching pit. These wells would have intercepted contaminants migrating from the leaching pit.

Additionally, it should be noted that significant levels of contamination were not detected in soil samples collected from the leaching pit or from any other area of the Site. The levels of contamination detected in the soil at the Site conform with the low levels of contamination detected in the groundwater.

COMMENT #3: We question the adequacy and ability of the monitoring wells to obtain sufficient information on contaminants that may have leached into the ground during various intervals over the past 75 years. In fact, where did the contaminants go that were measured in wastewater discharge sampling done between 1974 and 1984?

RESPONSE: EPA acknowledges that the samples collected from the monitoring wells as part of the RI would not reflect the full extent of contamination that may have been present in groundwater at the Site in past years. The RI monitoring well data provided a characterization of the quality of the groundwater at the time of the sampling. As stated below, a certain amount of the contamination would have attenuated over time.

The average horizontal groundwater flow velocity was calculated to be 2.4 feet per day at the Site. At this rate, if a groundwater plume migrated from the Site in the past 10 to 20 years, it could have migrated an estimated 1.5 to 3 miles away from the Site, and towards the Atlantic Ocean, at the time the monitoring well samples were taken. In addition, it is noted that as a contaminant plume moves away from a site, the contaminant levels in the plume would decline due to attenuation.

Although additional investigatory work farther downgradient of the Site could be conducted, it is EPA's belief that the information obtained from such an effort would not be conclusive. If additional sampling were conducted and contamination were found, it would be difficult to demonstrate that this contamination was due to hazardous substances originating from the Site. It is likely that other low levels of contamination would be found downgradient of the Site that are due to non-Site-related sources. The fact that contaminants were found in upgradient wells at low levels supports this notion that there are likely to be low levels of contamination in the groundwater in the area of the Site.

COMMENT #4: Given the length of time that has elapsed since hazardous substances were released at the Site, as well as the level of precipitation and the rate of groundwater percolation in the area of the Site, is it possible that the contaminants could have seeped below ninety feet into the ground, which is the approximate depth of the deepest well at the Site? Groundwater samples should be collected at depths greater than ninety feet in order to detect groundwater contamination which may have percolated to deeper portions of the aquifer.

RESPONSE: The average annual rainfall in the Site area is approximately 46 inches, of which approximately 24 inches per year recharge the aquifer. The rest is lost to runoff, evaporation, and transpiration. Any water that does reach the ground-

water will generally move laterally, as the Site is in an area of the aquifer which is dominated by horizontal flow (approximately 2.4 feet per day). Although the flow beneath the Site is primarily horizontal, some chemicals, if present, can move downward as they move horizontally. To determine if this was occurring at the Site, three wells were installed downgradient of the leaching pit: two shallow wells at depths of about 35 feet and one deep well at a depth of 81 feet. Contamination migrating from the leaching pit would have passed through either the two shallow wells or the deep well. In general, the contaminants detected in the groundwater collected from these wells were at levels below the drinking-water standards established for protection of human health. If the leaching pit or surrounding soils were continuing to act as a source of contamination, the concentration of contaminants in the groundwater would be expected to be higher in the two shallow and the one deep monitoring wells. A resampling of these wells confirmed the results of the first round of groundwater data. As a result, EPA believes that an adequate investigation of the groundwater contamination was conducted and no further investigatory work is required.

COMMENT #5: Wasn't the money spent conducting the RI wasted, since no remedial action will be taken at the Site?

RESPONSE: Not at all. On several occasions during the 1970s and 1980s, both NYSDEC and the Suffolk County Department of Health identified a number of releases of hazardous substances at the Site, which resulted in the Site's inclusion on the NPL. Given those documented releases, the RI was consistent with EPA's authority under CERCLA to investigate the extent, nature and source of a release of hazardous substances. By requiring SJ&J to perform the RI, EPA thus was acting in accordance with its authority under CERCLA. Without information obtained during the RI, EPA would not be able to decide what, if any, remedial action was warranted at the Site. Based on the RI data, EPA concluded that no remedial activities are necessary at the Site.

COMMENT #6: What is done to prevent cross-contamination (i.e., the transfer of contamination from one monitoring well to another) by groundwater during sampling?

RESPONSE: A Sampling and Analysis Plan which included a Quality Assurance Project Plan was reviewed and approved by EPA prior to conducting the 1992 field work. These plans specified the sampling procedures that were used to ensure that reliable soil and groundwater samples were collected. A 1-1/2 inch diameter by 2 foot long device, known as a bailer, was used to collect groundwater samples from each of the monitoring wells at the Site. A polypropylene line was attached to the bailer and was used to lower and raise the bailer into and out of the wells.

The polypropylene line was dedicated to individual wells (i.e., each well had its own line). After a groundwater sample was collected, the bailer was decontaminated prior to sampling another well. The decontamination procedure consisted of cleaning the bailer with a low-phosphate detergent and potable water, then rinsing it with potable water, and then deionized water.

Superfund Proposed Plan



KENMARK TEXTILES PRINTING CORPORATION SUPERFUND SITE

East Farmingdale
Town of Babylon
Suffolk County, New York

EPA Region 2

February 1994

NYSDEC

PURPOSE OF PROPOSED PLAN

This Proposed Plan identifies a preferred no action remedy for the Kenmark Textiles Printing Corporation (Kenmark) Superfund site (the Site). The Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), as the lead agency, with support from the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing the Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Section 300.430(f) of the National Contingency Plan (NCP).

This Proposed Plan is being provided as a supplement to the Remedial Investigation (RI) report to inform the public of EPA's and DEC's preferred no action remedy and to solicit public comments on this action.

The no action remedy as described in the Proposed Plan is the preferred remedy for the Site. Changes to the preferred remedy or a change from the preferred remedy to another remedy may be made, if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments. Therefore, we are encouraging public comment on this Proposed Plan and the RI report.

Copies of the RI report, Proposed Plan, Risk Assessment and supporting documentation are available at the following repositories:

East Farmingdale Fire House
930 Conklin Street
East Farmingdale, New York 11735
Telephone: (516) 249-0474
Hours: 9:00 a.m. - 4:00 p.m. (M-F)

MARK YOUR CALENDAR

February 11, 1994 to March 12, 1994
Public comment period on RI report,
Proposed Plan and remedy considered.

February 28, 1994
Public meeting to be held at 7:00 PM at the
East Farmingdale Fire House
930 Conklin Street
East Farmingdale, New York

U.S. Environmental Protection Agency
Emergency and Remedial Response Division
Superfund Records Center
26 Federal Plaza, Room 2900
New York, N.Y. 10278
Telephone: (212) 264-8770
Hours: 9:00 a.m. - 5:00 p.m. (M-F)

COMMUNITY ROLE IN SELECTION PROCESS

EPA and NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the RI report has been made available to the public for a 30-day public comment period, which begins on February 11, 1994 and concludes on March 12, 1994.

Pursuant to Section 117(a) of CERCLA, a public meeting will be held during the public comment period on **Monday, February 28, 1994 at 7:00 PM** to present the conclusions of the RI report, to further elaborate on the reasons for recommending the no action remedy, and to receive public comments.

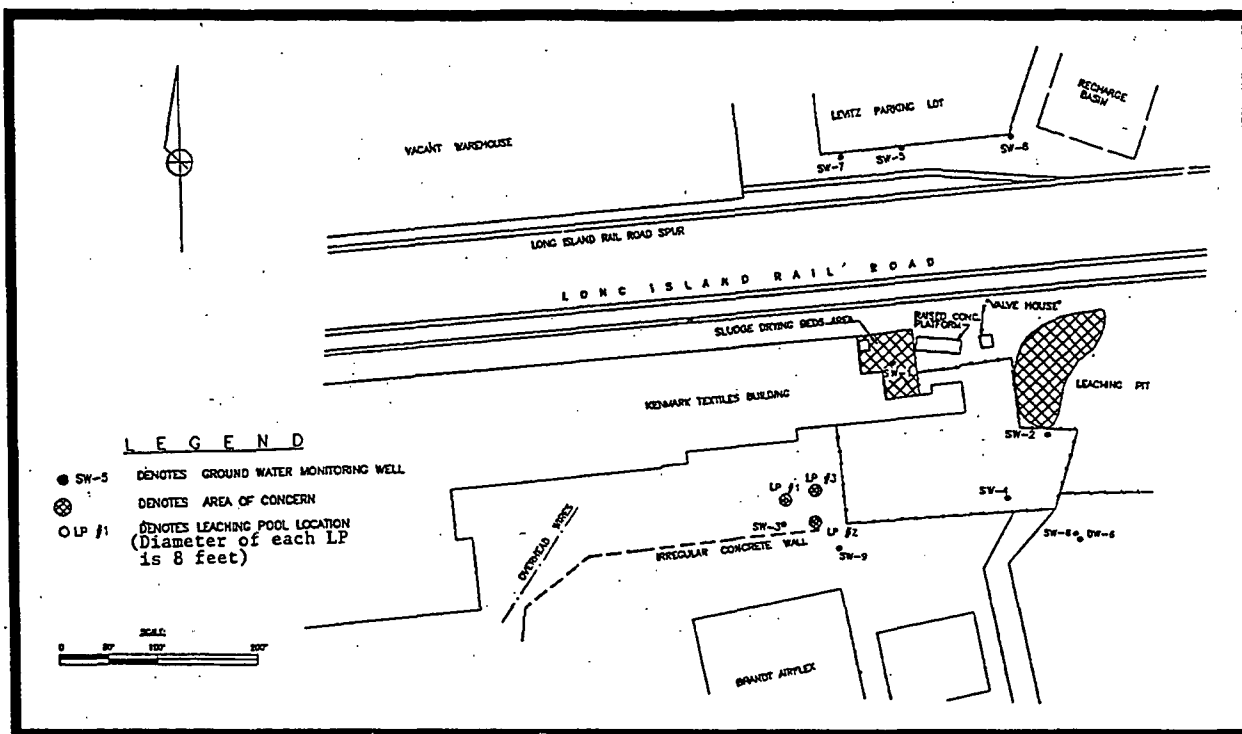


FIGURE 1 - KENMARK SITE MAP

All written comments should be addressed to:

Sharon L. Trocher
U.S. Environmental Protection Agency
Emergency and Remedial Response Division
26 Federal Plaza, Room 29-100
New York, New York 10278
Telephone: (212) 264-8476

Written and oral comments will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

SCOPE AND ROLE OF ACTION

This is the first and only planned operable unit for the Site. The primary objective of this operable unit is to determine the nature and extent of contamination at the Site and to take measures, as appropriate, to ensure the protection of human health and the environment.

SITE BACKGROUND

The Site, now occupied by the Susquehanna Textile Company, is located in a light industrial area at 921 Conklin Street in East Farmingdale, New York. The areas

north and east of the Site are also characterized by light industry. Residential developments are located to the south and west, with an estimated 6,200 residents living within one mile of the Site. With the exception of a parkland and an undeveloped area adjacent to the parkland, both located upgradient of the Site, the area within one mile of the Site obtains drinking water from public water supplies. Three public supply wellfields are located within 0.5 to 1.0 mile of the Site. Two of the wellfields are located upgradient of the Site, and the third wellfield is located cross-gradient. The closest downgradient public supply wellfield is located about 1.5 miles from the Site.

Since at least 1917, the Site has been the location of several successive silk and textile dye, printing and screening operations. Process wastewater generated at the Site was chemically treated, resulting in the precipitation of solids from the wastewater. At least as early as 1972, the sludge from the wastewater was distributed to outdoor concrete-lined beds for settling and drying. The sludge was periodically removed from the sludge drying beds and placed in drums. The resulting wastewater (supernatant) was discharged to a leaching pit located on-site and east of the building. Beginning in November 1984, the wastewater was discharged to the Suffolk County Publicly Owned Treatment Works.

Three subsurface leaching pools are located south of the building beneath a concrete parking lot. Access to the leaching pools is through a manhole. The purpose of these leaching pools was to collect parking lot surface runoff and possibly also textiles process wastewater.

Sampling conducted between January 1974 and May 1984 by the Suffolk County Department of Health Services and a contractor hired by Kenmark, revealed that wastewater discharged into the on-site leaching pit contained hexavalent chromium, copper, iron, lead, silver, and phenols in violation of New York State groundwater discharge standards. Based on these findings, the Site was added to the National Priorities List (NPL) in June 1986.

In 1987, a potentially responsible party (PRP) entered into an Administrative Consent Order (ACO) with NYSDEC to conduct a Remedial Investigation (RI) to determine the nature and full extent of the Site contamination, and a Feasibility Study (FS) to evaluate cleanup alternatives. The ACO set forth the terms and schedule of the study to be carried out by the PRP under the supervision of the NYSDEC.

As part of the investigation, soil and unfiltered and filtered groundwater samples were obtained during the summer of 1988. In total, 57 soil samples were collected from the areas of the sludge drying beds, leaching pit and leaching pools, and were analyzed for inorganic and/or organic constituents.

The average concentrations of the most prevalent inorganic compounds included arsenic at 8 milligrams/kilogram (mg/kg) (maximum concentration of 220 mg/kg), chromium at 28 mg/kg (maximum concentration of 252 mg/kg), copper at 71 mg/kg (maximum concentration of 790 mg/kg), lead at 92 mg/kg (maximum concentration of 890 mg/kg), nickel at 26 mg/kg (maximum concentration of 940 mg/kg), and zinc at 125 mg/kg (maximum concentration of 860 mg/kg). Total organic compounds were detected in the soils samples at concentrations less than 25 mg/kg.

Five monitoring wells were also installed as part of the investigation. Four of the wells were installed on-site, and the fifth well was installed hydraulically upgradient of the Site. Groundwater from the five wells was analyzed for organic and inorganic compounds. Due to various analytical protocol deviations, the NYSDEC rejected the data for the volatile organic compounds and required further sampling. Lead was detected in unfiltered groundwater samples at levels above the State drinking water standard of 25 parts per billion (ppb) and the Federal action level of 15 ppb in some of the on-site wells. Lead was not detected at levels above the State

drinking water standard and the Federal action level in the filtered groundwater samples.

In August 1990, the NYSDEC requested that the EPA assume the role of lead agency for the remedial activities at the Site. In December 1990, EPA sent "special notice" letters to seven PRPs, affording them the opportunity to complete the RI/FS for the Site. The PRPs were given 60 days in which to submit a good faith offer to undertake or finance the RI/FS. During the 60-day period, a good faith offer was received by the current property owner of the Site, S.J. & J. Service Stations, Inc. (SJ&J), to continue the Site investigation and to evaluate cleanup alternatives. The agreement to perform this work was finalized in an ACO signed by EPA and the PRP in July 1991.

REMEDIAL INVESTIGATION SUMMARY

SJ&J hired the contractor, Fanning, Phillips and Molnar Engineers (FP&M) to complete the RI to characterize the geology, groundwater hydrology and chemical quality of the soil and groundwater at the Site. The investigation, which was performed under EPA oversight, consisted of drilling borings and constructing additional monitoring wells, collecting soil and groundwater samples, and conducting geophysical and air-monitoring surveys. A summary of the RI findings follows.

The Site is at an approximate elevation of 80 feet above mean sea level. The shallowest groundwater, the Upper Glacial Aquifer, occurs approximately 25 feet below ground level at the Site, and is estimated to be approximately 60 to 80 feet thick. The Magothy Aquifer underlies the Upper Glacial Aquifer and is estimated to be over 500 feet thick. The Upper Glacial and Magothy Aquifers form a thick sequence of sand with varying amounts of silt and clay. Groundwater movement is generally towards the south. The velocity of the horizontal groundwater flow in the Upper Glacial Aquifer is estimated to be 2.4 feet per day.

In August 1992, five new wells were installed, increasing the total number of Site-related wells to ten. Two wells were drilled upgradient of the Site's operations, and three wells were drilled downgradient of the Site. In September and December 1992, groundwater samples were collected from the ten monitoring wells and analyzed for inorganic and organic constituents.

Some inorganic constituents exceeded State and Federal drinking water standards (also referred to as the maximum contaminant levels (MCLs)). However, as discussed in subsequent sections of this document, EPA and NYSDEC believe that it is unlikely that such levels would result in adverse human health effects. During the two rounds of sampling, aluminum, iron and manganese

were consistently detected above Federal secondary drinking water standards¹ in both upgradient and downgradient wells.

Aluminum was detected at an average concentration of 707 ppb (maximum concentration of 4,140 ppb) in the downgradient wells, and an average concentration of 422 ppb (maximum concentration of 1,120 ppb) in the upgradient wells. The Federal secondary drinking water standard of 200 ppb for aluminum was exceeded in almost all downgradient and upgradient wells during both rounds of groundwater sampling.

Iron was detected at an average concentration of 3,840 ppb (maximum concentration of 14,400 ppb) in the downgradient wells, and an average concentration of 809 ppb (maximum concentration of 2,510) in the upgradient wells. The State drinking water standard and the Federal secondary drinking water standard of 300 ppb for iron were exceeded in almost all downgradient and upgradient wells during both rounds of groundwater sampling.

Manganese was detected at an average concentration of 152 ppb (maximum concentration of 716 ppb) in the downgradient wells and an average concentration of 85 ppb (maximum concentration of 172 ppb) in the upgradient wells. Manganese was detected above the State drinking water standard of 300 ppb in one of the seven downgradient wells during one of the two rounds of groundwater sampling. The Federal secondary drinking water standard of 50 ppb was exceeded for manganese in almost all upgradient and downgradient wells during both rounds of groundwater sampling.

In addition, antimony, thallium and cadmium were also detected above drinking water standards, but these compounds were each only detected above drinking water standards on one occasion during the two rounds of groundwater sampling. Antimony was detected in an upgradient well at 65.9 parts per billion (ppb), which is at least an order of magnitude higher than the Federal primary drinking water standard of 6 ppb and the State drinking water standard of 3 ppb. Thallium was detected in one of the seven downgradient wells at 2.4 ppb which is slightly above the Federal primary drinking water standard of 2 ppb and below the State drinking water standard of 4 ppb. Cadmium was detected in one of the seven downgradient wells at 6.7 ppb which is slightly higher than the Federal primary drinking water standard and the State drinking water standard of 5 ppb.

¹Federal secondary drinking water standards are set for aesthetic purposes and do not represent maximum allowable levels required to protect public health.

The groundwater was also analyzed for organic compounds. During the first round of sampling, organic compounds were detected below the drinking water standards with two exceptions. Bis(2-ethylhexyl) phthalate (BEHP), which has a Federal drinking water standard of 6 ppb, was detected at a concentration of 1,100 ppb in one of the seven downgradient wells. It is important to note, however, that two duplicates of this sample were collected (one by EPA and the other by FP&M), and BEHP was not detected in either sample. This suggests that the detection of BEHP was the result of field or laboratory contamination and not indicative of its presence in the groundwater.

The second exception concerns total organic compounds that were detected in both upgradient and downgradient wells above the State drinking water standard of 100 ppb during the first round of sampling. Total organic compounds were detected in two of the three upgradient wells at 119 and 167 ppb, and in four of the seven downgradient wells at levels that ranged from 110 to 242 ppb. The total organic compounds detected in the groundwater sampling consisted primarily of unidentified and tentatively identified organic compounds. During the second round of groundwater sampling for organic compounds, the State and Federal drinking water standards were not exceeded.

Twenty-one soil borings were drilled at the Site in order to develop information on Site geology and to determine the extent of horizontal and vertical contamination in the soil. Twenty-nine samples were collected from the soil borings and analyzed for inorganic and organic constituents.

Numerous inorganic contaminants were detected above background soil levels. The average concentrations of the most prevalent inorganic compounds included aluminum at 3,465 mg/kg (maximum concentration of 19,400 mg/kg), chromium at 17 mg/kg (maximum concentration of 47 mg/kg), iron at 5,234 mg/kg (maximum concentration of 18,700 mg/kg), lead at 49 mg/kg (maximum concentration of 495 mg/kg), and manganese at 76 mg/kg (maximum concentration 266 mg/kg). Several organic compounds were also detected with a majority of them found in the leaching pools. All organic compounds were detected below NYSDEC's soil cleanup guidance except for acetone which was detected at a level three times NYSDEC's soil cleanup guidance in a sample collected from a leaching pool.

A geophysical survey (borehole natural gamma logging) and air monitoring were also conducted at the Site. The geophysical survey provided additional information on the Site geology. The air monitoring and air modelling data indicated that the Site does not have an adverse impact on air quality.

SUMMARY OF SITE RISKS

A baseline risk assessment (RA) was conducted to estimate the risks associated with current and future site conditions. The baseline RA evaluates the potential impacts on human health and the environment at the Site which could result from the contamination at the Site, if no remedial action were taken. This information is used to make a determination as to whether remediation of the Site may be required. In the RA, only the 1992 groundwater sampling data were used to determine the groundwater exposure concentrations, since these data are considered to be more representative of current site conditions than earlier data due to the mobility of the groundwater. The soil exposure concentrations are based on both the 1988 and 1992 sampling data.

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

The baseline RA began with selecting contaminants of concern which are representative of Site conditions. Chemicals of concern were identified for Site soils and groundwater underlying the Site. These contaminants include arsenic, beryllium, chromium, copper, nickel, acetone, methylene chloride and tetrachloroethene.

The baseline RA evaluated the health effects, which could result from exposure to contamination at the Site, under current and future land-use scenarios. The potential exposure pathways of concern for current land use include exposure of workers through incidental ingestion, inhalation and dermal contact with soils during their designated work activities. Worker exposure to groundwater was not evaluated. Workers currently utilize the public water supply for drinking and wash water; exposure to groundwater does not occur with the possible exception of inconsequential exposure to process water from the on-site production well. Although

it may be unlikely that the future land-use at the site will be residential since the area around the Site is light industrial, a future residential land use was evaluated as a conservative assumption. The potential exposure pathways of concern for future land use include residents' exposure to chemicals in groundwater through ingestion of drinking water, as well as dermal contact and inhalation of volatile organic compounds during showering or bathing, if the upper aquifer serves as a drinking water source in the future. The Magothy Aquifer which underlies the upper aquifer, is currently being used as a drinking water source. Future on-site residents might also be exposed to contaminants in surface soils through ingestion and dermal contact.

EPA's acceptable cancer risk range is 10^{-4} to 10^{-6} which can be interpreted to mean that an individual may have an approximate one in ten thousand to a one in a million increased chance of developing cancer as a result of a site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at the site.

The results of the baseline RA indicate that under the current-use scenarios, the estimated carcinogenic risks are within or less than EPA's acceptable cancer risk range based on the potential exposure pathways and routes evaluated for workers. The highest carcinogenic risk was estimated to be 8×10^{-6} for ingestion of chemicals in the soil by workers.

Under the future-use scenarios, all pathways evaluated have estimated carcinogenic risks within EPA's acceptable cancer risk range. The exposure pathway with the highest risk is for the ingestion of chemicals in the groundwater by residents. The estimated carcinogenic risk for this case is 1×10^{-4} , which is at the upper bound of EPA's risk range. However, the future use of the Site is likely to remain light industrial; since the ingestion of groundwater by Site workers would be unlikely under this scenario, the carcinogenic risk would not increase beyond the current baseline associated with the ingestion of contaminants in the soil (8×10^{-6}). Other carcinogenic future risks within EPA's acceptable range include 4×10^{-5} for dermal contact with groundwater by a resident while bathing and 7×10^{-5} for the ingestion of soil by a resident. The majority of the carcinogenic risk is attributable to the presence of arsenic and beryllium for the groundwater pathways and to arsenic for the ingestion of soil pathway. Arsenic and beryllium were not detected above drinking water standards at the Site.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake for a contaminant to the reference dose for that chemical; the reference dose

being a measure of the chemical's "threshold" for adverse effects with many built-in safety factors. The HQs are summed for all contaminants within an exposure pathway (e.g., groundwater ingestion) to give the HI. When the HI exceeds one, there may be concern for potential noncarcinogenic health effects, if the contaminants in question are believed to cause a similar toxic effect.

The results of the baseline risk assessment indicate that under the current-use scenarios, noncarcinogenic health effects are not likely based on the potential exposure pathways and routes evaluated for workers. The calculated HIs for these scenarios are significantly less than one.

For the noncarcinogenic future risk, the HI was below one for all scenarios except for the ingestion of groundwater by an adult resident (HI=6) and the ingestion of surface soil by a child resident (HI=2). For the ingestion of groundwater by an adult resident (HI=6), the primary driver of the noncarcinogenic future risk is manganese (HQ=4). This calculation was based on a single sampling point measurement (out of a total of 14 samples) of 716 ppb which was several times higher than the average concentration of 152 ppb of manganese in the groundwater. This average concentration is below the State groundwater drinking water standard of 300 ppb and is not believed to be associated with any adverse health effects. Excluding manganese, the remaining contaminants individually do not exceed a HQ of one, and the addition of the contaminants with the same toxic endpoints also do not exceed one. For the future ingestion of surface soil by a child resident (HI=2), the major contributors to the HI of 2 were arsenic (HQ=0.9) and antimony (HQ=0.5). Collectively, arsenic and antimony have a HI that exceeds one; however, the critical toxic endpoints for arsenic (skin disorders) and antimony (alterations in blood glucose and cholesterol) are sufficiently different, therefore, adverse health effects would be unlikely.

The overall risk to wildlife in the general vicinity of the Site is considered to be low, due to the extensive development of the Site. The Site is an industrial facility that consists primarily of buildings and paved areas.

SUMMARY OF THE PREFERRED NO ACTION REMEDY

Based on the findings of the RI performed at the Site, EPA has determined that a no action remedy is protective of human health and the environment.

The risk assessment indicates that the levels of contaminants present in the soils and groundwater at the Site present risks which fall within or below EPA's 10^{-4} to 10^{-6} carcinogenic risk range. All current land-use

exposure scenarios resulted in risks that are within EPA's noncarcinogenic risk range. Some of the future land-use exposure scenarios exceed a HI of 1; the calculations that were used to reach this conclusion conservatively assumed that, in the future, the Site would be used for residential purposes. The Site, however, has been used for light industrial purposes since at least the early part of this century, and EPA believes that it would be more reasonable to assume that land uses similar to those which currently exist will be retained at the Site in the future. Under such a land-use scenario, the chemicals present in each of the exposure pathways would not pose any unacceptable risks. In addition, groundwater sampling results indicate that the majority of contaminants do not exceed drinking water standards, and that it is unlikely that the levels of inorganic contaminants detected at the Site would result in adverse health effects. Therefore, EPA and NYSDEC recommend a no action remedy for this Site.

State Acceptance

NYSDEC concurs with the preferred no action remedy.

Community Acceptance

Community acceptance of the preferred remedy will be assessed in the ROD, following review of the public comments on the RI report and the Proposed Plan.

GLOSSARY

Of Terms Used In the Proposed Plan

This glossary defines the technical terms used in this Proposed Plan. The terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management, and apply specifically to work performed under the Superfund program. Therefore, these terms may have other meanings when used in a different context.

Administrative Order on Consent: A legal and enforceable agreement between EPA and the potentially responsible parties (PRPs). Under the terms of the Order, the PRPs agree to perform or pay for site studies or cleanup work. It also describes the oversight rules, responsibilities and enforcement options that the government may exercise in the event of noncompliance by the PRPs. This Order is signed by the PRPs and EPA; it does not require approval by a judge.

Aquifer: An underground layer of rock, sand, or gravel capable of storing water within cracks and pore spaces, or between grains. When water contained within an aquifer is of sufficient quantity and quality, it can be

tapped and used for drinking or other purposes. The water contained in the aquifer is called groundwater.

Downgradient/Downslope: A downward hydrologic slope that causes groundwater to move toward lower elevations. Therefore, wells downgradient of a contaminated groundwater source are prone to receiving pollutants.

Groundwater: Water found beneath the earth's surface that fills pores between materials such as sand, soil, gravel and cracks in bedrock and often serves as a principal source of drinking water.

Leach/Leaching: The process by which soluble chemical components are dissolved and carried through soil by water or some other percolating liquid.

Potentially Responsible Parties (PRPs): Parties, including owners, who are potentially liable under CERCLA for the costs of response actions at Superfund sites. Parties are "potentially" liable until a court makes a determination of liability. PRPs may sign an Administrative Order on Consent (see Administrative Order on Consent) to participate in site cleanup activity.

Remedial Action: Actions taken to permanently prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment.

Upgradient/Upslope: Upstream; an upward slope. Demarks areas that are higher than contaminated areas and, therefore, are not prone to contamination by the movement of polluted groundwater.

APPENDIX B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ANNOUNCES THE PROPOSED REMEDIAL ALTERNATIVE FOR THE
KENMARK TEXTILES PRINTING CORP. SUPERFUND SITE
EAST FARMINGDALE, TOWN OF BABYLON
SUFFOLK COUNTY, NEW YORK

The U.S. Environmental Protection Agency (EPA) recently completed a Remedial Investigation (RI) for the Kenmark Textiles Printing Superfund site in East Farmingdale, New York. Based on the findings of the RI performed at the site, EPA is announcing a preferred no action remedy for the site.

Before selecting a final remedy, EPA will consider written and oral comments on this preferred alternative. All comments must be received on or before March 12, 1994. The final decision document will include a summary of public comments and EPA responses.

EPA will hold an informational public meeting on Monday, February 28, 1994, at 7:00 p.m., at the East Farmingdale Fire House to discuss the findings of the RI and the preferred remedy for the site.

EPA performed extensive sampling of the groundwater, surface and subsurface soil and air at the site during the RI. Based upon the review of these results and the risk assessment that were conducted for the site, EPA is proposing that no remedial action is necessary to ensure protection of human health and the environment. Therefore, EPA is not evaluating or proposing cleanup activities at the site.

The preferred no action remedy is outlined and discussed in the Proposed Plan. The RI report, Proposed Plan, and other site-related documents can be consulted at the information repositories listed below during regular business hours:

East Farmingdale Fire House
930 Conklin Street
East Farmingdale, New York 11735

U.S. Environmental Protection Agency
Emergency and Remedial Response Division
Superfund Records Center
26 Federal Plaza, Room 2900
New York, New York 10278

Written comments on the preferred alternative, should be sent to:

Sharon Trocher, Project Manager
U.S. Environmental Protection Agency
26 Federal Plaza, Room 29-100
New York, New York 10278

SIGN IN SHEET (PLEASE PRINT)

KENMARK TEXTILES PUBLIC MEETING

FEB 28 '94

<u>NAME</u>	<u>ADDRESS</u>	<u>AFFILIATION</u>
Ken Glass	29 SILVER CANYON FORT JEFF. STA.	
Phil [Signature]	1637 Rt 110 Farmingdale	
Joseph J. Grillo	1637 Rt 110 Fdale	
Nina Knapp	2 University Place, Albany 12203	WYS DOT
PETER DEANON	905 MARCONI AVE RONK	FRM
John Bennett	551 Broadway Hempstead	
Bob Kaufold	Town of Babylon	
Helen Noyen	26 Hawthorne St. Farmingdale	
ROBERT FERRETTI	1 Birch Cir. N E. FARMINGDALE	
PATY HILINSKI	1 Birch Cir. N E. FARMINGDALE	
Ken Moritsugu	Newsday 235 Pinelawn Rd Melville NY 11747	
LT. LE WISE	EAST FARMINGDALE F.D. 930 CONEY ST. E. F.D. NY. 11735	

APPENDIX D

Woodland Civic Association, INC.

East Farmingdale, New York 11735
10 Oak Street

March 10, 1994

Sharon L. Trøcher
U. S. Environmental Protection Agency
Emergency & Remedial Response Division
26 Federal Plaza, Room 29-100
New York, NY 10278

RE: Kenmark Textiles
Printing Corporation
Superfund Site

Dear Ms. Trøcher:

The Woodland Civic Association, Inc. represents East Farmingdale homeowners north & northwest of the Kenmark site. In fact, many of our homes are within 1/2 mile of this parcel. Therefore, we were extremely concerned to recently learn that you are considering the removal of this site from the Superfund National Priorities List. Please include our concerns in your study & consider them fully before the EPA renders a decision on this Superfund site.

Our residential neighborhood is located near many highly developed industrial properties; therefore, we have frequently been involved with environmental issues. It is our understanding from previous water quality studies that the underground water in this vicinity generally flows in a southeast direction. Accordingly, we question why test wells were not located southeast of the largest leaching pit. (Figure 1. Kenmark Site Map 2/94. Attachment #1.)

We also question the adequacy and ability of the test wells to obtain sufficient information on contaminants that may have leached into the ground during various intervals over the past 75 years. In fact, where did the contaminants go that were measured in samplings done between 1974 and 1984? (Attachment #2)

Furthermore, we urge you to consider the cumulative effect that contaminants from this site and other nearby Superfund sites will have on the future quality of our drinking water.

We believe too many questions remain unanswered and request further assurances that the health and welfare of our community will not be harmed if the EPA decides that "no further action" is required.

Thank you for your consideration.

Very truly yours,



Patrick Cunningham
President

PC:ej

Attachments: 2

Express Mail

attachment 1

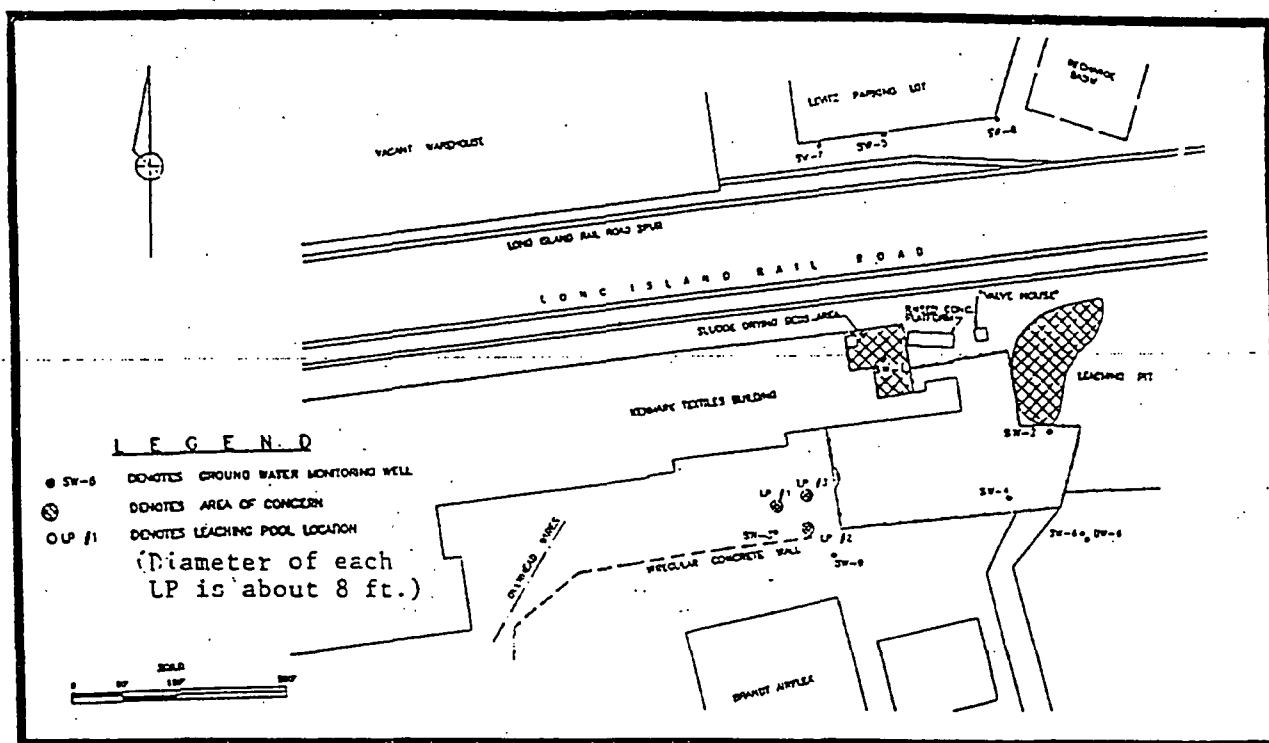


FIGURE 1 - KENMARK SITE MAP

All written comments should be addressed to:

Sharon L. Trocher
U.S. Environmental Protection Agency
Emergency and Remedial Response Division
26 Federal Plaza, Room 29-100
New York, New York 10278
Telephone: (212) 264-8476

Written and oral comments will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

SCOPE AND ROLE OF ACTION

This is the first and only planned operable unit for the Site. The primary objective of this operable unit is to determine the nature and extent of contamination at the Site and to take measures, as appropriate, to ensure the protection of human health and the environment.

SITE BACKGROUND

The Site, now occupied by the Susquehanna Textile Company, is located in a light industrial area at 921 Conklin Street in East Farmingdale, New York. The areas

north and east of the Site are also characterized by light industry. Residential developments are located to the south and west, with an estimated 6,200 residents living within one mile of the Site. With the exception of a parkland and an undeveloped area adjacent to the parkland, both located upgradient of the Site, the area within one mile of the Site obtains drinking water from public water supplies. Three public supply wellfields are located within 0.5 to 1.0 mile of the Site. Two of the wellfields are located upgradient of the Site, and the third wellfield is located cross-gradient. The closest downgradient public supply wellfield is located about 1.5 miles from the Site.

Since at least 1917, the Site has been the location of several successive silk and textile dye, printing and screening operations. Process wastewater generated at the Site was chemically treated, resulting in the precipitation of solids from the wastewater. At least as early as 1972, the sludge from the wastewater was distributed to outdoor concrete-lined beds for settling and drying. The sludge was periodically removed from the sludge drying beds and placed in drums. The resulting wastewater (supernatant) was discharged to a leaching pit located on-site and east of the building. Beginning in November 1984, the wastewater was discharged to the Suffolk County Publicly Owned Treatment Works.

No Cleanup Needed *-newsday 2/23/94*

E. Farmingdale site passes EPA's muster

By Ken Moritsugu

STAFF WRITER

An East Farmingdale industrial site contaminated by metal-laden wastewater doesn't need to be cleaned up and may be removed from the Superfund national priorities list, according to the Environmental Protection Agency.

A lengthy study of the former Kenmark Textiles Printing Corp. site, just west of Route 110 at 921 Conklin St., found "there is no contamination worthy of a clean up," Steve Katz, an EPA spokesman in New York, said yesterday.

The study, which was completed in December, analyzed soil, groundwater and ambient air conditions and concluded that no action is necessary to protect human health and the environment. The public can comment on the study at a meeting scheduled for Monday at 7 p.m. at the East Farmingdale Fire House at 930 Conklin St.

If the EPA sticks with a "no action" finding after reviewing public comment, the agency generally then begins the process of removing the site from the national priorities list, Katz said.

"It just doesn't seem to be a significant problem that's going to cause any issues," said Babylon Town

Board member Robert Kaufold, who lives two blocks from the site. "Again we have to separate the stuff that's in the ground and the water we drink. The water we drink certainly doesn't come from where Kenmark is. It comes from much deeper layers."

Until 1984, Kenmark Textiles dumped wastewater from its operations into an (on-site leaching pit. Samples taken between 1974 and 1984 found levels of copper, iron, lead, silver and other metals above state limits for groundwater discharge) leading the EPA to place the site on the national priorities list in 1986. Since 1984, the wastewater has been sent to a Suffolk County sewage treatment plant.

On the national priorities list, the EPA ranks Kenmark last out of the 24 Superfund sites on Long Island in terms of the threat posed to public health.

The 50-by-100-foot site has been home to various silk and textile dyeing, printing and screening operations since at least 1917, according to the EPA. Currently, Susquehanna Textile Co. silkscreens fabrics for upholstery and drapery at the factory.

"We're quite delighted that they found really nothing wrong with it even though we don't and haven't contributed to what happened beforehand," Mike Fallacara, president of Susquehanna, said yesterday.

Attachment 2