

6. RECORD OF DECISION

FRANKLIN CLEANERS

SITE, INCORPORATED

VILLAGE OF HEMPSTEAD

NASSAU COUNTY, N.Y.

3/98



Division of Environmental Remediation

Record of Decision
Franklin Cleaners Site
Incorporated Village of Hempstead
Nassau County
Site Number 1-30-050

March 1998

4. Extraction of contaminated groundwater at the leading edge of the contaminant plume for up to 20 years and treatment of water through the use of chemical precipitation and filtering of metals and air stripping of VOCs along with GAC treatment of off gasses, if necessary;
5. Offsite disposal of all spent carbon at a TSCA and RCRA-permitted incinerator;
6. Installation of a deep Molloy College irrigation/monitoring well;
7. Long-term groundwater monitoring and groundwater use restrictions, as necessary;
8. Control of indoor air contamination using air purifying, ventilation, and vapor barrier systems along with a monitoring program until the source area remediation has been effectively completed.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

Date

3/30/98

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



DECLARATION STATEMENT - RECORD OF DECISION

Franklin Cleaners Inactive Hazardous Waste Site Incorporated Village of Hempstead, Nassau County, New York Site No. 1-30-050

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Franklin Cleaners Inactive Hazardous Waste Disposal Site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Franklin Cleaners Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Franklin Cleaners Site and the criteria identified for evaluation of alternatives the NYSDEC has selected Alternative 2. The components of the remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved;
2. Soil vapor extraction (SVE) of PCE-contaminated soils with onsite treatment of contaminated vapors using a vapor phase granular activated carbon (GAC) treatment system;
3. Air sparging of shallow onsite groundwater and capture of PCE vapors by the SVE system;

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RECORD OF DECISION

Franklin Cleaners Inactive Hazardous Waste Site Incorporated Village of Hempstead, Nassau County, New York Site No. 1-30-050

SECTION 1 SITE LOCATION AND DESCRIPTION

The Franklin Cleaners Site is an inactive dry cleaning facility located at 206-208B South Franklin Street in the Incorporated Village of Hempstead, Nassau County, New York (Figures 1 and 2).

The site is approximately 1/8 acre in size and includes a two story building with residential apartments on the 2nd floor and a coin laundromat and delicatessen occupying the first floor. Portions of the first floor and basement were utilized by the former dry cleaning facility.

The surrounding properties are primarily residential with the exception of South Franklin Street which is mixed residential and small business. The site and surrounding community is serviced by public water and sewers from the Village of Hempstead. The building was connected to the Village sewer system at the time of construction in 1956.

Access to the site is from South Franklin Street. The area immediately adjacent to the building at the site is almost entirely covered with concrete except for portions at the rear of the property. The rear portion of the site was recently fenced.

SECTION 2 SITE HISTORY

2.1 Operational/Disposal History

According to a building permit from the Village of Hempstead dated February 1957, the building occupancy was a dry cleaning store. Franklin Cleaners began dry cleaning operations during the late 1970s or early 1980s. The current owners purchased the property in April 1987. In 1990, the name of the dry cleaner changed to Grace Cleaners, which operated at the site until 1991. In 1991, dry cleaning operations at the site ceased when the dry cleaner was replaced with a retail clothing store. The clothing store closed approximately 6 months later and the site was subsequently replaced by a succession of delicatessens, the latest of which currently operates at the site. In addition, a laundromat business has been continuously operating at the site since 1987. During the years when a dry cleaner operated at this property, a dry cleaning fluid "cooker", operated in the basement of the building.

In March 1990, the Nassau County Department of Health (NCDOH) investigated a complaint of tainted drinking water from a private residence on Linden Avenue. The residence was found to have two private

water supply wells: a drinking water well (approximately 45 feet deep) and an irrigation well (approximately 32 feet deep). The water supply well was sampled and found to contain tetrachloroethene (PCE) at 5,500 ppb. The irrigation well contained PCE at 29,000 ppb. The drinking water and groundwater standard for PCE is 5 ppb. The residence was connected to the Village of Hempstead public water supply system following the PCE detection.

Since the Franklin Cleaners Site is located upgradient of the wells on Linden Avenue, NCDOH performed an inspection of the dry cleaner premises and collected surface soil samples from the basement of the existing building and at the rear of the former dry cleaner property. Soil samples from the basement were found to contain PCE concentrations as high as 9,400 ppb. A sample from the rear of the property contained PCE at 650,000 ppb, trichloroethene (TCE) at 1,700 ppb and dichloroethene (DCE) at 680 ppb.

In 1993, a Preliminary Site Assessment was performed by the Nassau County Department of Public Works (NCDPW). As part of this investigation, four groundwater wells were installed. One of the wells, FC-1, was installed upgradient of the former dry cleaner site to a depth of 40 feet. The other three wells, FC-2, FC-3 and FC-4, were installed downgradient of the site, each to a depth of 37 feet. Groundwater samples collected from the wells showed that monitoring well FC-2 contained PCE at 83 ppb and that none of the contaminants of concern were detected in FC-1, FC-3 and FC-4.

The site was listed on the Registry of Inactive Hazardous Waste Disposal Sites in New York State on June 17, 1993.

SECTION 3 CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and the environment, the NYSDEC has recently completed a Remedial Investigation/Feasibility Study (RI/FS).

3.1 Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between December 1996 and April 1997. A draft RI was issued in October 1997 and a final RI was issued in February 1998.

The RI included the following activities:

- Private water well survey
- Public water supply well survey
- Facility inspection
- Soil/groundwater probe installation
- Indoor and outdoor surface soil sampling
- Indoor and outdoor subsurface soil sampling
- Groundwater monitoring well construction (including soil sampling)
- Piezometer construction

- Test boring construction and sampling
- Groundwater sampling
- Private well sampling
- Groundwater level measurement
- Indoor and outdoor air sampling
- Surveying
- Upgradient and downgradient survey of other potential source areas

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Franklin Cleaners Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of NYS Sanitary Code. NYSDEC TAGM 4046, Determination of Soil Cleanup Objectives and Cleanup Levels, was used as SCGs for soil. The NYSDOH Guideline for Tetrachloroethene in Air was used to evaluate indoor air quality.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, SCGs are given for each medium.

3.1.1 Nature and Extent of Contamination:

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI/FS Report.

3.1.1.1 Indoor Surface and Subsurface Soil Sampling and Results

Sampling of surface soils in the basement of the former dry cleaners by the Nassau County Department of Health (NCDOH) in 1990 showed elevated levels of PCE. This task was included in the workplan to further delineate contamination in the surface and subsurface soils in that portion of the basement where suspected PCE spills had occurred.

Eighteen interior surface soil samples were collected from a depth of 6 to 12 inches below the surface of the concrete floor. In addition, soil borings were constructed and continuously sampled to a depth of 12 feet below grade. Two samples were selected from each boring. All indoor samples were analyzed for volatile organic compounds (VOCs). The sample locations and the PCE concentrations detected are presented on Figure 3.

Six of the eighteen surface soil samples collected exceeded the soil cleanup objective for PCE with the highest concentration detected at 240,000 ppb. Only one of the subsurface soil samples collected from the interior of the building, from 2 to 3 feet, exhibited levels of VOCs above soil cleanup objectives at 13,000 ppb.

Based on the results of the interior sampling it appears that elevated levels of contamination are found primarily in the vicinity of the former "cooker" and other dry cleaning equipment which was located near

the concrete pad in the southeast corner of the basement. The elevated levels found here indicate that PCE spills or disposal occurred in this portion of the basement. The basement floor of the building is in poor condition with numerous cracks and broken concrete, which apparently allowed the spilled PCE to migrate to the underlying soil.

The contamination in the vicinity of the "cooker" appears to be limited to the surface soil and shallow subsurface soil at less than 4 feet. Although the surface soil samples exhibited very high levels of PCE, the samples collected with depth, in general, did not exhibit elevated levels of PCE. The area of significant contamination appears to be approximately 450 to 500 square feet.

3.1.1.2 Onsite Surface and Subsurface Soil Sampling and Results

Sampling of surface soils in the rear alley of the former dry cleaners by the NCDOH in 1990 showed elevated levels of PCE. This task was included in the workplan to further delineate contamination in the surface and subsurface soils in this area of the site where suspected PCE spills had occurred.

A total of thirteen surface soil samples were collected along the rear (eastern) portion of the building. Eleven of the samples were collected onsite in the rear of the property, two samples were collected offsite in the rear of the property. One sample was collected in the front of the property. Subsurface soil borings were constructed at nine of the surface soil sample locations. The borings were constructed and continuously sampled to a depth of approximately 20 feet below grade. Three samples were selected from each boring. Four samples were also collected from a dry well located at the base of the rear stair case. The samples were collected from the surface to a depth of 10 feet below the surface of the landing. All surface and subsurface soil samples were analyzed for VOCs. Sample locations and associated PCE concentrations are presented on Figure 4.

PCE was detected in four of the surface soil samples at levels above the soil cleanup objective. The highest concentration of PCE detected in the surface soil was 280,000 ppb. This sample also contained trichloroethene (TCE) above the soil cleanup objective at 920 ppb.

Two of the soil borings indicated the presence of elevated levels of PCE with depth. Shallow subsurface samples showed PCE levels as high as 450,000 ppb. Contaminant levels decreased with depth with samples as deep as 12 feet showing PCE levels up to 5,900 ppb, above the soil cleanup objective of 1,400 ppb.

Elevated levels of contamination appear to be limited to an area immediately adjacent to the back door of the former dry cleaning facility. This area is approximately 250-300 square feet.

Based on the subsurface sample results and the significant groundwater contamination associated with this site, as described below, elevated PCE contamination in these soils is likely to be present down to the depth of the water table (approximately 20 feet).

3.1.1.3 Groundwater Sampling and Results

Sampling of shallow groundwater downgradient of the former dry cleaners by the NCDOH in 1990 at a private residence on Linden Avenue showed elevated levels of PCE. This task was included in the workplan to verify the groundwater contaminant source and delineate the extent of groundwater contamination.

Groundwater samples were collected from three different depth ranges during this investigation, utilizing both groundwater probes and groundwater monitoring wells. Groundwater samples were collected from the water table (approximately 20 to 26 feet below grade), from an intermediate depth (33 to 57 feet below grade) and from a deeper depth (49 to 87 feet below grade). All of the samples were collected from the Upper Glacial aquifer, just above a significant clay layer which appears to be present throughout the study area.

Fifty three shallow groundwater samples, fifty two intermediate groundwater samples and fifty two deep groundwater samples were collected from groundwater probes upgradient and downgradient of the Franklin Cleaners Site. Samples were analyzed by the NYSDEC laboratory in Saratoga Springs, New York and by Nytest Environmental, Inc.. All samples were analyzed for VOCs.

Groundwater samples were also collected from seven shallow groundwater monitoring wells (MW-1S, MW-2S, FC-1, FC-2, FC-3, FC-4 and FC-10A), four intermediate monitoring wells (MW-1I, MW-2I, MW-3I and MW-4I) and three deep monitoring wells (MW-1D, MW-3D and MW-4D). In addition, groundwater samples were collected from two shallow domestic wells (6-Lind-1 and Feld-1), one intermediate domestic well (6-Lind-D) and one deep irrigation well (MCOL-1). Each of these samples were analyzed for VOCs. Samples from the monitoring wells were also analyzed for iron and manganese.

Based on the results of the analysis, the primary compounds that exceeded groundwater standards were PCE, TCE, 1,1-DCE and 1,2-DCE. The primary contaminant detected is PCE. The total VOC concentration for each of the three depth intervals is provided in Figures 5, 6 and 7.

The following provides a description of groundwater results from each of the depth intervals previously described.

Shallow Upper Glacial Aquifer

Elevated levels of PCE were detected in the shallow groundwater in the immediate vicinity of the Franklin Cleaners Site. The highest concentration detected was 1,502 ppb in the well installed onsite. A generalized concentration contour map for shallow groundwater in the vicinity of the site is presented on Figure 5.

The two shallow domestic wells sampled downgradient of the site, 6-Lind-1 and Feld-1, showed PCE at 780 ppb and 100 ppb, respectively.

VOC levels decrease in concentration in the shallow aquifer downgradient (south) of the site to below 5 ppb approximately 3,000 feet downgradient of the site.

Levels of PCE above the groundwater standard were also detected upgradient of the site with the highest concentration detected in the shallow groundwater at 15 ppb. These sporadic exceedances above groundwater standards are likely the result of a source or sources of contamination upgradient of the Franklin Cleaners Site. Additional information on upgradient contamination can be found in the remedial investigation report.

The results of the iron and manganese analysis from the shallow groundwater indicated elevated levels of iron and manganese in two shallow monitoring wells, F10-A and MW-2S. Elevated levels of iron and manganese were also detected in the two shallow domestic wells.

Intermediate Upper Glacial Aquifer

Elevated levels of VOCs were detected further downgradient of the site in the intermediate depth samples collected from the Upper Glacial aquifer. Concentrations of PCE greater than 1,000 ppb were detected approximately 1,000 feet downgradient of the site at groundwater probes P-21 and P-32 and at monitoring well MW-3I. Concentrations greater than 100 ppb were detected at a distance of approximately 3,500 feet downgradient of the site in the intermediate zone. A generalized concentration contour map for the intermediate zone in the vicinity of the site is presented on Figure 6.

In addition to the elevated levels that appear to be a result of contamination migrating from the site, elevated levels of VOCs were also detected cross gradient and to the west of the site in the intermediate depth samples collected from this area. Total VOCs of 954 ppb were detected in the sample collected from groundwater probe P-16 located west of the site. This sample also indicated the highest concentrations of DCE and TCE detected during this investigation. Given the cross gradient relationship of this contamination relative to the Franklin source area and the fact that these compounds are breakdown products of PCE, this may be an indication that the source of this contamination is further upgradient of the site. Concentrations of VOCs greater than 100 ppb were also detected in groundwater probes P-7, P-8 and P-25, northwest of the site. The analyses from these samples and directional relationship to Franklin further indicate that there is likely an upgradient source or sources of contamination. The presence of an upgradient source or sources of contamination is further supported by the analytical results of the intermediate samples from upgradient groundwater probes. These results are presented in detail in the remedial investigation report.

The results of the iron and manganese analysis from the intermediate zone indicated no iron or manganese above groundwater standards.

Deep Upper Glacial Aquifer

Elevated levels of VOCs were detected in the deep Upper Glacial aquifer both upgradient and downgradient of the site. A generalized concentration contour map for the deep zone in the vicinity of the site is presented in Figure 7. Concentrations in the immediate vicinity of the site in the deep zone exhibited slightly elevated VOC levels up to 72 ppb. Overall, the deep aquifer data indicates a discontinuous plume of highly contaminated groundwater, greater than 1,000 ppb, migrating southerly from the site. Concentrations greater than 100 ppb have been detected in the deep Upper Glacial aquifer as far as 4,500 feet downgradient of the site.

Contaminants found downgradient in the deep Upper Glacial aquifer may be somewhat influenced by contamination from an upgradient source or sources migrating towards the Franklin site. Concentrations greater than 900 ppb have been detected in the deep samples collected 1,500 feet upgradient of the site, further confirming the presence of an upgradient source or sources of contamination.

The results of the iron and manganese analysis from the deep zone indicated no iron or manganese above groundwater standards.

General Groundwater Observations

The groundwater plume which emanates from the Franklin Site can be traced from this former dry cleaners, nearly one mile downgradient (south) of the Site where it ends on the northern boundary of the Molloy College property, just south of the Southern State Parkway. The width of the plume remains narrow throughout its length, generally less than 500 feet. In comparing the contaminant levels in the shallow, intermediate and deep Upper Glacial aquifer, it is apparent that contamination migrates downward as it travels away from the site. Due to the presence of a low permeability unit at the interface of the Upper Glacial and Magothy aquifers, it is unlikely that significant contamination associated with the Franklin Cleaners Site has migrated into the Magothy aquifer. However, because NYSDEC has not proven that this clay layer is continuous and impermeable throughout the plume area, this assumption will be further evaluated by additional information to be gathered during construction of the Molloy College irrigation well and implementation of the groundwater extraction/treatment IRM. With respect to the upgradient contamination which has been identified, the NYSDEC has initiated, as a separate project, a groundwater and source area investigation to determine the extent and origin of the upgradient PCE/TCE contaminant plume.

3.1.1.4 Ambient Air Sampling and Results

Air data collected from the building which included the former Franklin Dry Cleaners and the adjacent building to the south showed PCE levels in exceedence of the NYSDOH guideline value of 100 micrograms of PCE per cubic meter of air ($\mu\text{g}/\text{m}^3$). This value is based upon a consideration of all effects of long-term exposure to PCE in air. It is used to guide decisions about actions to reduce human exposures to PCE. NYSDOH recommends, for example, that actions to reduce human exposure should be considered when an air level is above the guideline value. NYSDOH also recommends that the need to take immediate action to reduce exposure should be considered when an air level is ten-times or more higher than the guideline (that is, when an air level is $1,000 \mu\text{g}/\text{m}^3$ or higher).

The air sampling results revealed that all five of the commercial establishments, all four of the residential apartments, and an upstairs church in the two buildings at and adjacent to the former dry cleaner property had PCE concentrations in excess of the NYSDOH guidance value of $100 \mu\text{g}/\text{m}^3$. First floor samples were as high as $1300 \mu\text{g}/\text{m}^3$ and the second floor samples were as high as $480 \mu\text{g}/\text{m}^3$. Concentrations of PCE in the basements of these two buildings were found to be as high as $6000 \mu\text{g}/\text{m}^3$. A hole in the basement floor of the former dry cleaner shop revealed air concentrations of PCE at approximately $73000 \mu\text{g}/\text{m}^3$ beneath a concrete slab. This suggests that the source of PCE vapors in the two buildings is PCE soil contamination beneath the floor and in soils around the building. Additionally, one residential dwelling behind the Franklin

Cleaners site had concentrations of PCE above the guideline value in the non-occupied basement but below the guideline value in the first floor living area. Six other residential dwellings surrounding the site had indoor air concentrations of PCE below the NYSDOH guideline and similar to "background" residential levels.

3.1.1.5 Public and Private Water Supplies

Public Water Supply Well Survey

A public water supply survey was conducted to identify public water supply wells in the vicinity of the Franklin Cleaners Site. The survey was conducted by placing inquiries with NCDPW, NCDOH, NYSDEC and United States Geological Survey (USGS). The locations of the public water supply wells are presented on Figure 8.

The nearest public water supply wells to the site are wells N-3668 and N-8264. These wells, which are operated by the Village of Hempstead, are located 700 feet west-southwest of the site. Well N-3668 is 500 feet deep and N-8264 is 510 feet deep. Both of these wells have been routinely tested for volatile organic chemicals (including PCE and TCE) by the Village and the NCDOH since 1978 when such testing was first initiated in New York State. To date, no volatile organic chemical has been detected in either well above New York State drinking water standards.

Additional water supply wells are located just south of the leading edge of the contaminant plume, southeast of the Molloy College property. These wells, N-0072, N-3745 and N-8218, while in the flow path of the plume, produce water from the Magothy formation at depths ranging from 400 to 600 feet. These wells are not impacted by contamination and are unlikely to be threatened by the contaminant plume from Franklin.

Private Well Survey

A private well survey was conducted to identify private wells in the vicinity of the Franklin Cleaners Site and areas downgradient of the groundwater plume emanating from the site. The survey was conducted by reviewing historical information compiled by the Nassau County Department of Health (NCDOH), to determine the locations of private wells in the immediate area of the site. Inquiries were also made to the NYSDEC and local water districts (Village of Hempstead Water District, Long Island Water Corporation and the Village of Rockville Centre Water Department) for listings of private wells in the area of and downgradient of the plume. Based upon the information received, 43 private wells were identified. All of the private wells that were identified are located in the Village of Rockville Centre, downgradient of the groundwater plume and are serviced by public water. However, unrestricted use of the shallow, Upper Glacial aquifer may occur.

3.2 Interim Remedial Measures

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. An IRM has recently been

implemented to address the elevated concentrations of PCE found in the two buildings at and adjacent to the Franklin Cleaners site.

In January 1998, fans with integrated particulate and granular activated carbon (GAC) filters, designed to recirculate and filter air to remove dust and VOCs, were installed in the basement of the former dry cleaner. A wall was constructed to isolate the portion of the basement where the cooker for the dry cleaner was located and where the elevated PCE concentrations were found in soils and vapors beneath the basement floor. Similarly, in March 1998, two of these air filtration units were installed in the basement of the commercial building immediately adjacent to the former dry cleaner facility.

Follow-up air sampling is in process to evaluate the effectiveness of these actions. If necessary, exhaust and/or intake ventilation systems along with vapor barrier controls will be installed to control movement of contaminant vapors into and throughout the two buildings.

3.3 Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in the Exposure Assessment which is part of the RI Report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Human exposure pathways known to presently exist or that have historically existed at the site include:

- Direct contact with (dermal absorption), ingestion of, and inhalation of contaminated on-site soils;
- Direct contact with (dermal absorption), ingestion of, and inhalation associated with contaminated groundwater through residential or commercial use; and
- Inhalation of contaminated air at and near the site.

The potential human exposure pathways at the Franklin Cleaners site include: 1) the potential for unrestricted use of the Upper Glacial aquifer downgradient and in the pathway of the contaminant plume where several private wells exist, 2) the potential for contaminant migration to downgradient public water supply wells, and 3) the potential for additional exposure to onsite contaminated soils and contaminated indoor air. These pathways will be addressed through the remedial actions to be implemented at this site.

3.4 Summary of Environmental Exposure Pathways

No pathways for environmental exposure have been identified for this site.

SECTION 4 ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The Potential Responsible Parties (PRP) for the site, documented to date, include:

Ms. Incoronata Perna , Owner
Mr. Guiseppe Sperduto, Owner

The PRPs failed to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

SECTION 5 SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles. The goals selected for this site are:

- Reduce, control, or eliminate contaminated media to the extent practicable.
- Eliminate the threat to groundwater and indoor air by eliminating onsite soil contamination.
- Eliminate the potential for human exposure to the onsite contaminated soils.
- Eliminate the potential for exposure to contaminated groundwater.
- Provide for attainment of SCGs for groundwater, soil and indoor air to the limits of the affected area, to the extent practicable.

SECTION 6 SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Franklin Cleaners Site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled "Remedial Investigation/ Feasibility Study Report, Franklin Cleaners Site" dated January 1998.

A summary of the detailed analysis follows. As used in the following text, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy. All of the alternatives assume a long-term groundwater monitoring program of 30 years.

6.1 Description of Alternatives

The potential remedies are intended to achieve the established remedial goals for the contaminated media identified including VOC-contaminated onsite soils and VOC-contaminated onsite and offsite groundwater.

Alternative 1 No Action

Present Worth:	\$ 364,000
Capital Cost:	\$ 136,000
Total Present Worth O&M:	\$ 228,000
Time to Implement	3 to 6 months
Time to Complete Remediation	not applicable

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Under the no action alternative, no measures would be taken to remove or contain the soil or groundwater contamination. However, this alternative presumes that long-term monitoring of indoor air and groundwater would be implemented and access and use restrictions would be maintained.

Alternative 2 Onsite Soil Vapor Extraction and Air Sparging and Offsite Groundwater Extraction and Treatment

Present Worth:	\$ 2,254,000
Capital Cost:	\$ 842,000
Total Present Worth O&M:	\$ 1,412,000
Time to Implement	1 to 1 1/2 years
Time to Complete Remediation	20 years

Under Alternative 2, surface and subsurface soil contamination on the site would be remediated using soil vapor extraction (SVE) and onsite groundwater would be remediated by air sparging combined with SVE. Contamination in offsite groundwater would be addressed by extraction and treatment of groundwater. This alternative also includes long-term monitoring of indoor air and groundwater and use restrictions would be maintained for groundwater in the vicinity of the contaminant plume.

Within the contaminated soils above the water table, present at the Site at an approximate depth of 20 feet, a series of SVE wells would be installed both outside and inside the building of the former Franklin Dry

Cleaners in areas where significant concentrations of perchloroethylene (PCE), tetrachloroethylene (TCE) and 1,2-dichloroethylene (DCE) have been detected. These wells would be screened within the contaminated soils. Soil vapors containing volatile organic compounds (VOCs) would be extracted from the soil by an above ground vacuum system. The contaminated vapors would be treated by a granular activated carbon (GAC) system. A low permeability cover (asphalt and/or concrete) would be placed over the affected soils during the operation of this system to enhance the system's effect by controlling vapor emissions to the atmosphere. This cover would also limit possible exposure to vapors and contaminated soil via direct contact, inhalation, or ingestion during construction and implementation of this alternative.

The equipment required for SVE includes extraction wells, a vacuum unit/blower, liquid/vapor separator, vapor treatment unit consisting of GAC canisters and the system controls and instrumentation. The number of wells required would be function of the subsurface geologic conditions and extent of contamination. The spent GAC canisters would be shipped offsite to a facility which would regenerate the carbon for reuse.

Air sparging would involve the injection of air into the contaminated, shallow groundwater of the underlying aquifer. This process would release contaminants to the overlying unsaturated soils while promoting biodegradation in the saturated and unsaturated soils through the increase of subsurface oxygen concentrations. Volatilized vapors which migrate to the unsaturated soils above would be captured by the SVE system. The components of an air sparging system include an oil-free compressor, air sparging injection wells and associated SVE components.

The performance of the SVE/air sparging system would be monitored using groundwater monitoring wells, soil vapor probes and indoor air sampling devices. The remediation is expected to take 3 years.

The offsite remedial technology under Alternative 2 includes extraction and treatment of contaminated groundwater at the leading edge of the plume, approximately 4200 feet downgradient of the Franklin Cleaners Site. An additional technology, in-well air stripping, was evaluated as a potentially viable technology to address offsite groundwater contamination. This innovative technology uses non-conventional extraction wells designed to strip VOCs within the well and reinject treated water back into the aquifer, eliminating the need for aboveground water treatment. This technology was screened out from consideration for the following reasons:

- This technology has limitations on its ability to reduce contaminant levels in the groundwater with reductions of 50% to 99% reported, allowing potentially untreated groundwater to be reinjected into uncontaminated portions of the aquifer;
- pumping and reinjection within the same well would limit control of the contaminant plume, allowing it to bypass these wells more readily than a conventional pump and treatment system; and
- injection of air into the well would promote fouling of the well screen and aquifer through iron oxidation and bacteria buildup, resulting in higher operation and maintenance costs.

Under Alternative 2, an extraction well(s) would be installed where the leading edge of the contaminant plume intersects the Molloy College property, just south of the Southern State Parkway (Figure 9). PCE

levels in this area of the plume are estimated to be 150 to 200 ppb. Consideration was given to intercepting the plume further upgradient where contaminant levels are slightly higher, however, logistical considerations prohibit the siting of a pump and treat system further north of the proposed location due to the dense residential development in this area.

Contaminated groundwater would flow through a treatment train consisting of metals removal (primarily iron) and air stripping to remove VOCs including PCE, TCE and DCE. Off-gasses would be treated, if required, using a vapor phase GAC filter before discharge to the atmosphere. Pre-treatment metals residuals would be disposed of offsite and the treated groundwater would likely be discharged to either a storm sewer or leaching pools.

It is anticipated that contaminated groundwater would be pumped from one well at the leading edge of the plume at a rate of approximately 50 gallons per minute. The pretreatment process for metals removal would utilize chemical precipitation and pH adjustment combined with filtering. A pretreatment step is necessary to prevent fouling of the air stripper by metals which naturally exist in the groundwater. The vapor phase GAC filters would be designed for regeneration. The operation time for extraction and treatment would require up to 20 years.

Alternative 2 presumes that long-term monitoring of indoor air and groundwater would be implemented and groundwater use restrictions would be maintained. In addition, a deep Molloy College irrigation well would be drilled which would also serve as a deep groundwater (Magothy aquifer) monitoring point and act as an early warning for potential impacts to the Rockville Centre public supply wells located south of the leading edge of the contaminant plume.

Alternative 3 Onsite Soil Vapor Extraction and Air Sparging and Natural Attenuation of Offsite Groundwater

Present Worth:	\$ 677,000
Capital Cost:	\$ 346,000
Total Present Worth O&M:	\$ 331,000
Time to Implement	6 months to 1 year
Time to Complete Remediation	1 year

Alternative 3 has all of the same onsite components as Alternative 2 including SVE and air sparging. This alternative, however, includes no active remediation for contaminated offsite groundwater, allowing natural attenuation to take place.

Natural attenuation includes a series of natural subsurface processes which reduce contaminant concentrations in the groundwater. These processes include dilution, dispersion, volatilization, biodegradation, adsorption and chemical reactions. Consideration of this option requires groundwater modeling and evaluation of contaminant degradation rates to determine feasibility. Special regulatory approvals may be needed. This alternative would also require a long-term, comprehensive groundwater sampling and analysis program to confirm that attenuation is proceeding at rates predicted and is consistent with the groundwater cleanup objectives. Impacts to potential receptors are of primary concern.

Alternative 3 presumes that long-term monitoring of indoor air and groundwater would be implemented and groundwater use restrictions would be maintained. This alternative also calls for the installation of a deep irrigation well on the Molloy College property to replace the existing shallow Upper Glacial well. This shallow well, while not currently showing any impacts from the contaminant plume, is expected to be impacted in the near future. By replacing this well with a Magothy well, a continuous source of clean water can be expected. This well will also serve as a early warning point in the remote event that this Upper Glacial contamination leaks downward into the Magothy aquifer and threatens the downgradient Rockville Centre public supply wells.

6.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The no action alternative is unacceptable as it does not address the remedial action objectives for this Site. Specifically, since PCE in the onsite soils would be neither removed or controlled, contamination would continue to impact groundwater and indoor air. In addition, contamination in groundwater would not be removed or contained, allowing the potential for further degradation of groundwater and impacts to downgradient public or private water supplies. In particular, three Magothy water supply wells are located approximately 500 feet downgradient of the leading edge of the plume. While a clay layer has been identified in the vicinity of the contaminant plume which separates the Upper Glacial from the Magothy aquifers, thus inhibiting the downward migration of contaminants into the Magothy, it has not been proven that this layer is continuous throughout the affected area.. This alternative presumes that long-term monitoring of groundwater and indoor air would be implemented. Use of groundwater in the area of the plume would also be restricted.

Alternatives 2 and 3 would achieve compliance for all SCGs for onsite soil contamination while eliminating or minimizing impacts to the underlying groundwater. Alternative 2 would remove contamination in the groundwater to the extent practicable through the use of well proven technologies: air sparging for onsite groundwater and extraction and treatment for offsite groundwater. Alternative 3 includes natural attenuation for offsite groundwater. Since offsite groundwater would not be addressed under this alternative, compliance for these SCGs would not be achieved.

All three alternatives would include long-term monitoring of the groundwater contaminant plume and indoor air. Use of groundwater in the area of the plume would be restricted.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

The no action alternative would not be protective of the environment and human health as the potential to be exposed to onsite contamination would remain. In addition, this alternative would not address the potential for further impacts to groundwater nor would it provide for removal or control of contaminated groundwater, allowing the potential for migration of the contaminant plume further downgradient where private water wells have been identified. In particular, three Magothy water supply wells are located approximately 500 feet downgradient of the leading edge of the plume. While a clay layer has been identified in the vicinity of the contaminant plume which separates the Upper Glacial from the Magothy aquifers, thus inhibiting the downward migration of contaminants into the Magothy, it has not been proven that this layer is continuous throughout the affected area. However, this alternative presumes that long-term monitoring of groundwater and indoor air would be implemented. Use of groundwater in the area of the plume would also be restricted.

Alternatives 2 and 3 would be protective of human health and the environment with respect to the onsite contamination through removal of the onsite source and eliminating or minimizing further impacts to the underlying groundwater. In addition, onsite contaminated groundwater would be addressed through air sparging, a proven technology. Alternative 2 includes offsite extraction and treatment, also a conventional technology which is well proven. However, Alternative 3 includes no offsite treatment technology and therefore would not be effective in eliminating or minimizing the potential for impacts to human health or the environment. As in the no action alternative, the potential for migration of the contaminant plume further downgradient where private water wells have been identified would still exist. Alternatives 2 and 3 also call for replacement of the existing shallow irrigation well on Molloy College property with a deeper well which is unlikely to be impacted by site-related contamination. In the remote event that the Magothy aquifer is impacted by this Upper Glacial plume, this well will serve as an early warning to potential migration of contaminants toward the Rockville Centre public supply wells.

All of the alternatives would include monitoring of indoor air and groundwater as well as restricting groundwater use in the vicinity of the plume.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Since there are no actions proposed for Alternative 1, there are no short-term effects associated with this alternative.

Alternatives 2 and 3 include design and construction of soil and groundwater contamination recovery systems. Implementation of these alternatives pose very limited short-term effects or disruptions to the community during the following work: well drilling, construction of a groundwater treatment system and construction of a SVE recovery and treatment system. The small amount of contaminated groundwater and soil that are generated during construction can be safely handled and disposed of offsite.

The potential short-term effects from air emissions posed by construction of the SVE system under Alternatives 2 and 3 can be mitigated by personnel protection measures or by controlling dust.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

The no action alternative would not be effective in the long term. The onsite contamination would not be removed or contained and additional measures to ensure that the overlying soil is not disturbed would not be implemented. This alternative would not reduce any existing or future potential risks from the onsite contamination. In addition, this alternative would not address the potential for further impacts to groundwater nor would it provide for removal or control of contaminated groundwater. However, this alternative presumes that long-term monitoring of groundwater and indoor air would be implemented. Use of groundwater in the area of the plume would also be restricted.

Alternatives 2 and 3 rely on removal of PCE from the onsite soils through SVE and removal of PCE from onsite contaminated groundwater using air sparging, capture of PCE using vapor phase GAC filters and offsite incineration of the waste carbon material. Incineration would permanently destroy all organic compounds in the carbon (primarily PCE) and is the most effective long-term approach to organic contamination. In addition, source removal would eliminate or minimize impacts to the underlying groundwater. Alternative 2 includes offsite capture of PCE and associated breakdown products using a vapor phase GAC treatment system and offsite incineration of spent carbon. As such, this alternative would provide an adequate and effective level of protection over the long term. Alternative 3 would provide no such level of protection for offsite groundwater. Alternatives 2 and 3 include the replacement of the Molloy College shallow irrigation well with a deeper well which is unlikely to be impacted by the southerly moving Upper Glacial contaminant plume.

All of the alternatives would include monitoring of indoor air and groundwater as well as restricting groundwater use in the vicinity of the plume.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

The no action alternative would not reduce the toxicity, mobility or volume of the waste.

Alternatives 2 and 3 include removal and offsite incineration of PCE recovered from onsite SVE and air sparging, significantly reducing the toxicity, mobility and volume of this waste. Alternative 2 would be similarly effective for offsite contaminated groundwater by removing PCE using a GAC treatment system and incinerating the waste carbon offsite. Alternative 3 would not reduce the toxicity, mobility or volume of contamination in the offsite groundwater. Because a destruction, treatment or immobilization technology is not being employed for offsite groundwater under this alternative, this alternative is not as effective for this screening criteria relative to Alternatives 2.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary

personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

All of the alternatives are implementable. The material and personnel for each alternative should be readily available at a reasonable cost in this region.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision.

The no action alternative is the least costly alternative. This alternative has limited capital costs associated with it and includes the cost for additional monitoring wells and the cost for long-term sampling and analysis of monitoring wells and indoor air.

Alternatives 2 and 3 have a similar cost with respect to on site activities as both include SVE of onsite soils and air sparging of onsite groundwater. However, Alternative 2 is considerably higher in cost due to offsite extraction and treatment of contaminated groundwater.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance. Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The " Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. No significant public comments were received and, in general, the public comments received were supportive of the selected remedy.

SECTION 7 SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 6, the NYSDEC is selecting Alternative 2, Onsite Soil Vapor Extraction and Air Sparging and Offsite Extraction and Treatment as the remedy for this site.

Alternative 2 is being selected because it is the most cost effective remedial action which will address the remedial objectives for this site. Specifically, PCE will be eliminated from onsite soils and onsite and offsite groundwater to the extent practicable through the use of well proven technologies. Recovered PCE will be destroyed using offsite incineration. While Alternatives 2 and 3 would achieve the same objective for onsite contamination in soils and groundwater, Alternative 3 would not remove any contamination in the offsite groundwater and, as a result, would not address the remedial objectives for this contaminated media. Under this alternative, the potential for migration of the contaminant plume further downgradient, where public and private water wells have been identified, would still exist. In particular, three Magothy water supply wells are located approximately 500 feet downgradient of the leading edge of the plume. While a clay layer has

been identified in the vicinity of the contaminant plume which separates the Upper Glacial from the Magothy aquifers, thus inhibiting the downward migration of contaminants into the Magothy, it has not been proven that this layer is continuous throughout the affected area.. In addition, this alternative has serious drawbacks with respect to several of the screening criteria including compliance with New York State Standards, Criteria and Guidance, protection of human health and the environment, long-term effectiveness and permanence and reduction of toxicity, mobility or volume.

The estimated present worth cost to implement the remedy is \$2,254,000. The cost to construct the remedy is estimated to be \$842,000 and the estimated average annual operation and maintenance cost for 30 years is \$91,850.

The elements of the selected remedy are as follows:

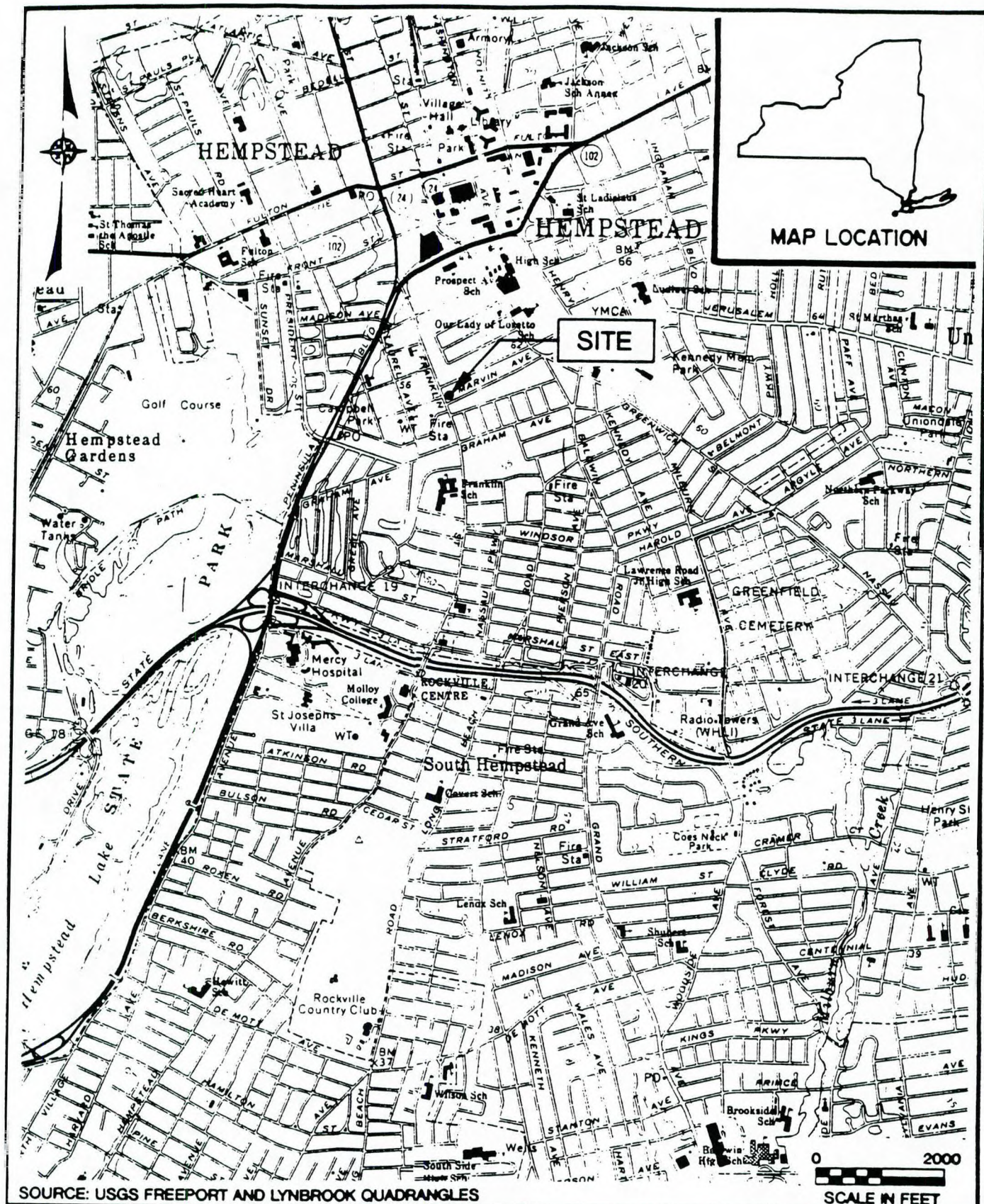
1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved;
2. Soil vapor extraction (SVE) of PCE-contaminated soils with onsite treatment of contaminated vapors using a vapor phase granular activated carbon (GAC) treatment system;
3. Air sparging of shallow onsite groundwater and capture of PCE vapors by the SVE system;
4. Extraction of contaminated groundwater at the leading edge of the contaminant plume for up to 20 years and treatment of water through the use of chemical precipitation and filtering of metals and air stripping of VOCs along with GAC treatment of off gasses, if necessary;
5. Offsite disposal of all spent carbon at a TSCA and RCRA-permitted incinerator;
6. Installation of a deep Molloy College irrigation/monitoring well;
7. Long-term groundwater monitoring and groundwater use restrictions, as necessary;
8. Control of indoor air contamination using air purifying, ventilation and vapor barrier systems along with a monitoring program until the source area remediation has been effectively completed.

Since the selected remedy results in untreated hazardous waste remaining both onsite and offsite, a long term monitoring program will be instituted. This program will allow the effectiveness of the selected remedy to be monitored and will be a component of the operation and maintenance for the site.

SECTION 8 HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.
- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.
- A fact sheet was issued in July 1997 to summarize the Remedial Investigation/ Feasibility Study workplan.
- A fact sheet was issued and a public meeting was held on March 12, 1998 to present the Proposed Remedial Action Plan for the Site.
- In March 1998 a Responsiveness Summary was prepared and made available to the public to address the comments received during the public comment period for the PRAP, held between February 26, 1998 and March 27, 1998.



SOURCE: USGS FREEPORT AND LYNBROOK QUADRANGLES

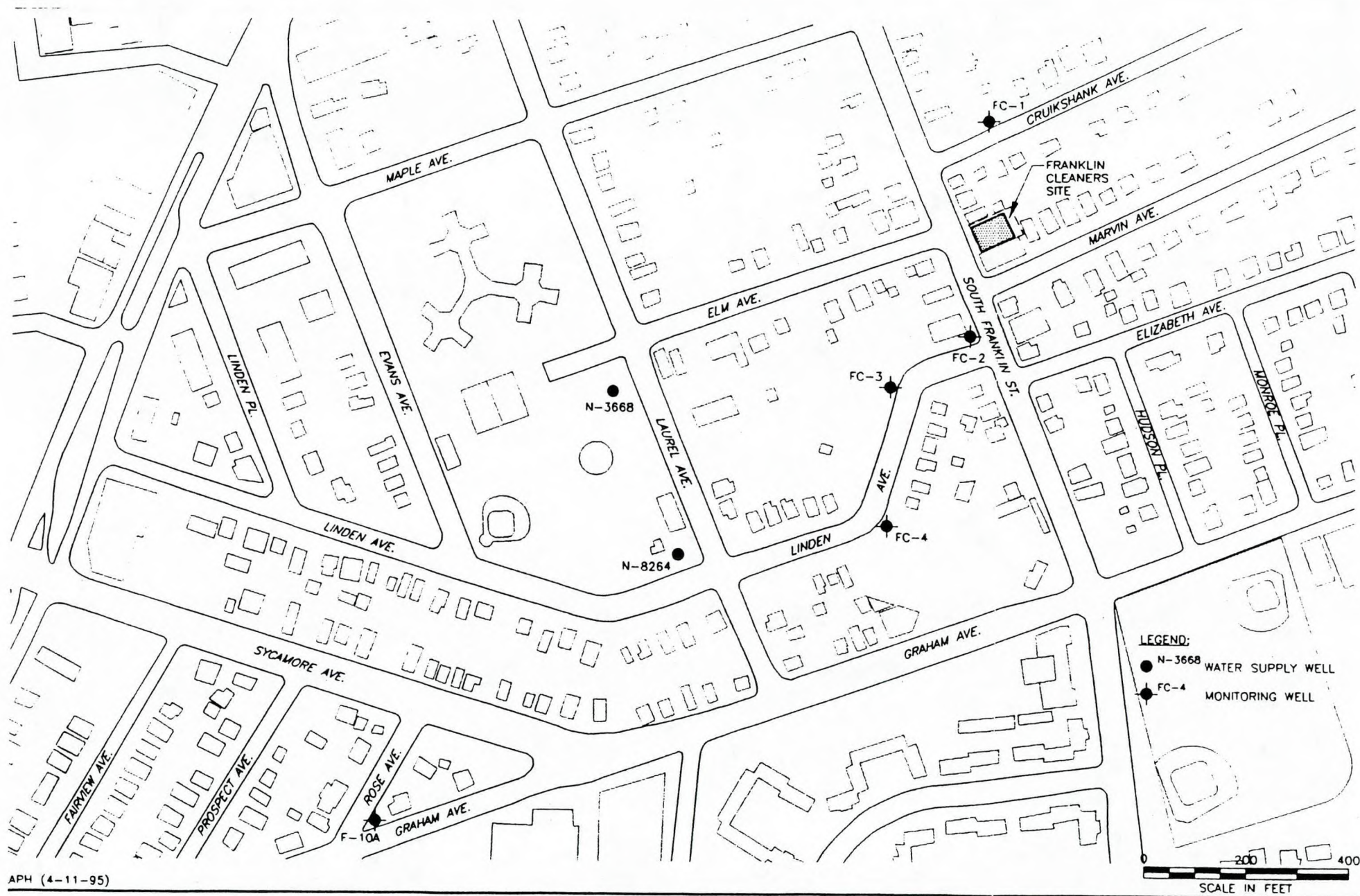
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FRANKLIN CLEANERS SITE
HEMPSTEAD, NEW YORK

SITE LOCATION MAP

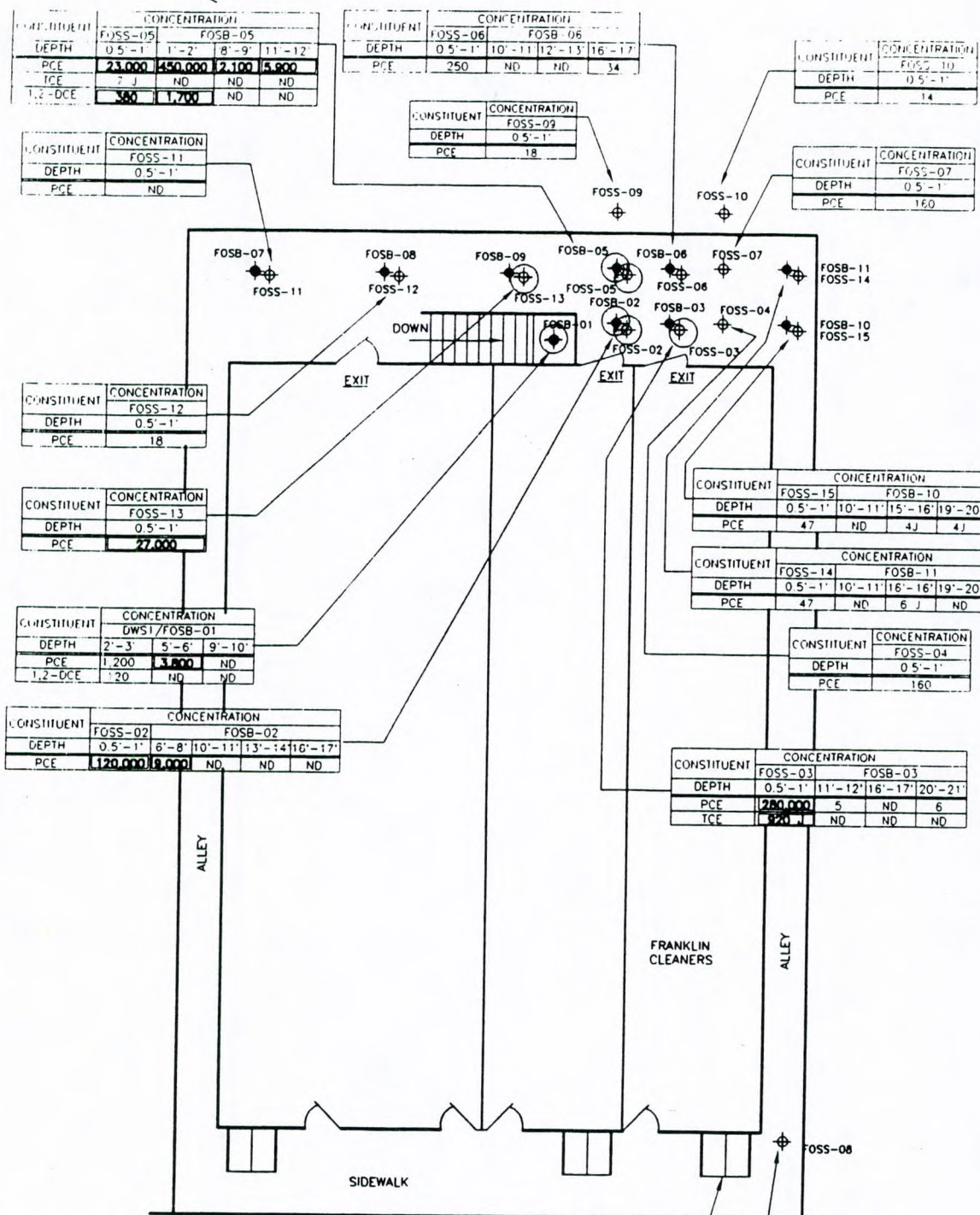
db Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Casulich Associates, P.C.

FIGURE 1



FRANKLIN CLEANERS SITE
HEMPSTEAD, NEW YORK

SITE AND STUDY AREA MAP



- LEGEND:**
- ⊕ SURFACE SOIL SAMPLE LOCATION
 - ⊙ SUBSURFACE SOIL SAMPLE LOCATION
 - J COMPOUND FOUND AT VALUE CONCENTRATION BELOW DETECTION LIMIT, VALUE ESTIMATED.
 - ND NOT DETECTED
 - PCE TETRACHLOROETHENE
 - TCE TRICHLOROETHENE
 - 1,2-DCE 1,2-DICHLOROETHENE
 - 9,000 EXCEEDS NYSDEC SOIL CLEANUP OBJECTIVE (PCE-1,400 ug/kg; TCE-700 ug/kg; CIS-1,2-DCE-250 ug/kg; TRANS-1,2-DCE-300 ug/kg).
 - SAMPLE INDICATING SIGNIFICANT CONTAMINATION

NOTE: ALL CONCENTRATIONS IN ug/kg
NO SAMPLES WERE COLLECTED FROM FOSB-07, FOSB-08 OR FOSB-09 FOR ANALYSIS.

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SCALE IN FEET

CONSTITUENT	CONCENTRATION		
	FISS-16	FISB-16	
DEPTH	0.5'-1'	3'-4'	6'-8'
PCE	24	9J	2J

CONSTITUENT	CONCENTRATION		
	FISS-05		
DEPTH	0.5'-1'		
PCE	14,000		

CONSTITUENT	CONCENTRATION		
	FISB-15		
DEPTH	5'-6'	8'-9'	11'-12'
PCE	58	140	ND

CONSTITUENT	CONCENTRATION		
	FISS-08		
DEPTH	0.5'-1'		
PCE	13,000		

CONSTITUENT	CONCENTRATION		
	FISS-11	FISB-11	
DEPTH	0.5'-1'	2'-3'	3'-10'
PCE	11,000	13,000	ND

CONSTITUENT	CONCENTRATION		
	FISS-13	FISB-13	
DEPTH	0.5'-1'	2'-4'	6'-8'
PCE	42	ND	ND

CONSTITUENT	CONCENTRATION		
	FISS-02	FISB-02	
DEPTH	0.5'-1'	4'-5'	10'-11'
PCE	220 D/28*	ND	ND

CONSTITUENT	CONCENTRATION		
	FISS-04		
DEPTH	0.5'-1'		
PCE	1,600 D		

CONSTITUENT	CONCENTRATION		
	FISS-01	FISB-01	
DEPTH	0.5'-1'	7'-8'	10'-11'
PCE	38	ND	ND

CONSTITUENT	CONCENTRATION		
	FISS-03	FISB-03	
DEPTH	0.5'-1'	2'-3'	10'-11'
PCE	140	ND	ND

- LEGEND:**
- ⊕ SURFACE SOIL SAMPLE LOCATION
 - ◆ SUBSURFACE SOIL SAMPLE LOCATION
 - ND NOT DETECTED
 - J COMPOUND FOUND AT A CONCENTRATION BELOW THE DETECTION LIMIT. VALUE ESTIMATED.
 - D COMPOUND ANALYZED AT A DILUTION.
 - 1,600 EXCEEDS NYSDEC SOIL CLEANUP CRITERIA (PCE=1,400 ug/kg)
 - SAMPLE INDICATING SIGNIFICANT CONTAMINATION

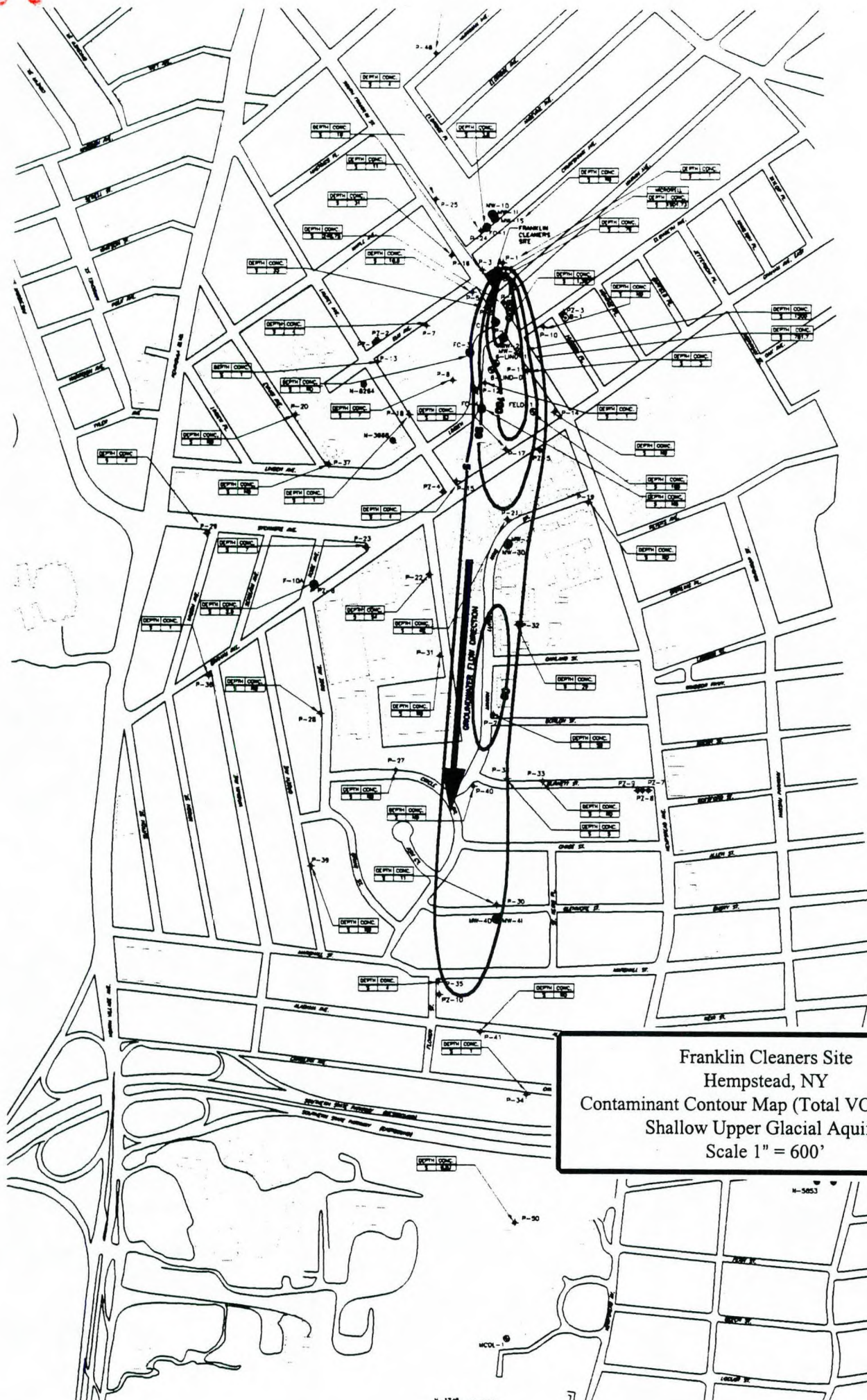
NOTE: ALL CONCENTRATIONS IN ug/kg.
 • CONFIRMATORY SAMPLE ANALYZED AS PER ASP 91-1.

0 10 20
 SCALE IN FEET

FRANKLIN CLEANERS SITE
 HEMPSTEAD, NEW YORK

INTERIOR SURFACE AND SUBSURFACE SOIL SAMPLE LOCATIONS AND RESULTS

FIGURE 3



Franklin Cleaners Site
Hempstead, NY
Contaminant Contour Map (Total VOCs in ppb)
Shallow Upper Glacial Aquifer
Scale 1" = 600'

Figure 5

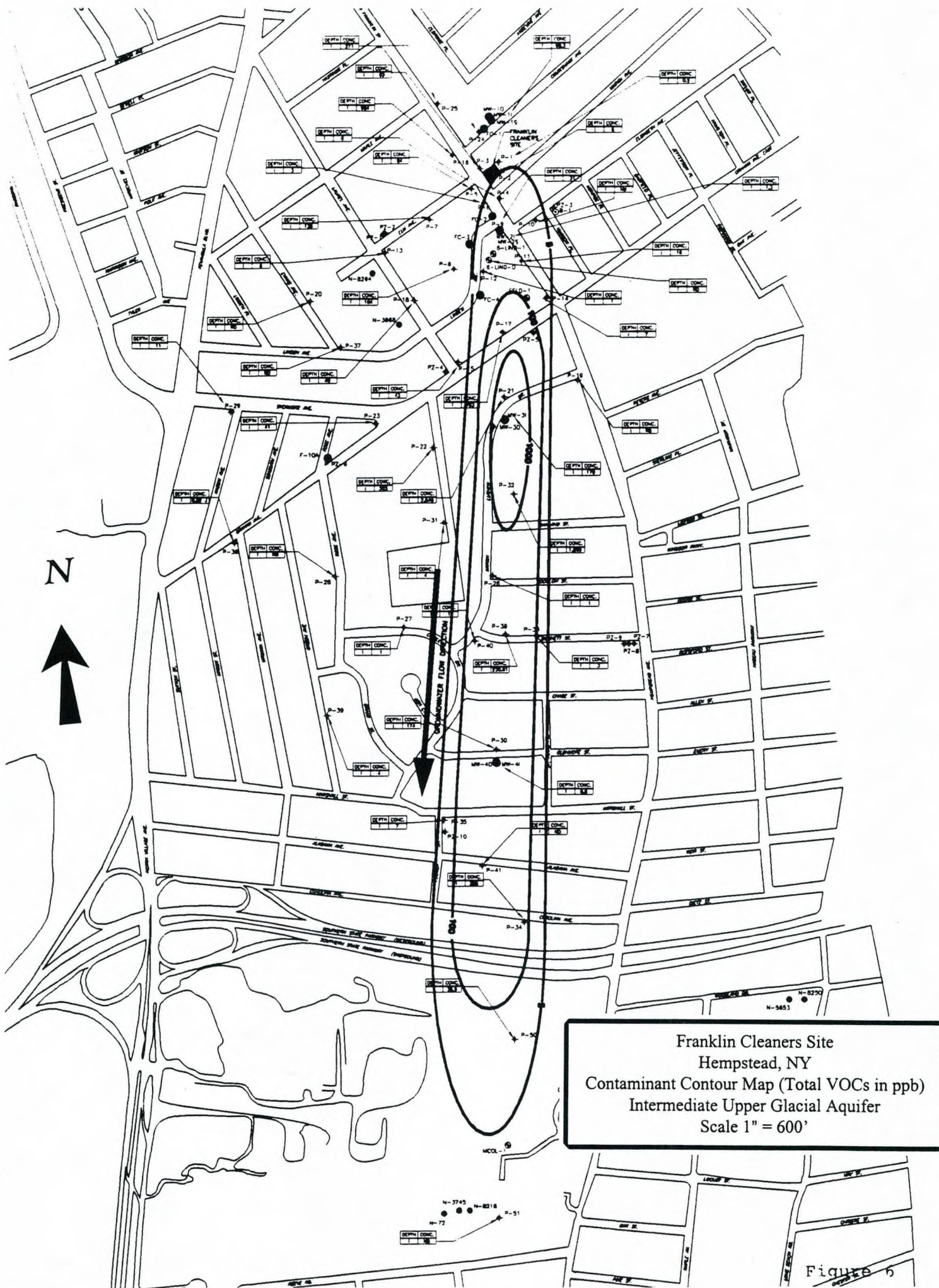
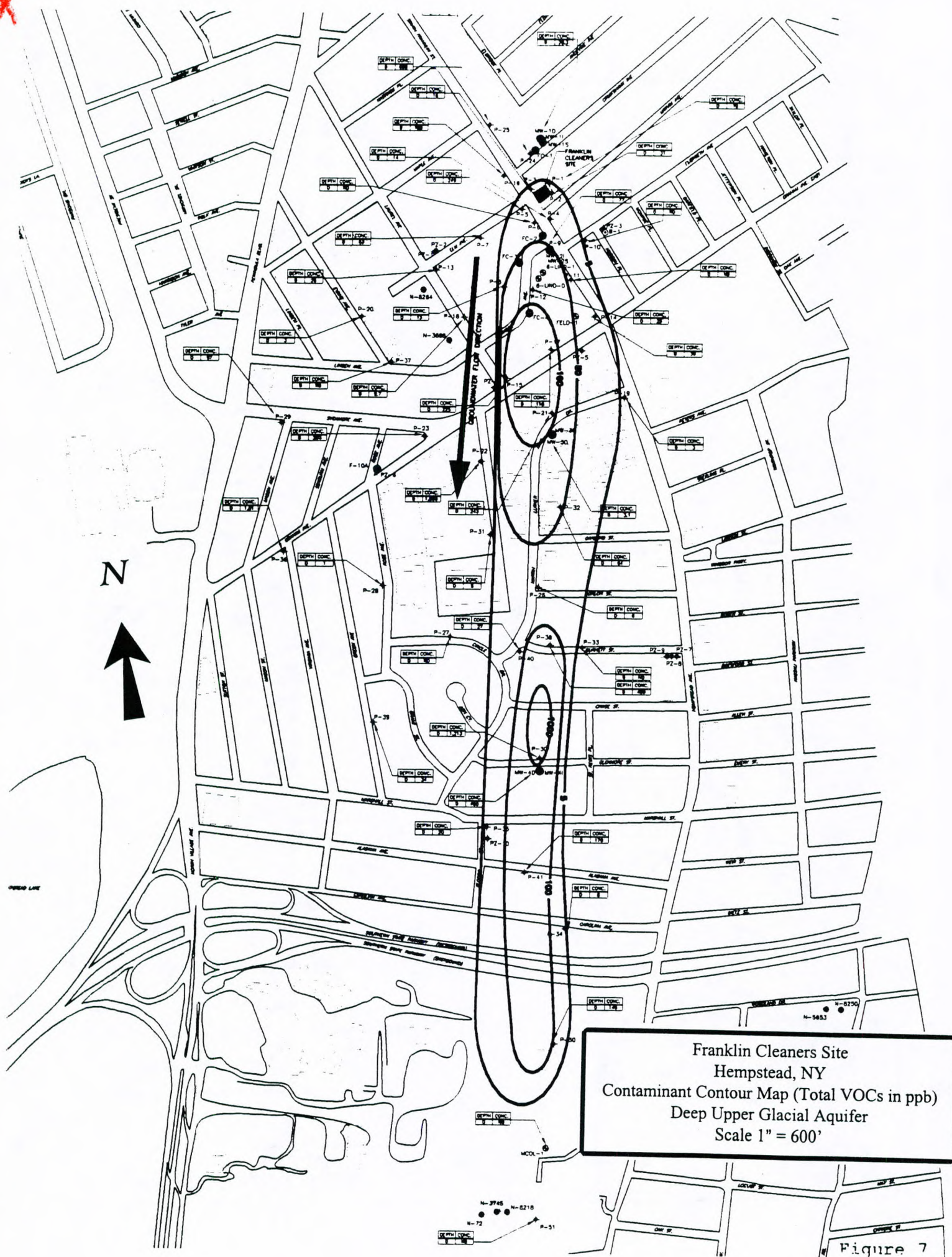
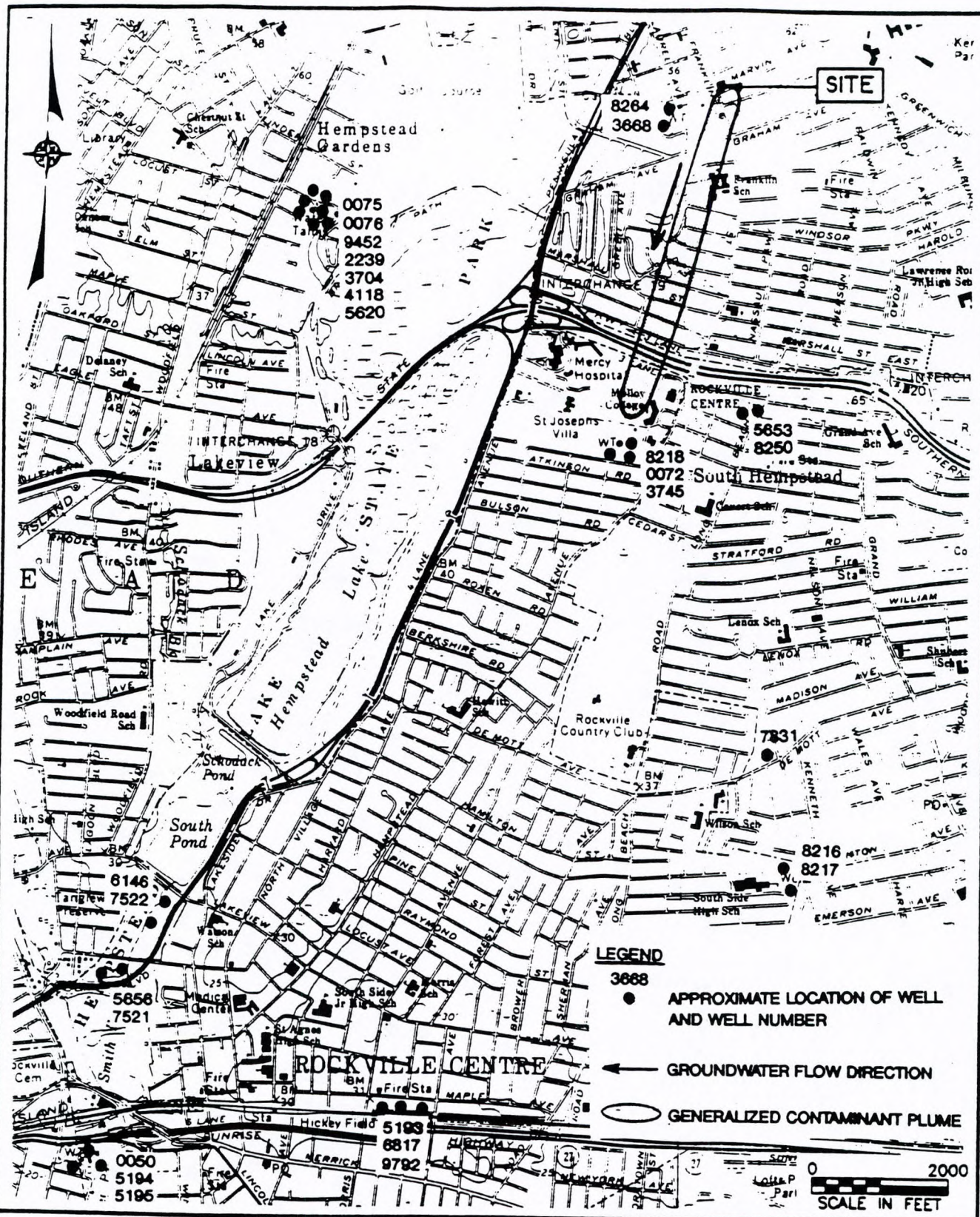


Figure 6

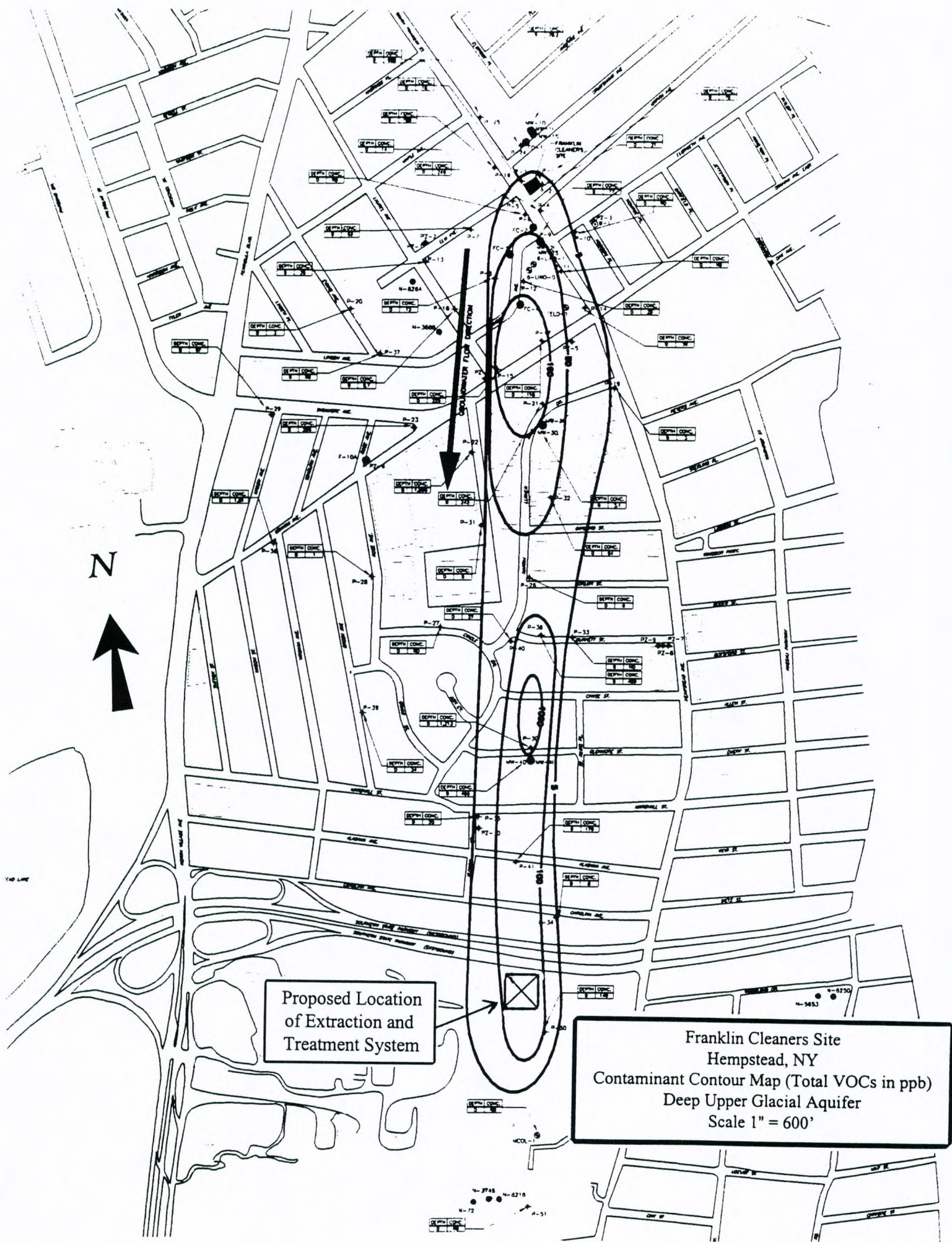





FRANKLIN CLEANERS SITE
 HEMPSTEAD, NEW YORK
**PUBLIC WATER SUPPLY WELLS LOCATED
 DOWNGRADIENT AND IN PROXIMITY OF
 CONTAMINANT PLUME**

db Dvirka and Bartilucci
 Consulting Engineers
 A Division of William F. Casulich Associates, P.C.

FIGURE 8





Appendix A

Responsiveness Summary

Franklin Cleaners Site
Site Number 1-30-050

The issues below were raised during the public meeting for the Proposed Remedial Action Plan (PRAP) held on March 12, 1998 at the Franklin Elementary School Auditorium, 335 South Franklin Street, Incorporated Village of Hempstead, New York. The purpose of the meeting was to present the PRAP for the Site and receive comments on the PRAP for consideration during the selection of a remedy. A copy of the responsiveness summary is available for public view at the Site's document repositories.

The following are verbal comments received during the public meeting on March 12, 1998:

Question: Why did it take so long, from the time the contamination was found, to begin the investigation and finally get to a point where the Site will be cleaned up?

Response: The contamination was discovered in 1990 by the Nassau County Health Department (NCHD) after a complaint by a local resident of tainted drinking water. That same year, the NCHD found high levels of the same contaminant at the Franklin Cleaners Site. In 1993 the Nassau County Department of Public Works conducted a groundwater investigation adjacent to the cleaners and confirmed that groundwater was impacted by the cleaners. Based on these findings, the Site was listed on the Registry of Inactive Hazardous Waste Disposal Sites in 1993. Between 1993 and 1995, NYSDEC attempted to involve the Potential Responsible Parties (PRPs) to sign a consent order to study and remediate the Site. The PRPs were unable to do the work. The State recommended the use of Superfund monies to investigate the Site in 1995. At that time, a contract was issued to Dvirka & Bartilucci, NYSDEC's environmental consultant for this investigation, to conduct an RI/FS at this Site. This project was completed on schedule.

Question: Since the Site was not contained, the contamination was allowed to spread. Why was it not contained sooner?

Response: While we were aware that soils and groundwater were contaminated at the Site, the extent of contamination was not known until the Remedial Investigation/

Feasibility Study (RI/FS) was completed in 1997. Most of the contamination migrated from the Site into the groundwater years ago so that soil containment measures would not have been successful in minimizing the spread of contaminants. Now that the nature and extent of contamination have been defined in both the onsite soils and onsite and offsite groundwater, DEC can move forward with eliminating the remaining onsite source and stop the groundwater plume from moving further downgradient.

Question: It seems like the majority of the remediation costs will be for onsite work and that offsite work will be less expensive. Will excavation be required?

Response: Actually, approximately 3/4 of the cost of the remedy is for offsite work associated with remediating the groundwater plume and long-term monitoring. Excavation was considered for the onsite soil contamination, however, it was not an implementable technology. Excavation would compromise the structural integrity of the buildings as most of the contamination is very close to the building foundation and extends to a depth of about 15 feet. In addition, the remedy selected for the onsite soils will be as protective and much less expensive than excavation.

Question: The proposed remedy will not get all of the contamination. How much would be left and will it cause a problem later?

Response: Cleanup of the PCE in soils would be based on NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) No. 4046, "Determination of Soil Cleanup Objectives and Cleanup Levels". The cleanup guideline for PCE in soils is 1.4 ppm. We estimate that approximately 10% of contamination in the soils would remain as residual contamination. This is contamination which is bound to the soil and cannot easily move and, therefore, does not act as a source for further groundwater degradation. This residual contamination will be below the ground surface and will present no significant threat in the future.

Question: Your investigation has revealed an upgradient groundwater contamination problem, north of the Site. Will this problem aggravate the contamination associated with Franklin in the future, recontaminating it after cleanup?

Response: Upgradient contamination was discovered during the RI/FS. This contamination is currently impacting part of the same area impacted by the Franklin plume. This is a problem which is currently being looked at by the Department.

Question: I live near the Southern State Parkway, 4 houses in from South Franklin Street and have a basement. Why weren't some of the houses over the plume provided PCE detection badges to see if these residents are impacted?

Response: Contamination detected in basements at the site is most likely the result of nearby soil contamination. Experience with sampling programs at other similar sites indicates that when PCE contamination becomes integrated into the groundwater, it no longer acts as a significant source of vapors for overlying sediments and basements. Extensive air sampling was performed in the vicinity of the Franklin Cleaners site and elevated concentrations of PCE in indoor air only occurred where the basement was adjacent to significant soil contamination. Air sampling in basements immediately downgradient of the site, where soil contamination is no longer a factor but where significant contamination exists in shallow groundwater, revealed concentrations of PCE in indoor air similar to typical background levels. Based upon this information, it is not considered necessary to sample further downgradient along the plume where the likelihood for contamination in basements would be less.

Question: Persons coming on the Franklin property were likely exposed to the soils. Has something been done to restrict access to small children to the Site and soils?

Response: Access to the rear of the Site was restricted through the construction of a six foot stockade fence by the Department and some additional fence construction by the property owner. Segments of the fence have been vandalized and the property is accessible once again. However, no young children have been seen in this area, mostly young adults. The Department will work with the property owner to resecure the Site.

Question: What are the responsibilities of the proprietors of the former dry cleaners?

Response: NYSDEC will pursue cost recovery in Federal District Court once cleanup is done.

Question: Does NYSDEC know who the property owners are and how to get in touch with them?

Response: NYSDEC knows who the owners are and has been in communication with them.

- Question: In the normal course of business, what are the guidelines for dry cleaners to properly handle PCE?
- Response: Both Nassau County and NYSDEC regulate, pursuant to environmental law, active dry cleaning facilities. Regulatory requirements include the prevention of spillage and leakage of PCE onto the ground, minimizing the release of PCE to air, minimizing the quantity of spent (waste) PCE generated, and the proper disposal of any waste PCE produced.
- Question: If pollution from the Site impacts any of the public water supply wells in the future, would money be available from the State Superfund program to pay for treatment?
- Response: Yes. Money would be available for public water treatment systems provided the contamination is linked to the Franklin Site.
- Question: What impact does heavy rain have on the contamination?
- Response: The rainwater percolates through the soils and causes the contamination to move downward to the groundwater.
- Question: How does heat (dry, hot days) affect the contamination?
- Response: On hot, dry days contamination in the shallow soils would tend to be released from the soils into the air, causing PCE concentrations in air to increase in the rear of the Franklin Cleaners property. Cold, humid air and precipitation would have the opposite effect by suppressing these vapors. Warm weather would not affect the subsurface groundwater contamination.
- Question: When installing the remedy in the backyard, will it be necessary to evacuate the area?
- Response: Not likely. A small drilling rig is the only heavy equipment needed. The fences will have to be temporarily removed to gain access but will be promptly reconstructed. During any disturbance of the contaminated soils, air monitoring will be performed to ensure that the health of persons on and near the site is protected. If necessary, dust and vapor controls will be used during construction activities

Question: Have any instructions been provided to the tenants regarding the air contamination?

Response: Yes. The tenants have been made aware of the problem and the NYSDOH guidelines for PCE in air. They have also been made aware of NYSDEC's Interim Remedial Measure (IRM) which is underway; the installation of air filters in the basement. The NYSDEC, NYSDOH and NCHD will be involved in regular sampling of the affected areas to determine the effectiveness of this remedy. If it is determined that this action is not reducing air contamination to concentrations below the NYSDOH guideline for PCE in air, additional corrective measures will be implemented until the source area has been effectively remediated.

Question: How long will monitoring occur?

Response: Groundwater monitoring will occur for at least 30 years or until contamination levels have stabilized to below groundwater standards. With respect to indoor air, monitoring will occur for two or three sampling events after completion of the source area removal and until contaminant levels for the indoor air have dropped below the NYSDOH draft guidance value for PCE in indoor air.

The following is a written comment received during the public comment period, held from February 26, 1998 to March 27, 1998:

Letter dated March 25, 1998 from Eder Associates, environmental consultant to the Village of Rockville Centre, to Thomas Gibbons (NYSDEC). Re: Comments on the PRAP related to concerns about the groundwater plume potentially impacting the Rockville Centre water supply wells.

Comment: Why is the proposed location of the pump and treat system positioned upgradient of the leading edge of the plume? This would allow some of the downgradient portion of the plume to escape.

Response: Over 99% of the groundwater contaminants within the plume would be upgradient of the pump and treat system. The small portion of the plume which would not be recovered consists of PCE concentrations of less than 150 ppb. If this did penetrate the low permeability layer which separates the Upper Glacial and the Magothy aquifers, and was drawn into the Rockville Centre wells, which pump at a rate of 300 gpm, it is highly unlikely that these low levels of contamination would be detected.

Comment: Has the capture zone of the extraction system been calculated through modeling and how will the extraction system be designed to ensure complete vertical capture?

Response: Groundwater modeling will be required during the remedial design phase of the project to optimize capture of the contaminant plume. The parameters which will be evaluated include well locations, depth, size, screened interval, pumping rate, pumping scheme, capture zone, contaminant recovery performance, etc.

Comment: We have concerns regarding the integrity of the low permeability layer that purportedly separates the Upper Glacial and Magothy aquifers. Does NYSDEC have data to validate the continuity and integrity of this layer?

Response: It is unknown whether the low permeability layer, which has been identified beneath the Upper Glacial aquifer, is continuous throughout the entire plume-affected area. This low permeability layer was observed at several locations throughout the plume area during installation of the groundwater monitoring wells where a few feet of clay was verified before these wells were constructed. Determination of the full thickness of this clay was not an objective of this investigation as there was concern about creating pathways for migration of contaminants through this layer. In addition, NYSDEC believes that, given the configuration, concentration distribution, length and continuity of the plume, there is a continuous horizontal barrier preventing the contaminants from further downward migration. Because this evidence does not prove the continuity and integrity of this low permeability unit, the Department has recommended that an early warning Magothy well be constructed.

Comment: We recommend two additional early warning wells be constructed in the Magothy, screened at shallower depths. One should be screened just below the low permeability layer and one screened at an intermediate depth. We feel that one well screened at a similar horizon as the supply wells may not detect contamination in the Magothy early enough to provide timely response to a potential impact to the supply wells.

Response: The Department will add an additional Magothy monitoring well screened just below the low permeability layer, estimated to be at depth of between 150 and 200 feet. If this well or the new Molloy College irrigation/monitoring well in the deeper portion of the Magothy become impacted by Site related contamination, additional monitoring wells will be considered at that time.

Comment: We suggest that the State should conduct modeling to show that the irrigation well will not interfere hydraulically with our water supply wells.

Response: The existing Molloy College irrigation well is a seasonal well which operates only during the summer months and, even then, only on an intermittent basis. The college was not able to provide information on water usage from this well. It is likely, however, that usage from this well averages less than 1 % of one of the Rockville Centre supply wells and therefore is not likely to influence these wells. This will be confirmed in the remedial design.

Comment: The location of the proposed irrigation well does not appear to be directly downgradient of the axis of the groundwater plume.

Response: The proposed location appears to be in direct line of the plume. Based on the width of the plume, there is some flexibility in the selection of a final location.

Comment: We would like to see monitoring wells in the Upper Glacial aquifer, downgradient of the plume.

Response: Monitoring the Upper Glacial, downgradient of the plume, will be conducted.

Appendix B

Administrative Record

Franklin Cleaners Site
Site Number 1-30-050

1. Engineering Investigations at Inactive Hazardous Waste Sites, Preliminary Site Assessment, Franklin Cleaners Site, Town of Hempstead, March 1993. Prepared for New York State Department of Environmental Conservation by Nassau County Department of Public Works.
2. Remedial Investigation/ Feasibility Study Work Plan, Franklin Cleaners Site, Incorporated Village of Hempstead, Nassau County, New York, March 1997. Prepared for New York State Department of Environmental Conservation by Dvirka and Bartilucci Consulting Engineers.
3. Remedial Investigation/ Feasibility Study Report, Franklin Cleaners Site, Incorporated Village of Hempstead, Nassau County, New York, October 1997. Prepared for New York State Department of Environmental Conservation by Dvirka and Bartilucci Consulting Engineers.
4. Proposed Remedial Action Plan, Franklin Cleaners Site, Incorporated Village of Hempstead, Nassau County, New York, February 1998. Prepared by the New York State Department of Environmental Conservation.

