Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
Kliegman Brothers Site
Operable Unit No. 2
Glendale, Queens, New York City, New York
Site Number 241031

March 2008

New York State Department of Environmental Conservation
DAVID PATERSON, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Kliegman Brothers Inactive Hazardous Waste Disposal Site
Operable Unit No. 2
Glendale, Queens, New York City, New York
Site No. 241031

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for Operable Unit No.2 of the Kliegman Brothers site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit No.2 of the Kliegman Brothers inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing 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 releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Kliegman Brothers site and the criteria identified for evaluation of alternatives, the Department has selected in situ chemical treatment of the concentrated plume area with continued soil vapor monitoring, and installation of residential soil vapor intrusion mitigation systems as needed. Installation and operation of an extraction well to induce a hydraulic gradient to enhance the effectiveness of the in situ chemical treatment is planned, yet may not be implementable due to the density of land use in the area. The feasibility of this option will be examined during the remedial design. The components of the remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. During this design, the feasibility of constructing an extraction well and water treatment plant (items 3 and 4, below) would be determined;

2. Approximately 60 oxidant injection locations would be installed within the concentrated plume area. Several modified Fenton's reagent or permanganate In Situ Chemical Oxidation injection events would occur, each expected to last a few weeks to one month. Performance monitoring events would be performed four to eight weeks after completion of injection activities to determine contaminant mass reduction in comparison to baseline groundwater concentrations and subsurface distribution of injection oxidant material;

3. A ground water extraction well would be constructed on 76th St. Groundwater would be extracted from this well to create a hydraulic gradient to increase the area reached by the injected oxidants. This system would not be constructed if it was determined to be not feasible during the remedial design process. In such a case, the number and density of oxidant injection locations would be increased;

4. A groundwater treatment system would be constructed on or near Edsall Ave. to treat extracted groundwater. The treatment system is anticipated to include at a minimum: an air stripper for the removal of VOCs and vapor phase carbon units to remove contaminants in off-gas from the air stripper. A force main would be constructed to carry water from the extraction well to the treatment plant. This system would not be constructed if it was determined to be not feasible during the remedial design process;

5. The ongoing vapor intrusion mitigation program would continue to monitor soil gas levels at adjacent residences and assess the need for additional sub-slab depressurization system installations. Additional system installations would be conducted as necessary in the future to provide mitigation;

6. **Development of a site management plan which would include the following engineering** controls: (a) continued evaluation of the potential for vapor intrusion in the area; (b) monitoring of groundwater and soil vapor; (c) provisions for the continued proper operation and maintenance of the components of the remedy.

7. The institutional controls imposed by the OU No.1 ROD would remain in effect. These controls, in the form of an environmental easement: (a) require compliance with the approved site management plan; (b) limit the use and development of the property to commercial, industrial and/or restricted residential only; (c) restrict the use of groundwater as a source of potable water, without necessary water quality treatment as determined by NYSDOH and/or the New York City Department of Environmental Protection; and. (d) require the property owner to complete and submit to the NYSDEC a periodic certification.

8. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that further remediation is technically impracticable or not feasible.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is 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.

MAR 2 8 2008

Date

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department, or NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Kliegman Brothers Site Operable Unit No.2, which consists of contaminated groundwater and off-site soil vapor contamination. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, operations of a dry cleaning supply company have resulted in the disposal of hazardous wastes, including tetrachloroethene. These wastes have contaminated the groundwater and soil vapor at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to contaminated groundwater and indoor air;

- a significant environmental threat associated with the current and potential impacts of contaminants to groundwater.

To eliminate or mitigate these threats, the Department has selected in situ chemical treatment of the concentrated plume area with continued soil vapor monitoring, and installation of residential soil vapor intrusion mitigation systems as needed. Installation and operation of an extraction well to induce a hydraulic gradient to enhance the effectiveness of the in situ chemical treatment is planned, yet may not be implementable due to the density of land use in the area. The feasibility of this option will be examined during the remedial design.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Kliegman Brothers Site is located in an urban setting at 76-01 77th Avenue in Queens County, New York City (Figure 1). The site is bordered to the north by the Long Island Railroad. The off-site area is generally residential, and residences border the site to the east, west and south; Public School 119 is located to the west.

The geology of the area consists of concrete or asphalt underlain by reworked native materials to a depth of approximate 2 feet below ground surface (bgs.) Beneath this material is silty sand with localized sandy clay seams to a depth of approximately 10 feet bgs. From 10 feet bgs to approximately 150 feet bgs, sand with variable amounts of gravel was encountered. Beneath the eastern portion of the Kliegman property, a brown silty clay layer, with variable amounts of sand was present. This silty clay layer occurs at approximately 10 to 15 feet bgs and is approximately 5 feet thick until it appears to pinch out. Perched groundwater was observed above this silty clay layer at a depth of 10 to 12 feet bgs.

The groundwater table occurs at the site at approximately 70 feet bgs within the upper glacial aquifer. No public water supplies draw water from this source. Horizontal hydraulic gradients in shallow groundwater are very gentle. Groundwater flow direction varies from northerly to southerly and therefore, in general, the groundwater flow direction in shallow groundwater was determined to be variable, possibly due to the very gentle horizontal hydraulic gradients and seasonal fluctuations in the water table. There is little to no discernible vertical hydraulic gradient observed between the deep and shallow groundwater wells.

Operable Unit (OU) No. 2 which is the subject of this document, consists of a portion of the remedy and will address the groundwater both on-site and off-site as well as the soil vapor impact off-site. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

OU No.1 of the Kliegman Brothers project addresses on-site contaminated soils, which are the source of the contaminated groundwater and soil gas being addressed by OU No.2. The remedy for OU No.1 was selected in a March 2006 Record of Decision (ROD). The OU No.1 ROD calls for an expansion and enhancement of the soil vapor extraction (SVE) system previously installed at the site as an interim remedial measure (IRM). The expanded SVE system has been installed at the site and has begun operation.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The site was formerly owned by Kliegman Brothers, Inc, and was used as a warehouse and distribution center for laundry and dry-cleaning supplies from the 1950s through the 1990s. The site contained two 6,000 gallon above ground storage tanks (ASTs) which were used to store tetrachloroethene (PCE) (Figure 2). The tanks have since been removed from the property. Although these tanks are the presumed source of contamination, it is unknown if, and when,

product was released, or whether contamination was due to a single release or a chronic leak problem. Kliegman Brothers ceased operation in 1999. The property was purchased in 2000 and is currently being used as a warehouse.

3.2: Remedial History

In June 2000, the Department first listed the site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a was a temporary classification assigned to a site that had inadequate and/or insufficient data for inclusion in any of the other classifications. In November 2000, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Initial investigations were performed at the site in 1997 and 1998. These investigations were comprised of soil vapor collection and analysis in the area between the building and the railroad, where the PCE storage tanks were located. Additional soil vapor sampling was later performed for a prospective site owner and the NYSDEC in 2000. All of these investigations revealed the presence of PCE, often at high concentrations.

An investigation was performed in 2001 as part of a Voluntary Cleanup Program (VCP) agreement with NYSDEC, and included soil and groundwater sampling as part of a Focused Remedial Investigation/Interim Remedial Measure (FRI/IRM). As part of the study, nine borings and 26 soil samples were collected from beneath the subfloor of the building, approximately 0 - 12 inches below the concrete floor/soil interface.

Between October 2000 and August 2001, the New York State Department of Health (NYSDOH) conducted air sampling in 17 residences east, west, and south of the facility. PCE vapors were detected in 16 of the 17 residences tested.

In September 2002, the site owner discontinued his participation in the VCP, and the NYSDEC initiated a remedial investigation using the state superfund.

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 PRPs for the site, documented to date, include: the Kliegman Brothers, Inc. and, the current property owner, Arimax Realty, LLC.

The PRPs declined to implement the RI/FS at the site when requested by the Department. 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 Department 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: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of contamination resulting from previous activities at the site. The RI was conducted between April 2002 to April 2006. The field activities and findings of the investigation are described in the RI report dated February 2004, the RI Addendum dated September 2005 and the Soil Vapor Investigation Report dated July 2006.

The following activities were conducted during the first phase of the RI from April 2002 to August 2002:

- Research of historical information;
- Geophysical survey to determine depth to bedrock;
- Installation of 9 soil borings, finished as monitoring wells, for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions;
- Sampling of the new monitoring wells;
- A survey of public and private water supply wells in the area around the site;
- Collection of 35 indoor air samples from 17 different residences using PCE badge testing method.

The second phase of the RI field activities were conducted between February 2003 to April 2003 and included:

- Installation of 8 soil borings, finished as monitoring wells, for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions;
- Sampling of 8 new plus 9 existing monitoring wells.

The third phase of the RI field activities were conducted between May 2005 to June 2005 and included:

Installation of 8 soil borings, finished as monitoring wells, for analysis of soils and groundwater as well as hydrogeologic conditions;
Sampling of 8 new plus 16 existing monitoring wells (two wells could not be sampled.).

The indoor air investigation activities were conducted between February 2005 to April 2006 and included:

- Conducting an inventory of household chemicals present in residences and evaluating their potential to affect air sample results;
- Sampling 47 residential locations and 1 school location;
- Installation of 7 sub-slab depressurization systems.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the groundwater, and soil vapor contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

  Concentrations of PCE in air were evaluated using the NYSDOH guidance document "Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report, RI Addendum and Soil Vapor Intrusion Investigation Report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the reports, many soil, groundwater and vapor samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figure 3, Figure 4, and Table 1 summarize the degree of contamination for the contaminants of concern in groundwater and soil vapor and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

On-site Groundwater

Although most of the site is covered by asphalt, on-site groundwater has been adversely impacted by the soil contamination being addressed through OU No.1. The contaminated soils near the building represent a continuing source of groundwater and soil vapor contamination. PCE has been detected in the groundwater on-site at levels up to 55,000 ppb, and this contamination has migrated off-site. The applicable SCG (Class GA groundwater criteria) is 5 ppb.

Off-Site Impacts

Contaminants have been found off the Kliegman Brothers site as well. Both groundwater and soil vapor/indoor air were found to be impacted.

Figure 3 summarizes the areal extent of PCE contamination in groundwater. Groundwater sampling results indicate that contamination has migrated off-site in all directions. The results for PCE in groundwater off-site ranged from "not detected" (ND) to 75,000 ppb.

Soil vapor samples taken from off-site were also found to be contaminated with PCE. Samples were taken at 10, 18, and 20 feet bgs. Similar to the on-site soil vapor results, the highest concentrations were found at 18 feet bgs.

Detected concentrations of PCE in soil vapor prompted the NYSDEC to conduct indoor air and sub-slab air sampling in residences around the Kliegman Brothers site. A soil vapor intrusion investigation of 47 residences and Public School 119 between February 2005 through April 2006 consisted of seven separate sampling events. In response to the sampling results, owners of 12 properties located south and west of the former Kliegman Brothers facility were offered sub-slab depressurization systems; results from beneath PS119 indicated no action was necessary for that structure. Five property owners declined the offer of a system, but seven such systems were installed during this effort, bringing the total to date for the project to eight. These systems (similar to radon removal systems) reduce the air pressure under a building relative to the building's interior, and thereby prevent vapors from migrating upward into the building. Analysis of the soil vapor quality in this area will be a continuing effort, and future sampling results will be used to determine whether additional homes may be sampled to determine if more properties may benefit from mitigation systems.

Unlike many sites, off-site soil vapor contamination at this site is not caused by volatilization and upward migration of contamination released from the groundwater. The depth to groundwater and the area's geology combine to prevent impacts to structures overlying the groundwater plume. Rather, impacts to surrounding structures are the result of vapor-phase contamination migrating from the source area, located on the Kliegman site.

The extent of vapor phase migration has been defined, and will continue to be monitored, through a vapor mitigation program. In this program, structures are investigated in a radial fashion away from the source area until the limit of contaminant migration is determined. Because vapor phase contaminant migration can be temporally variable, analysis of the soil vapor quality in this area will be a continuing effort, and future sampling results will be used to determine whether additional structures should be sampled and to determine if more properties may benefit from mitigation systems.

5.2: Interim Remedial Measure

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

A soil vapor extraction (SVE) system was installed at the Kliegman Bros. Site as an IRM in 2004. The system utilizes three extraction wells screened at various depths between 5 and 65 feet bgs. The three wells are connected through a subsurface trench to a treatment system consisting of a moisture separator, an extraction blower, and vapor phase carbon vessels. Operation of the system began in August 2004 and is estimated to have removed to date over 35,800 pounds of PCE from the vadose zone.

5.3: 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 human exposure pathways can be found in Section 6 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future. There is a potential exposure pathway associated with contaminated groundwater. An exposure pathway exists with contaminated indoor air via soil vapor migrating from the site.

Elevated concentrations of tetrachloroethene (PCE) exist in groundwater and soil vapor. The area is served by public water, therefore it is unlikely that community exposure to contaminated groundwater will occur. The state has conducted indoor air sampling at homes in the neighborhood surrounding the site. Corrective measures have been taken to minimize the intrusion of contaminated soil vapor into nearby homes and to reduce the concentration of PCE in the indoor air. Additional residential indoor air and sub-slab soil vapor sampling will be conducted to further evaluate potential indoor air impacts to homes surrounding the site and the effectiveness of the on-site SVE system at controlling off-site migration of contaminated soil vapor. Mitigation systems will continue to be offered to off-site properties as warranted.

5.4: Summary of Environmental Assessment

Site contamination has impacted the groundwater resource in the overburden aquifer, however, groundwater near this site is not used as a source of drinking water. The surrounding land use is residential, and there are no environmental resources affected other then the groundwater.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for OU No.2 are to eliminate or reduce to the extent practicable:

exposures of persons around the site to PCE and its degradation products (trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride) in contaminated groundwater;

the release of contaminants from soil vapor into indoor air through vapor intrusion.

Further, the remediation goals for the site include attaining to the extent practicable:

ambient groundwater quality standards

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Kliegman Brothers Site Operable Unit No. 2 were identified and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated groundwater and off-site soil vapor at the site.

For each alternative other than the No Action Alternative, the ongoing vapor intrusion mitigation program would continue to monitor soil gas levels at area residences and assess the need for additional system sub-slab depressurization installations. Additional system installations would be conducted as necessary in the future to provide mitigation. For remedial cost estimating purposes, it is assumed that three such installations would be performed each year following indoor air sampling during the heating season.

Above-Ground Water Treatment

Present Worth:	$6,300,000
Capital Cost:	$1,100,000
Annual Cost: (30 years)	$ 340,000

Alternative 2B is a groundwater extraction and treatment alternative that would address an expanded area of the groundwater plume. Alternative 2B would include groundwater extraction from the plume area including PCE concentrations > 1,000 ppb, with subsequent above-ground treatment. Components of this alternative include:

1. Installation of two groundwater extraction wells withdrawing 300 gpm from within the plume area.

2. Construction of a treatment system utilizing, at least, an air stripper for the removal of VOCs and vapor phase carbon units to remove contaminants in off-gas from the air stripper.

3. Conveyance of treated water to the local sewer system.

4. Operation and maintenance of the wells and treatment system.

It is expected to take less than one year to implement this alternative. Concentrations of contaminants within the plume area would be reduced over the 30-year operation period of this alternative.

Alternative 3A – In Situ Chemical Oxidation Treatment of Concentrated Plume Area

Present Worth:	$8,000,000
Capital Cost:	$7,700,000
Annual Cost:	
(Years 1-3):	$ 64,000
(Years 3-5):	$ 43,000

Alternative 3A is an In Situ Chemical Oxidation (ISCO) treatment alternative that would address the source area (i.e., groundwater directly beneath the soil being addressed by the OU No.1 project) and the most contaminated portion of the plume. Alternative 3A would include injection of chemical oxidants (modified Fenton's reagent and/or permanganate) into the groundwater to oxidize organic contaminants (e.g., PCE) to non-toxic compounds. Components of this alternative include:

1. Focused injection of chemical oxidants to reduce contaminant mass within the source area and concentrated plume area. For the purposes of the PRAP, it is assumed that three ISCO applications utilizing modified Fenton's reagent followed by one ISCO application utilizing permanganate would be required for initial treatment.

2. Monitoring of the PCE concentrations throughout the extent of the treatment area.

3. Based upon performance monitoring, additional ISCO applications may be required to continue

treatment of contaminant mass within the saturated zone. For the purposes of the PRAP, it is assumed that two permanganate injection events may be required for additional polishing, or finishing treatment.

It is expected to take less than 1 year for well installation and pilot-scale testing. The four injection events would be followed by performance monitoring. Remediation is anticipated to be accomplished within 1 year; however, based on the results of the monitoring, additional injection events could be performed. For this analysis, while groundwater monitoring would continue for a period of 5 years, the operating phase would cease and remediation would be complete within 1 year.

Alternative 3B – In Situ Chemical Oxidation Treatment of Expanded Plume Area

Present Worth:	$13,900,000
Capital Cost:	$13,700,000
Annual Cost:	
(Years 1-3)	$ 64,000
(Years 3-5)	$ 43,000

Alternative 3B is an ISCO alternative that would address the expanded groundwater plume area defined in Alternative 2B. Alternative 3B would include all components of Alternative 3A and additionally include injection of chemical oxidants into the groundwater within the expanded plume area to oxidize organic contaminants to non-toxic compounds. Components of this alternative include:

1. Focused injection of chemical oxidants to reduce contaminant mass in the source area, the concentrated plume area, and additionally within the remaining portions of the plume. For the purposes of the PRAP, it is assumed that three ISCO applications utilizing modified Fenton's reagent followed by one ISCO application utilizing permanganate would be required for initial treatment.

2. Monitoring of the PCE concentrations throughout the extent of the treatment area.

3. Based upon performance monitoring, additional ISCO applications may be required to continue treatment of contaminant mass within the saturated zone. For the purposes of the PRAP, it is assumed that two permanganate injection events may be required for additional polishing, or finishing treatment.

It is expected to take less than 1 year for well installation and pilot-scale testing. The four injection events would be followed by performance monitoring. Remediation is anticipated to be accomplished within 1 year; however, based on the results of the monitoring, additional injection events could be performed. For this analysis, while groundwater monitoring would continue for a period of 5 years, the operating phase would cease and remediation would be complete within 1 year.

Alternative 4 - In Situ Chemical Oxidation Treatment of Concentrated Plume Area with Induced Groundwater Gradient

Present Worth:	$7,600,000
Capital Cost:	$7,300,000
Annual Cost:	
(Years 1-3)	$ 64,000
(Years 3-5)	$ 43,000

Alternative 4 combines a similar ISCO approach as presented in Alternative 3A but coupled with a groundwater extraction well to induce a gradient within the saturated zone. This alternative includes injection of chemical oxidants (modified Fenton's reagent and/or permanganate) at the source area (i.e., groundwater associated with OU1) and the most contaminated portion of the plume to oxidize organic contaminants to non-toxic compounds. In addition to the ISCO component, Alternative 4 incorporates an extraction well to generate a groundwater gradient that would promote migration of the injected regent over a larger portion of the plume, including beneath existing structures where access for injection may not be feasible. Components of this alternative include:

1. Focused injection of chemical oxidants to reduce contaminant mass in the source area and portions of the concentrated plume area. For the purposes of this analysis, it is assumed that three ISCO applications utilizing modified Fenton's reagent followed by one ISCO application utilizing permanganate would be required for initial treatment.

2. Monitoring of the PCE concentrations throughout the extent of the treatment area.

3. Based upon performance monitoring, additional ISCO applications may be required to continue treatment of contaminant mass within the saturated zone. For the purposes of this analysis, it is assumed that two permanganate injection events may be required for additional polishing, or finishing treatment.

4. A single groundwater extraction well withdrawing 150 gpm located within the concentrated plume area to generate an increased hydraulic gradient in the water table. The increased hydraulic gradient from groundwater flow to the extraction well would potentially increase the area of the plume addressed by the ISCO injection wells.

5. Although groundwater extraction is included principally to generate an hydraulic gradient rather than serve as an extraction and treatment system, the extracted groundwater would have to be treated. Therefore this alternative includes construction of a treatment system utilizing, at a minimum, an air stripper for the removal of VOCs and vapor phase carbon units to remove contaminants in off-gas from the air stripper.

6. Conveyance of treated water to the local combined sanitary/storm sewer system.

Note the groundwater extraction and treatment costs for Alt. 4 were considered a capital cost (above)

since they would be of a short duration compared to a long term pump and treat approach.

It is expected to take approximately 1 year to implement this alternative. For this analysis, the operating phase would be complete after 3 years.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

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.

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 engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

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.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements

of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated 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 PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised.

While several questions and requests for clarification of the proposal were asked during the public meeting, no significant public comments were received during the comment period, either in support or against the remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 4, In Situ Chemical Oxidation Treatment of Concentrated Plume Area with Induced Groundwater Gradient, as the remedy for this site. The elements of this remedy are shown on Figure 5 and described at the end of this section. If construction of the extraction well, force main piping, and groundwater treatment plant are determined to not be feasible during the remedial design due to density of land use in the area, Alternative 3A, In Situ Chemical Oxidation Treatment of Concentrated Plume Area, will be implemented.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 4 is being selected because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It will achieve the remediation goals for the site by addressing the highest concentrations of contamination within the plume and source areas. By doing so, it will create the conditions needed to restore groundwater quality to the extent practicable. The ongoing vapor intrusion mitigation program included as part of this alternative will continue to monitor soil vapor contaminant levels at area residences during the groundwater remediation period and assess the need for additional sub-slab depressurization system installations. Alternatives 3A and 4 also comply with the threshold selection criteria.

Alternatives 2A and 2B would comply with the threshold selection criteria to a lesser degree or with lower certainty because they would not provide a reduction in toxicity of contaminants, as will be accomplished through the ISCO process.

Alternative 1 would not meet the remedial action objectives for soil gas or groundwater, but would leave the groundwater and off-site soil vapor in its present condition. Alternative 1 would not provide any additional protection to human health or the environment and would not meet the threshold criteria.

Because Alternatives 2A, 2B, 3A, 3B and 4 satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives 3A, 3B, and 4 would be more effective and provide more protection than Alternatives 2A and 2B due to the reduction in toxicity of contaminants from the ISCO process. Further, Alternatives 3A, 3B, and 4 would improve groundwater quality in a more rapid time frame than Alternatives 2A and 2B. Therefore, Alternatives 3A, 3B, and 4 are preferred over Alternatives 2A and 2B. Alternative 4 has the potential to be more effective than Alternatives 3A or 3B because the creation of a hydraulic gradient may increase the movement of the chemicals applied in situ and result in a greater volume of treated groundwater.

Compared to Alternatives 3A and 3B, Alternative 4 may have difficulties involving short-term effectiveness and implementability. A groundwater extraction well and a force main to the location of the groundwater treatment facility will require construction of the force main through the residential neighborhood. Also, there will be limited locations for the treatment facility.

Alternatives 3A, 3B and 4 would all provide remediation within the source and concentrated plume areas. Alternative 3B additionally would provide remediation within the remaining plume area. Concentrations of contaminants outside the treatment zones for each alternative would be reduced over time by dispersion.

Alternative 3B would treat a larger area than Alternatives 3A or 4, and there would therefore be a greater amount of contaminant destruction. Based on the dissolved concentrations (and assuming 95% treatment), 3B would destroy about 1,200 pounds of PCE currently in the groundwater while 3A would destroy about 1,000 pounds. However, the majority of the contaminant mass resides in the source and concentrated plume areas, areas that would be addressed by Alternatives 3A and 4. It is known that the SVE IRM has removed tens of thousands of pounds of PCE present in the vadose zone. This suggests that non-aqueous phase PCE may be present in the saturated zone to the extent of thousands of pounds as well. Both 3A and 3B would treat this source area equally effectively, reducing the significance of the estimated additional 200-pound destruction potentially achievable with 3B compared to 3A.

The additional injections in Alternative 3B would provide limited overall benefit due to the lower concentrations present outside the source and concentrated plume areas. The additional injection area included in Alternative 3B would increase impacts to the community during construction and ISCO implementation due to the increased number of injection wells distributed throughout the residential neighborhood. This would result in much greater short-term impacts when compared to Alternative 3A.

The cost analysis for all alternatives is presented in Table 2, which details the capital cost, annual OM&M cost and total present worth of OM&M costs for each alternative (based on a 5% discount rate). With the exception of Alternative 3B, the costs of the alternatives which meet the threshold criteria would not vary greatly. Alternative 2A and Alternative 2B have similar estimated costs, and Alternative 3A and 4 would be somewhat more expensive. Alternative 3B would be significantly more expensive than any other alternative.

On the basis of the rationale outlined in this section, In Situ Chemical Oxidation Treatment of the Concentrated Plume Area with Induced Groundwater Gradient (Alternative 4) is being selected. However, as detailed above, the density of the surrounding land use may ultimately result in a finding that installation of the extraction well, force main, and treatment facility included in Alternative 4 is not feasible. If this is found to be the case, then the Department will implement

Alternative 3A - In Situ Chemical Oxidation Treatment of the Concentrated Plume Area. The feasibility determination will be made during the remedial design process.

The estimated present worth cost to implement Alternative 4 is $ 7,600,000. The cost to construct the remedy is estimated to be $ 7,300,000, the estimated average annual costs for system operation (three years total) is $21,000, and the estimated average annual costs for monitoring (five years total) is $43,000. Note the groundwater extraction and treatment costs for Alt. 4 are considered a capital cost since they will be of a short duration compared to a long term pump and treat approach. The present worth estimate includes sampling and construction costs associated with the ongoing vapor mitigation program.

The estimated present worth cost to implement Alternative 3A is $ 8,000,000. The cost to construct the remedy is estimated to be $ 7,700,000, the estimated average annual costs for system operation (three years total) is $21,000, and the estimated average annual costs for monitoring (five years total) is $43,000. The present worth estimate includes sampling and construction costs associated with the ongoing vapor mitigation program

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. During this design, the feasibility of constructing an extraction well and water treatment plant (items 3 and 4, below) will be determined;

2. Approximately 60 oxidant injection locations will be installed within the concentrated plume area. Several modified Fenton's reagent or permanganate In Situ Chemical Oxidation injection events will occur, each expected to last a few weeks to one month. Performance monitoring events will be performed four to eight weeks after completion of injection activities to determine contaminant mass reduction in comparison to baseline groundwater concentrations and subsurface distribution of injection oxidant material;

3. A groundwater extraction well will be constructed on 76th St. Groundwater will be extracted from this well to create a hydraulic gradient to increase the area reached by the injected oxidants. This system will not be constructed if it is determined to be not feasible during the remedial design process. In such a case, the number and density of oxidant injection locations will be increased;

4. A groundwater treatment system will be constructed on or near Edsall Ave. to treat extracted groundwater. The treatment system is anticipated to include at a minimum: an air stripper for the removal of VOCs and vapor phase carbon units to remove contaminants in off-gas from the air stripper. A force main will be constructed to carry water from the extraction well to the treatment plant. This system will not be constructed if it is determined to be not feasible during the remedial design process;

5. The ongoing vapor intrusion mitigation program will continue to monitor soil gas levels at adjacent residences and assess the need for additional sub-slab depressurization system installations. Additional system installations will be conducted as necessary in the future to provide mitigation;

6. Development of a site management plan which will include the following engineering controls: (a) continued evaluation of the potential for vapor intrusion in the area; (b) monitoring of

groundwater and soil vapor; (c) provisions for the continued proper operation and maintenance of the components of the remedy.

7. The institutional controls imposed by the OU No.1 ROD will remain in effect. These controls, in the form of an environmental easement: (a) require compliance with the approved site management plan; (b) limit the use and development of the property to commercial, industrial and/or restricted residential only; (c) restrict the use of groundwater as a source of potable water, without necessary water quality treatment as determined by NYSDOH and/or the New York City Department of Environmental Protection; and. (d) require the property owner to complete and submit to the NYSDEC a periodic certification.

8. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that further remediation is technically impracticable or not feasible.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken 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:

Repositories for documents pertaining to the site were established.

A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

A fact sheet was sent to the contact list announcing the release of the PRAP, establishment of a public comment period, and announcing a public meeting to present the PRAP and receive public comment.

A public meeting was held on February 27, 2008 to present and receive comment on the PRAP.

A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination - OU2

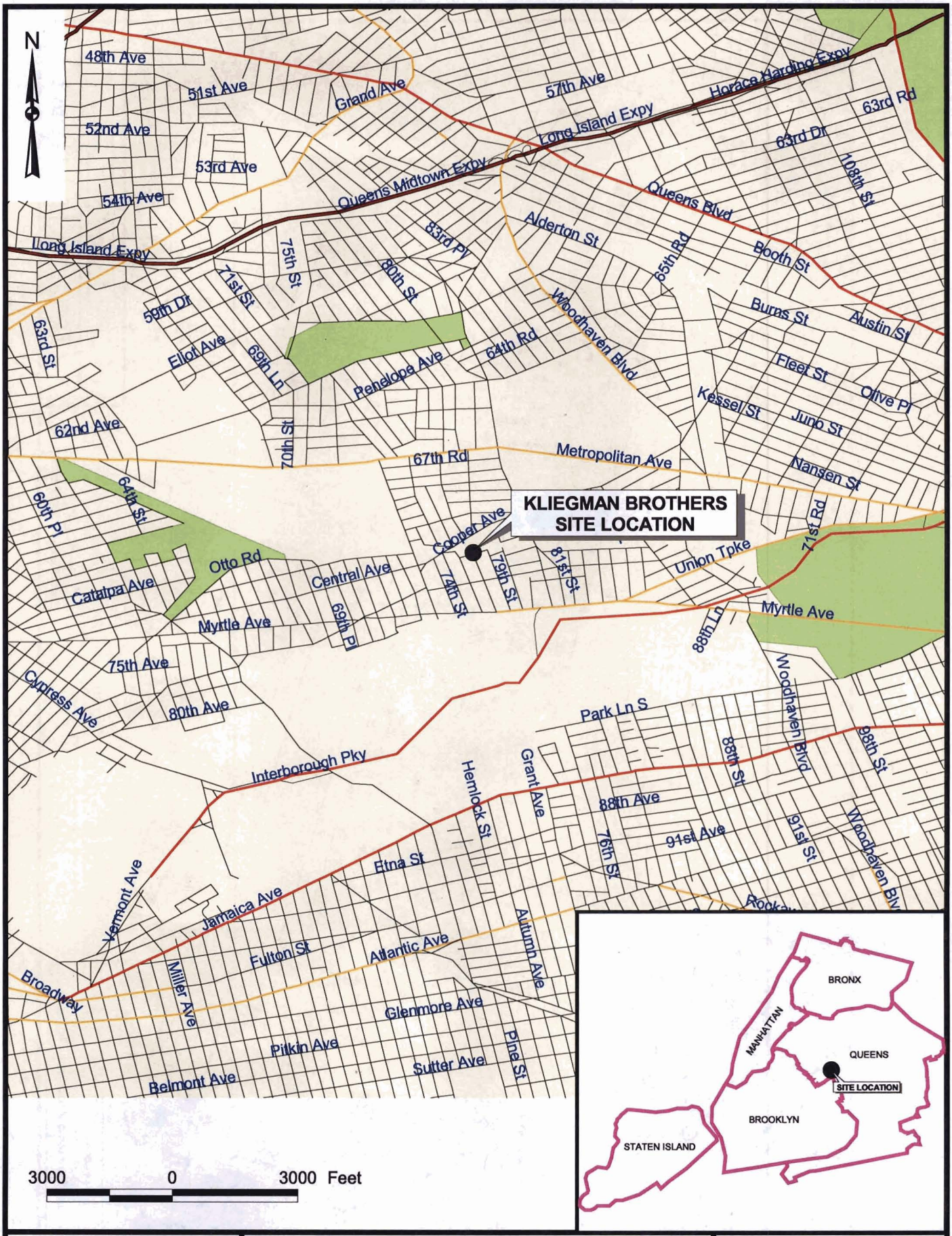
GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	benzene	ND-28J	1	3 of 31
	n-butylbenzene	ND-17J	5	1 of 31
	carbon tetrachloride	ND-140J	5	12 of 31
	2-chlorotoluene	ND-160J	5	3 of 31
	1,1-dichloroethene	ND-280	5	11 of 31
	1,2-dichloroethene	ND-47J	5	2 of 31
	methylene chloride	ND-1,600	5	5 of 31
	n-propylbenzene	ND-110J	5	3 of 31
	tetrachloroethene	ND-75,000	5	27 of 31
	toluene	ND-50J	5	2 of 31
	trichloroethane	ND-75J	5	1 of 31
	trichloroethene	ND-640	5	16 of 31
	xylenes (total)	ND-11J	5	1 of 31

SOIL VAPOR (on- and off-site)	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Compounds (VOCs)	1,1-dichloroethene	ND-25,000	NA	NA
	cis-1,2-dichloroethene	ND-26,200	NA	NA
	trans-1,2-dichloroethene	ND-887,000	NA	NA
	tetrachloroethene	ND-165,000,000	NA	NA
	trichloroethene	ND-618,000	NA	NA
	vinyl chloride	ND-2,1800	NA	NA

[a] ppb = parts per billion, which is equivalent to micrograms per liter, µg/L, in water;
$\mu g/m^3$ = micrograms per cubic meter
[b] SCG = standards, criteria, and guidance values
ND = not detected
NA = none available
J = estimated concentration detected below quantitation limit

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1 - No Action	0	0	0
Alternative 2A - Groundwater Extraction from Concentrated Plume Area with Above-ground Water Treatment	1,200,000	330,000	6,200,000
Alternative 2B - Groundwater Extraction from Expanded Plume Area with Above-Ground Water Treatment	1,100,000	340,000	6,300,000
Alternative 3A - Insitu Chemical Treatment of Concentrated Plume Area	7,700,000	64,000	8,000,000
Alternative 3B - In situ Chemical Treatment of Expanded Plume Area	13,700,000	64,000	13,900,000
Alternative 4 - In situ Chemical Treatment of Concentrated Plume Area with Induced Groundwater Gradient	7,300,000	64,000	7,600,000

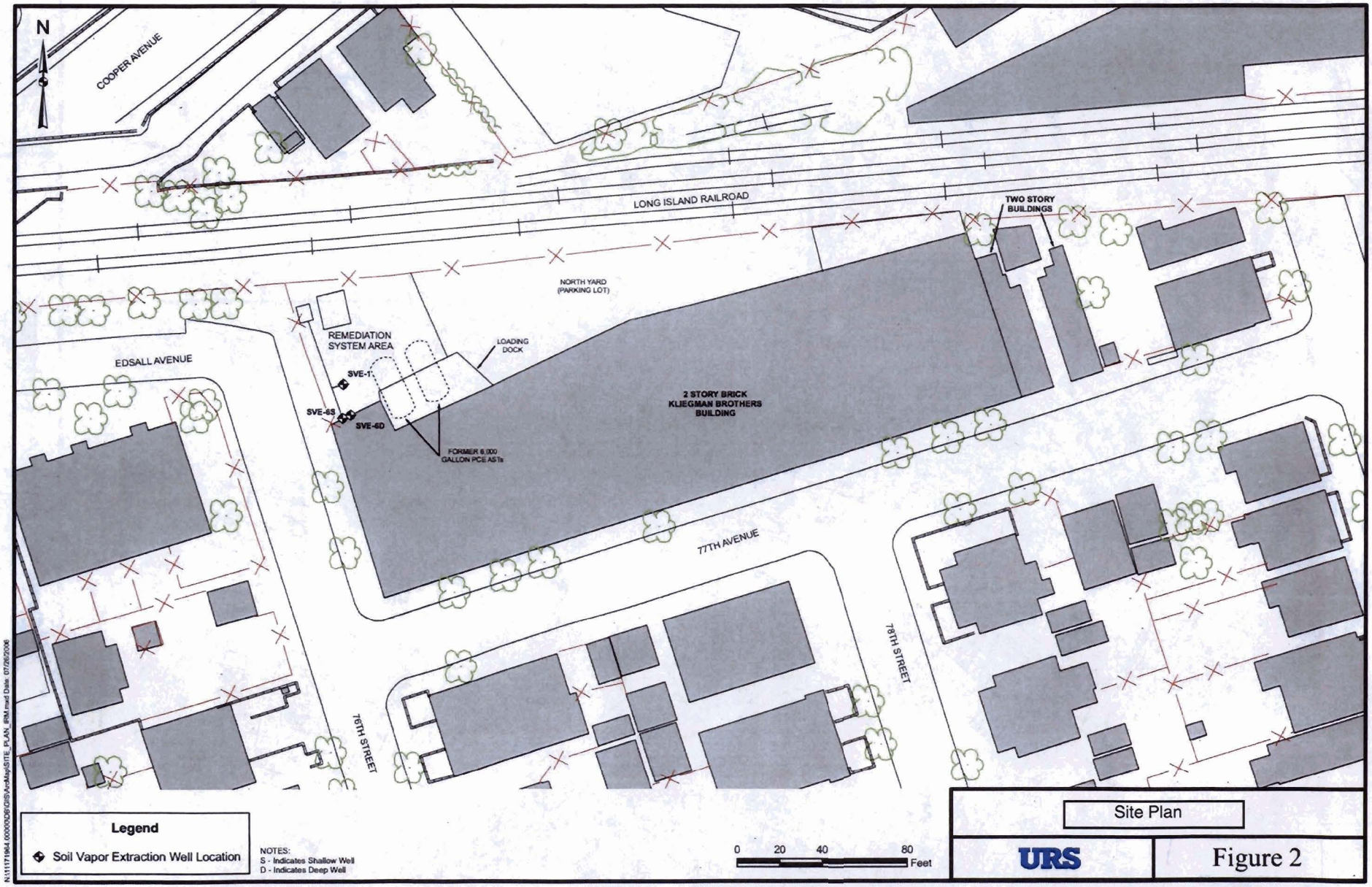


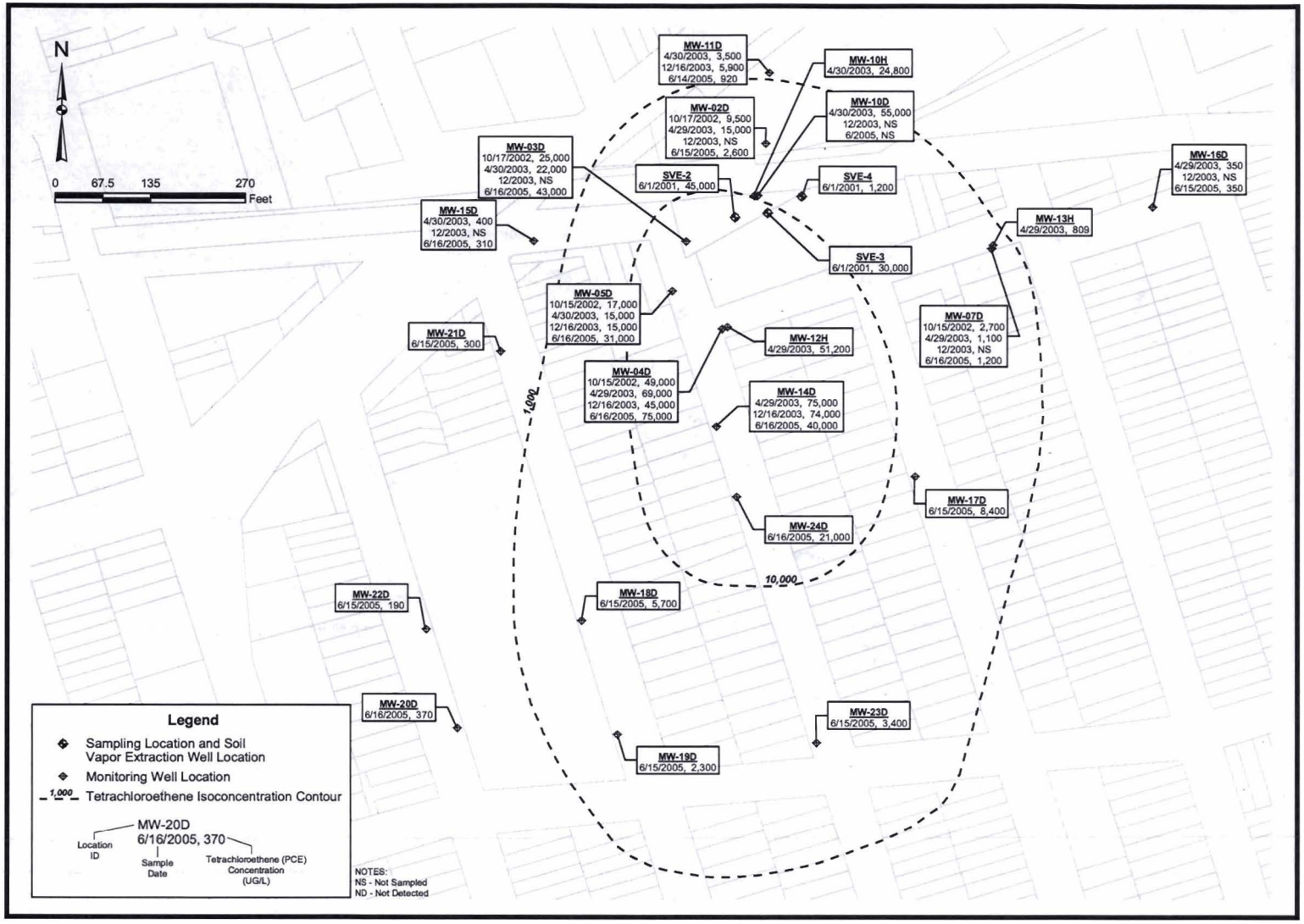
N:\11171964.00000\DB\GIS\site.apr SITE LOCATION
10/7/2005

URS

KLIEGMAN BROTHERS
SITE LOCATION MAP

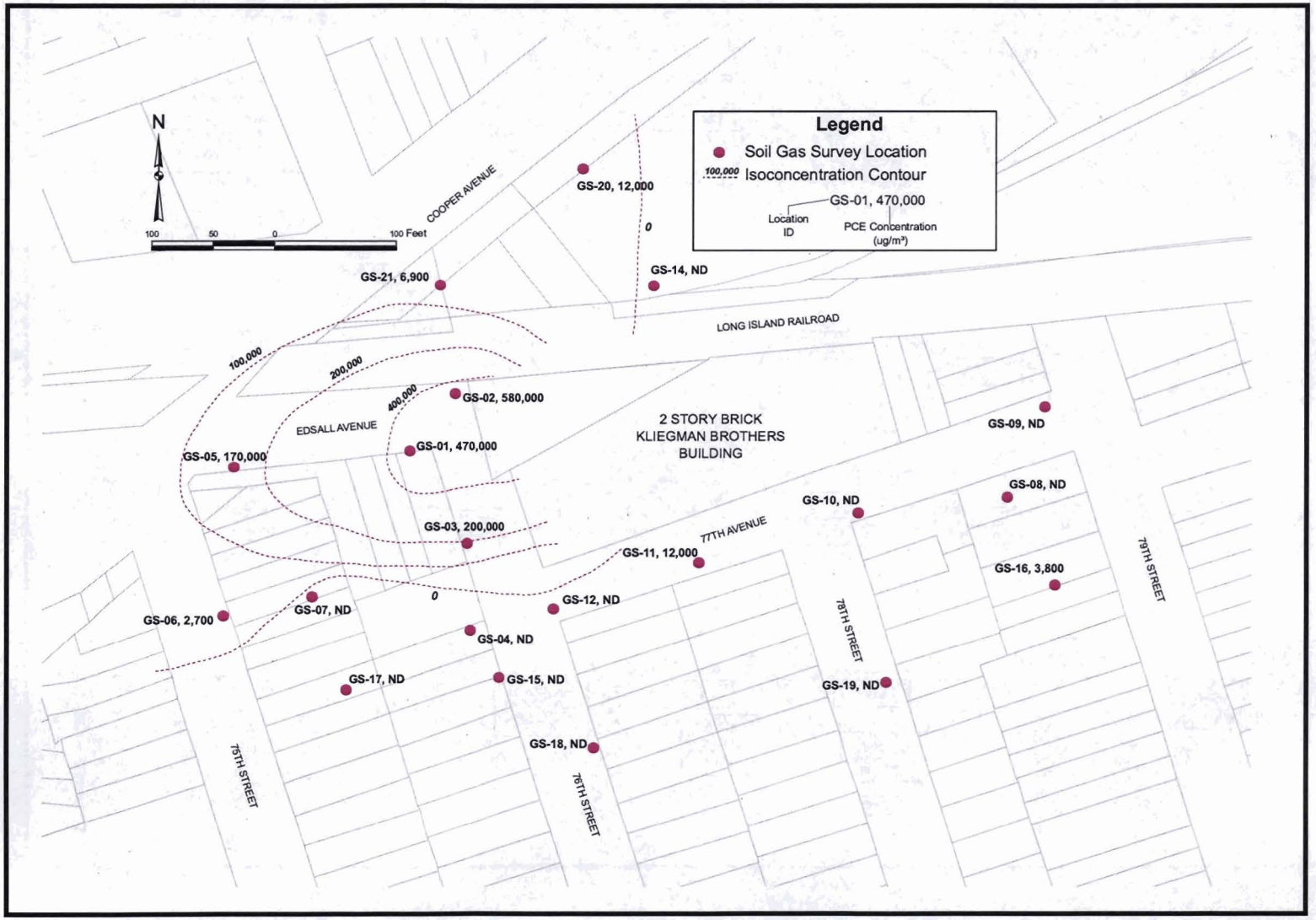
Figure 1


N
COOPER AVENUE
LONG ISLAND RAILROAD
TWO STORY BUILDINGS
NORTH YARD (PARKING LOT)
REMEDIATION SYSTEM AREA
LOADING DOCK
EDSALL AVENUE
SVE-1
SVE-6S
SVE-6D
FORMER 6,000 GALLON PCE ASTs
2 STORY BRICK KLIEGMAN BROTHERS BUILDING
77TH AVENUE
78TH STREET
76TH STREET
Legend
Soil Vapor Extraction Well Location
NOTES:
S - Indicates Shallow Well
D - Indicates Deep Well
0 20 40 80
Feet
Site Plan
URS
Figure 2
N:\11171964.00000\DGN\GIS\ArcMap\SITE_PLAN_RM.mxd Date: 07/26/2006



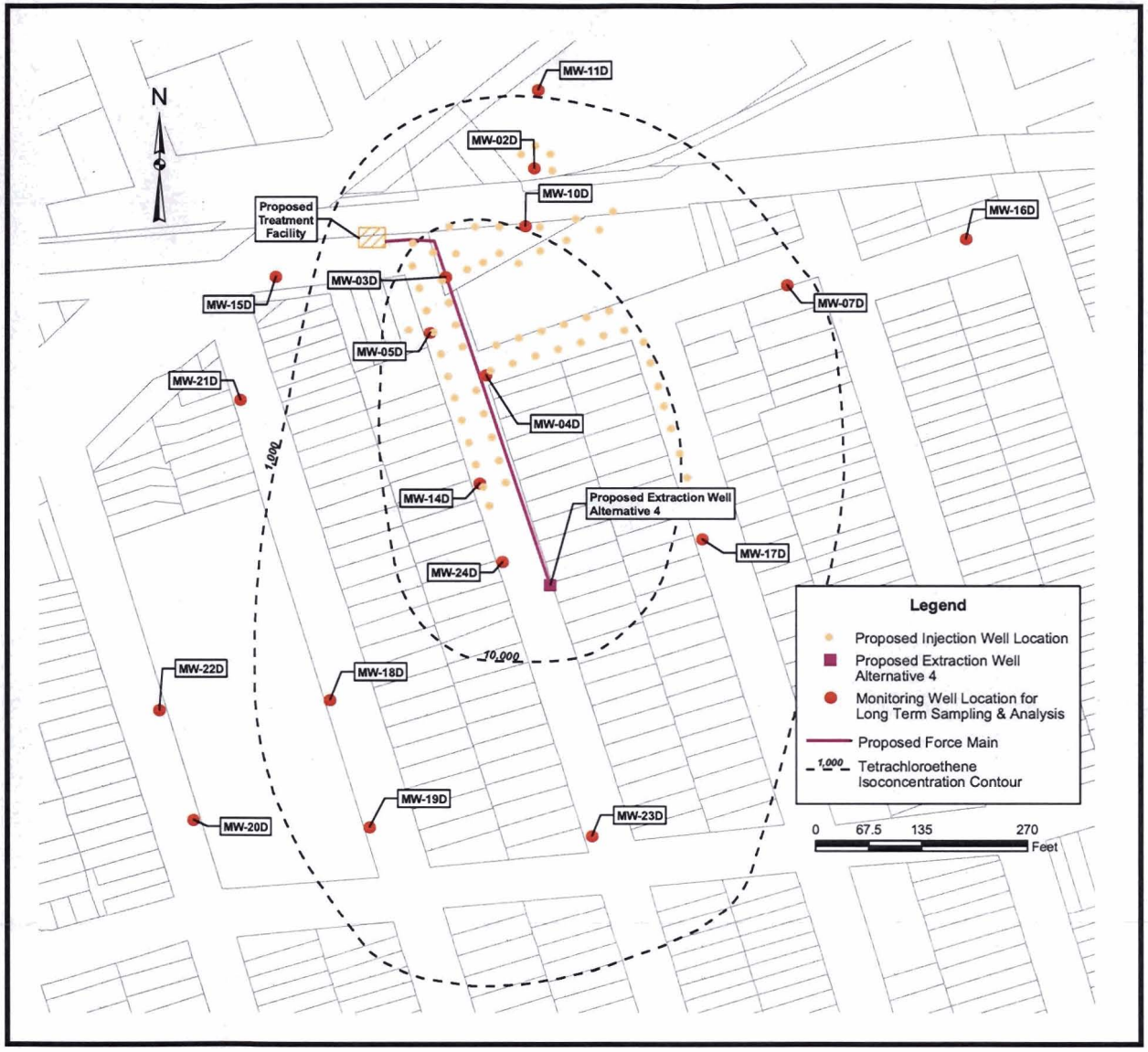
PCE in Groundwater

Figure 3



PCE in Shallow Soil Gas

Figure 4



Remedy - Conceptual layout

Figure 5

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Kliegman Brother
Operable Unit No. 2
Glendale, Queens, New York City, New York
Site No. 241031

The Proposed Remedial Action Plan (PRAP) for the Kliegman Brothers site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 14, 2008. The PRAP outlined the remedial measure proposed for the contaminated groundwater at the Kliegman Brothers site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 27, 2008, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 17, 2008.

This responsiveness summary responds to comments raised during the public comment period.

The following are the comments received, with the Department's responses:

Comment 1: Comments were made regarding the possible short term impacts that proposed remedial activities may have on the neighborhood. Questions were asked regarding construction noise, possible road closures, and about how long the disturbances might last.

Response 1: There will be some short-term impacts during construction and drilling activities, but they will be of a relatively short duration. Drilling operations to construct the chemical injection points will take place over a time period of approximately 3 to 4 weeks. Construction of a water line to carry the extracted groundwater may take an additional 3 to 4 weeks.

Comment 2: A person wanted to know if the wells to be drilled and used for chemical injections and groundwater monitoring will be permanent.

Response 2: The wells will be permanent in that they will be constructed and used at least several times over a period of several years. Until future data is reviewed which provides information on the effectiveness of the remedy, it is not possible to determine which wells will be used for only a short period of time and which wells might need to be used for many years. Regardless, the wells will be finished off flush with the street or sidewalk and will not be a hindrance in the neighborhood. Each well, when no longer needed, will be properly decommisioned.

Comment 3: A person asked for clarification on the types of oxidants being considered for injection into the groundwater, and specifically asked whether they are organic compounds.

Response 3: Two types of oxidants would be considered: permanganate and Fenton's reagent. Neither of them are organic compounds. Permanganate would be injected as sodium permanganate or potassium permanganate. Although it could be described as a salt, its injection will not make the water salty. The main oxidant in Fenton's reagent is hydrogen peroxide. Hydrogen peroxide is also not an organic compound. After injection, it breaks down to water and oxygen.

Comment 4: Several people expressed concern regarding the potential for contamination in the extracted groundwater that will be placed into the sewer system.

Response 4: The contaminated groundwater extracted from the plume will be treated prior to placement in the local sewer system. The extracted groundwater will be treated by an air stripper to remove site-related contamination. The treated water will be sampled and analyzed to confirm that contamination is being effectively removed by the treatment unit prior to its discharge into the sewer.

Comment 5: Several people asked how long the remedial process will take and for how long this area will remain a "site."

Response 5: After issuing a Record of Decision, the state must first determine whether any potentially responsible party (PRP) is willing to implement the selected remedial action. If a willing PRP is found, then the state will negotiate a legal Consent Order providing for the state's oversight role in the project. If no PRP is willing, then the state will use Superfund money to initiate the remedial design. After this process is completed, it is estimated that the remedy will take approximately one year to implement and would operate for three years.

However, the life-cycle time for in-situ remedies depends upon many variables, and estimates can be inaccurate. The remedy will involve a monitoring program, and the state will routinely assess whether additional remedial activities (i.e. another round of chemical injections) are warranted.

Regardless of whether any active remedial measures are occurring, the site may remain on the Department's Registry of Inactive Hazardous Waste Disposal Sites for as long as there is significant site-related contamination remaining in the environment.

Comment 6: A person asked whether the remediation might be halted at some time in the future, short of the remedial goals, due to a lack of funding.

Response 6: It is not anticipated that funding will affect this project. As described above, it is possible that active remedial measures may cease at some point in the future, even though some residual contamination remains, because additional measures would not be effective towards achieving significant additional contaminant reduction. However, this decision would be based on technical feasibility, and not be based on available funds.

Comment 7: A person stated that there is a significant problem with flooding in the neighborhood during heavy rainfall, and it was asked whether our remedial activities would add to that problem.

Response 7: The efforts underway by the state are to address contaminated groundwater at approximately 70 feet below the ground surface. Nothing in the construction and

implementation of the remedy will alter existing rain run-off conditions, either positively or negatively.

Comment 8: A person asked if a heavy rain might drive contaminated soil gas into an overlying structure.

Response 8: No. The primary condition which creates the potential for soil vapor intrusion is the differential between the subslab air pressure, which is approximately equal to atomospheric air pressure, and the air pressure inside the structure. The air pressure inside the structure is generally a function of activities inside. This condition, and therefore the potential for soil vapor intrusion, is not significantly affected by rainwater infiltration.

Comment 9: A person asked where the airborne contamination from the subslab mitigation system goes and whether it could impact the neighborhood.

Response 9: The purpose of a subslab mitigation system is not to remove contamination, but to marginally lower the air pressure in the subslab environment relative to the air pressure inside a structure. The flow rate and volume of contamination removed from the susbslab environment are low, and contaminants released at rooftop levels by the mitigation system rapidly disperse. Based on a study in Endicott NY, where there are hundreds of mitigation systems in operation, there is no discernable impact to the neighborhood.

Comment 10: An inquiry was made regarding the specific future use of the site and what uses the state would allow.

Response 10: The current use of the site remains as a wholesale food distributer. The Record of Decision for Operable Unit No.1 of the Kliegman Brothers project requires the placement of an easement on the property which restricts the future use of the site to commercial, industrial and/or restricted residential purposes, as defined in 6NYCRR Part 375.

Comment 11: How do I arrange to have my house tested for potential soil vapor intrusion impacts?

Response 11: You may contact the NYSDOH or NYSDEC project manger to determine if there is a need to sample your house.

Comment 12: Has there been an identified need to perform an area-wide health study here?

Response 12: No, we have not identified a need to perform an area-wide health study. To date, sampling has not shown levels of PCE in air that would be expected to cause health effects. In addition, the area is served by public water, therefore, we do not expect exposure to contaminated groundwater.

Comment 13: Isn't it wrong to allow a food distributor to operate out of this site, which is a hazardous waste site?

Response 13: This issue was investigated previously by the NYS Department of Agriculture and Markets, which regulates food processing facilities. Samples of cheese and oil were collected and analyzed by the Food and Drug Administration. It was determined that the food processing business is not impacted by the PCE contamination beneath the building.

APPENDIX B

Administrative Record

Administrative Record

Kliegman Brothers

Operable Unit No. 2
Site No. 241031

Proposed Remedial Action Plan for the Kliegman Brothers site, Operable Unit No. 2, dated February 2008, prepared by the Department.

"Remedial Investigation/Feasibility Study Work Plan"; Project Management Work Plan Amendment No. 1, February 2003, prepared by URS Corporate Group Consultants.

"Remedial Investigation", February 2004, prepared by URS Corporation.

"Remedial Investigation Addendum", September 2005, prepared by URS Corporation

"Focused Feasibility Study," October 2005, prepared by prepared by URS Corporation

"Soil Vapor Investigation", July 2006, prepared by prepared by URS Corporation

"Feasibility Study, Kliegman Brothers Site OU2", February 2008, prepared by URS Corporation.