Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Utility Manufacturing/Wonder King Site
Operable Unit No. 2
Town of North Hempstead, Nassau County
New York
Site Number 130043H

March 2008

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

DECLARATION STATEMENT - RECORD OF DECISION

Utility Manufacturing/Wonder King
Inactive Hazardous Waste Disposal Site
Operable Unit No. 2
Town of North Hempstead, Nassau County, New York
Site No. 130043H

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for Operable Unit 2 of the Utility Manufacturing/Wonder King 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 2 of the Utility Manufacturing/Wonder King 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 Utility Manufacturing/Wonder King site and the criteria identified for evaluation of alternatives, the Department has selected natural attenuation of contaminated off-site groundwater and soil vapor intrusion mitigation. The components of the 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.

2. Sub-slab depressurization systems will be installed in three off-site buildings that have vapor intrusion impacts.

3. Periodic vapor sub-slab vapor, indoor air and outdoor air samples will be obtained at three properties where the potential for vapor intrusion exists. Periodic sampling will continue until sampling results indicate that continued sampling is no longer required.

4. Groundwater contamination within the study area will be allowed to naturally attenuate.

5. Imposition of an institutional control in the form of an environmental easement on the site that will require: (a) compliance with the approved site management plan; and (b) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

6. Development of a site management plan which will include the following institutional and engineering controls: (a) monitoring of groundwater, sub-slab vapor, indoor air and outdoor air; and (b) provisions for the continued proper operation and maintenance of the components of the remedy.

7. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

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

9. Since the remedy results in untreated hazardous waste remaining at the site, a long term monitoring program will be instituted. Up to nine monitoring wells will be sampled periodically for VOCs to track the progress of the natural attenuation. In addition, sub-slab vapor, indoor air and outdoor air samples will be obtained and analyzed for VOCs at three buildings with potential vapor intrusion impacts. This program will allow the effectiveness of the natural attenuation and soil vapor intrusion mitigation measures to be monitored and will be a component of the operation, maintenance, and monitoring for the site.

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

Dale A. Desnoyers, Director
Division of Environmental Remediation

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the off-site contamination at the Utility Manufacturing/Wonder King ("Utility") site. The off-site contamination has been designated Operable Unit 2 (OU2). OU2 is limited to the area north of Old Country Road. On-site contamination, designated Operable Unit 1 (OU1), was addressed in the March 2003 Record of Decision (ROD). Off-site groundwater contamination south of Old Country Road, designated Operable Unit 3 (OU3) was addressed in an October 2003 ROD. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, discharges into underground cesspools and dry wells have resulted in the disposal of hazardous wastes, including volatile organic compounds (VOCs). These wastes have contaminated the groundwater at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to contaminated groundwater and soil vapor.

- a significant environmental threat associated with the impacts of contaminants to a sole source aquifer.

To eliminate or mitigate these threats, the Department has selected natural attenuation of contaminated off-site groundwater and soil vapor intrusion mitigation.

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 Utility site, No. 1-30-043 H, is located at 700 Main Street. The site is situated on the south side of Main Street, approximately 500 feet north of Old Country Road in the New Cassel Industrial Area (NCIA). The NCIA is a 170-acre industrial and commercial area in the Town of North Hempstead, Nassau County. Currently eleven (11) Class 2 sites exist in the NCIA. 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. Figures 1 and 2 show the locations of the NCIA and the Class 2 sites within the NCIA.

A two-story industrial building occupies most of the 1-acre site. The remainder of the site is paved. The site is owned by Nest Equities Inc. and is occupied by the Utility Manufacturing Company. The Utility Manufacturing Company blends and repackages materials.

The off-site study area extends southwest from the Utility site to Old Country Road. The study area was chosen to include the portion of the groundwater contamination plume directly downgradient of the site. Refer to Figure 3 for a study area map.

The Former Applied Fluidics site, No. 1-30-043M is located approximately 750 feet east of the Utility site. The 89 Frost Street site, No. 1-30-043L, and the Former Autoline Automotive site, No. 1-30-043I, are adjacent to the Former Applied Fluidics site. All three of these sites are Class 2 sites.

The NCIA is highly developed and no significant surface water sources exist near the Utility site. The nearest surface waters are small ponds within the Eisenhower Memorial Park located about two miles southwest of the site

The entire Utility site is covered with either the building or pavement. Beneath the site are two water bearing layers, the Upper Glacial Aquifer (UGA) and the Magothy Aquifer. The deposits that make up the UGA are found from the surface to a depth of approximately 80 feet below ground surface (bgs). The UGA is an unconfined aquifer consisting of poorly sorted sands and gravels. However, one clay lense was found in the UGA beneath the Utility site at approximately 40 feet bgs. The underlying Magothy Aquifer consists of finer sands, silts and small amounts of clay.

Usually, the upper surface of the Magothy formation is found at least 100 feet bgs. However, based on observations during well installation for this investigation, the Magothy is found in the NCIA at significantly shallower depths (60-87 feet bgs) than in many other areas of Long Island. Similarly, the UGA and the Magothy are usually separated by a clay aquitard but in this area the UGA and the Magothy are in direct hydraulic connection. Depth to groundwater is about 60 feet bgs in the area of the site and groundwater flows in a southwesterly direction. Both the UGA and Magothy have been designated as sole source aquifers and are protected under state and federal legislation.

The off-site study area geology was investigated to a depth of 125 feet below ground surface (bgs). The geology at the site generally consists of sand and gravel. Clay lenses were also found in the subsurface, but no continuous clay layer exists in the vicinity the site. The water table fluctuates

between 55-65 feet bgs and groundwater flows southwest toward the Bowling Green public supply wells.

Operable Unit (OU) No. 2, which is the subject of this document, consists of off-site contamination. OU2 is limited to the area north of Old Country Road and lies entirely within the NCIA. 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.

The remaining operable units for this site are: on-site contamination (OU1) and off-site groundwater contamination south of the NCIA (OU3). Remedies were selected for OU1 and OU3 in RODs dated March 2003 and October 2003, respectively. The selected remedy for OU1 was remediation of contaminated groundwater using air sparge/soil vapor extraction. The selected remedy for OU3 was remediation of contaminated groundwater using in-well vapor stripping. While the remedy for OU1 has successfully remediated on-site contamination, the remedy for OU3 is not yet implemented.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Utility Manufacturing is an active facility that blends and repackages materials, including tetrachloroethene (PCE). This company has operated since 1976 and processes several thousand pounds of PCE each year. For example, Utility's annual PCE purchases from 1990-1994 ranged from 23,600-45,760 pounds. Utility stated in a December 26, 2002 letter that they repackage approximately 4,000 pounds of PCE each year. In 1971, two 550-gallon above ground storage tanks were installed inside the building. Utility has stored PCE in these tanks since occupying the facility.

3.2: Remedial History

In 1996, 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.

In 1986, the Nassau County Department of Public Works (NCDPW) completed an investigation of groundwater quality and found the NCIA to be a major source of volatile organic compound (VOC) contamination in groundwater. As a result of this investigation, the Department classified the entire NCIA as a Class 2 site in August 1988.

In 1988, several dry wells and cesspools were sampled at the Utility site by Utility Manufacturing's consultant. Sampling results indicated that these drainage structures were contaminated with PCE and other VOCs. In 1989, Utility Manufacturing pumped out and power washed the drainage structures. The remediation was overseen by the Nassau County Department of Health (NCDOH). Endpoint sampling results met soil cleanup objectives. In 1989, the facility was connected to the municipal sewer.

In February 1995, the Department's consultant completed a site investigation report for the NCIA under the New York State Superfund program. Based on this report, the Department removed the NCIA from the Registry in March 1995. At the same time, five sites within the NCIA (not including the Utility site) were added to the Registry as individual Class 2 sites.

In 1996, the Department's consultant issued a Preliminary Site Assessment (PSA) for several properties in the NCIA. Groundwater sampling results from the PSA showed PCE concentrations downgradient of the Utility site an order of magnitude greater than upgradient concentrations. The site was added to the Registry as a Class 2 in 1996.

In 1997, Utility Manufacturing entered into a Consent Order with the Department to perform a Remedial Investigation/Feasibility Study (RI/FS) for the Site. Although the Consent Order included investigation of on-site and off-site contamination, Utility limited the investigation to within the site boundaries.

The results of the RI indicated that the on-site groundwater was contaminated with VOCs. The maximum VOC concentration in groundwater was 1,019 ppb, which included 846 ppb of tetrachloroethene (PCE). The groundwater standard for PCE is 5 ppb. PCE was detected in on-site soils at a maximum concentration of 0.0822 ppm. Although this concentration does not exceed Department soil cleanup objectives, PCE contamination in unsaturated soil is evidence of past disposal because PCE is not naturally occurring.

An interim remedial measure (IRM) consisting of an air sparge/soil vapor extraction (AS/SVE) system was installed to remediate on-site soil and groundwater contamination. The AS/SVE system operated from December 2001 to December 2002. By December 2002, the system had reduced total VOC levels in groundwater to 13 ppb and the contaminant levels had stopped decreasing. The AS/SVE system was chosen as the final remedy for on-site contamination in the Record of Decision (ROD), dated March 2003. Utility obtained groundwater samples annually from 2003 to 2007 to detect any rebound in groundwater contaminant concentrations. As no rebound occurred during that period, on-site remediation is complete.

In 2002, the Department asked the Potentially Responsible Parties (PRPs) to perform an off-site investigation to Old Country Road. The PRPs refused to perform this work in accordance with the Department's requirements. Therefore, the Department conducted the off-site Remedial Investigation/Feasibility Study using State Superfund money.

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 Utility Manufacturing Company and Nest Equities, Inc.

The PRPs declined to implement the off-site RI/FS at the site in accordance with the Department's requirements 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 any contamination resulting from previous activities at the site. The RI was conducted between September 2004 and October 2007. The field activities and findings of the investigation are described in the RI report.

The following activities were conducted during the RI:

- Research of historical information;
- Installation of soil borings and monitoring wells for analysis of groundwater as well as physical properties of soil and hydrogeologic conditions;
- Sampling of new monitoring wells;
- Collection of discrete groundwater samples using a direct push technique;
- A survey of public and private water supply wells in the area around the site;
- Collection of soil vapor samples to identify which off-site buildings have the potential for vapor intrusion; and
- Collection of sub-slab vapor samples, indoor air samples and outdoor air samples to determine if vapor intrusion is a concern at off-site properties.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the groundwater, sub-slab vapor and/or indoor air 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 Department "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. Tetrachloroethene (PCE) and 1,1,1-trichloroethane (TCA) concentrations were compared to values in Matrix 2 in the guidance. Trichloroethene levels were compared to values in Matrix 1 in the guidance.

- Concentrations of other VOCs in air were compared to typical background levels of VOCs in indoor and outdoor air using the background levels provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

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 below. More complete information can be found in the RI 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 RI report, many soil vapor, sub-slab vapor, indoor air, outdoor air and groundwater samples were collected to characterize the nature and extent of contamination. As seen in Figure 4 and Tables 1 and 2, 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 micrograms per cubic meter ($\mu g/m^3$) for air samples.

Figure 4 and Tables 1 and 2 summarize the degree of contamination for the contaminants of concern in groundwater, soil vapor, sub-slab vapor and indoor air 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.

Groundwater

Hydropunch samples were obtained downgradient of the Utility site from September to November 2004 to determine the extent of groundwater contamination between the site and Old Country Road. Groundwater contamination south of Old Country Road has been investigated as part of the overall NCIA off-site groundwater investigation.

Borings were completed at 11 locations and groundwater samples were taken from each boring at 10-foot intervals from the water table [50 to 65 feet below ground surface (bgs)] to 125 feet bgs. Figure 4 depicts the groundwater sampling results.

The highest VOC concentrations were detected in HP-3. Of the samples obtained in this boring, the highest total VOC concentrations were found at 80 feet bgs. At 80 feet bgs, PCE, cis-1,2-DCE, TCE and total VOC concentrations were 67 ppb, 44 ppb, 15 ppb and 130 ppb, respectively. The groundwater standard for PCE, TCE and DCE is 5 ppb. Total VOC levels at 120 feet bgs were 113 ppb, including 100 ppb of TCE.

VOC concentrations also exceeded groundwater standards in other hydropunch borings. PCE levels exceeded their groundwater standard of 5 ppb in HP-2 (14 ppb at 75 feet bgs), HP-4 (8 ppb at 85 feet bgs), HP-8 (13 ppb at 60 feet bgs), HP-9 (45 ppb at 80 feet bgs) and HP-11(18 ppb at 100 feet bgs). Sampling results revealed TCE levels above the groundwater standard of 5 ppb at HP-1 (39 ppb at 125 feet bgs), HP-2 (11 ppb at 75 feet bgs), HP-9 (6 ppb at 70 feet bgs) and HP-11 (7 ppb at 120 feet bgs).

Acetone was detected at a maximum concentration of 10 ppb, which is below the groundwater standard of 50 ppb. However, acetone is stored and processed at the Utility site and was also detected in downgradient soil vapor and air samples (see below). The presence of acetone in the groundwater establishes a possible pathway between the site and the downgradient soil vapor and indoor air contamination.

Based on the results of the hydropunch sampling, two groundwater monitoring wells were installed and sampled at the location of HP-3. MW-01S and MW-01D were installed to depths of 90 feet bgs and 120 feet bgs, respectively. MW-1S had 220 ppb of PCE, 84 ppb of cis-1,2-DCE and 344 ppb of total VOCs. The total VOC concentration in MW-1S was more than twice as high as the total VOC concentration in HP-3 at the same depth. MW-01D had 54 ppb of PCE, 22 ppb of 1,1-DCE and 111 ppb of total VOCs.

During the Utility off-site investigation, the highest groundwater concentrations (344 ppb of total VOCs) were detected at MW-01S on the north side of Old Country Road. Total VOC levels were below 100 ppb at all other groundwater sampling locations. As part of the selected remedy for OU3, in-well vapor stripping systems will be installed within 600 feet downgradient (south) of Old Country Road. These groundwater treatment systems will intercept the contaminant plume originating at the Utility site ahead of the Bowling Green public supply wells.

There are no existing private wells affected by the contaminant plume, so the only water supply wells threatened by the plume are public water supply wells. As the OU3 remedy will prevent contaminated groundwater from reaching the public water supply wells, the public is not being exposed to the groundwater contamination north of Old Country Road (See Section 5.3). However, groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.

Soil Gas/Sub-Slab Vapor/Air

Thirteen soil vapor samples were obtained to determine the potential for vapor intrusion downgradient from the site. Several site-related VOCs were detected in the soil gas, including PCE, acetone, and 1,1,1-TCA. PCE levels ranged from non-detect to 1,600 $\mu g/m^3$. Acetone concentrations ranged from non-detect to 1,000 $\mu g/m^3$. TCE levels ranged from non-detect to 75 $\mu g/m^3$ while 1,1,1-TCA levels ranged from non-detect to 98 $\mu g/m^3$.

Based on the soil vapor sampling, the Department sampled the sub-slab vapor, indoor air and outdoor air at eight off-site properties. The Department offered to sample five additional off-site buildings, but the property owners declined. At the buildings that were sampled, maximum PCE and TCE concentrations in the sub-slab vapor were 436 $\mu g/m^3$ and 74.6 $\mu g/m^3$, respectively. Acetone and 1,1,1-TCA were also found in the sub-slab vapor at maximum concentrations of 581 $\mu g/m^3$ and 640 $\mu g/m^3$, respectively. The highest indoor air concentrations were 1607 $\mu g/m^3$, 35.4 $\mu g/m^3$, 1.36 $\mu g/m^3$, and 6,047 $\mu g/m^3$ for PCE, TCE, 1,1,1-TCA and acetone, respectively. In comparison, the maximum outdoor air concentrations were 96.3 $\mu g/m^3$, 3.96 $\mu g/m^3$, and 403 $\mu g/m^3$ for PCE, TCE and acetone, respectively. The maximum PCE and acetone levels were found in a sample collected outside an auto body repair shop. None of the outdoor air sampling results revealed detections of 1,1,1-TCA.

The decision matrixes in the NYSDOH Draft Vapor Intrusion guidance were consulted to determine if mitigation is needed at the eight locations that were sampled. The results of the decision matrix analysis is shown on Table 2. As acetone is not listed in the decision matrixes, acetone levels were compared to background levels provided in the NYSDOH guidance document. Soil vapor and indoor air contamination identified during the RI/FS will be addressed in the remedy selection process.

5.2: Interim Remedial Measures

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.

There were no IRMs performed at this site during the off-site RI/FS.

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 4.3 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 are two potential exposure pathways at the site. The potential exposure pathways are:

- Inhalation of contaminated soil vapor
- Ingestion of contaminated groundwater

Dermal contact with contaminated soils is not expected since the site and surrounding area is either covered with pavement or buildings.

Site-related groundwater is not used for drinking water purposes and restrictions are in place to prevent its future use at or around the site. Although the ingestion of contaminated groundwater is a potential exposure pathway, its ingestion is not expected since the surrounding area is serviced by municipal water which is tested regularly to determine that it meets New York State drinking water standards. The site-related groundwater contamination has contributed to the "eastern portion" of the New Cassel Industrial Area groundwater plume impacting the downgradient Bowling Green public supply wells. An air stripping system is in place on those supply wells to treat contaminated groundwater prior to its distribution.

There is a potential for inhalation exposures since sub-slab and indoor air sampling at several nearby and downgradient facilities detected tetrachloroethene (PCE), trichloroethene (TCE), and 1,1,1-trichloroethane (1,1,1-TCA) at levels that may need mitigation because the levels detected could potentially impact indoor air. These compounds were detected at background levels in indoor air during previous earlier sampling. Recent sampling detected one or more of these compounds above background levels in indoor air and/or at levels that may need mitigation below the slab. As

a result of past and recent sampling data, continued indoor air and sub-slab soil vapor monitoring is needed, with at least one event during the heating season for Long Island between January 1 and March 1.

5.4: Summary of Environmental Assessment

This section summarizes the existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

Site contamination has impacted the groundwater resource in the Upper Glacial and Magothy Aquifers. These aquifers are federally designated sole source aquifers.

Due to the density of commercial and industrial buildings in the NCIA, there are no significant sources of surface water in close proximity to the site. Virtually every open space in the industrial area has been covered by asphalt, concrete or buildings. As the industrial area is so highly developed no wildlife habitat exists in or near these sites. The nearest surface water sources are several small ponds in and around Eisenhower Memorial Park, approximately two miles southwest of the site across Old Country Road. Therefore, the potential for plants and animal species being exposed to site-related contaminants is highly unlikely.

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 375-1.10. 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 this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to volatile organic compounds in groundwater and indoor air;
- the release of contaminants from groundwater into indoor air through soil vapor;
- the release of contaminants from groundwater into the public water supply through the Bowling Green public water supply wells; and
- migration of the contaminant plume

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

- ambient groundwater quality standards

- indoor air guidance values.

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 Utility Site were identified, screened and evaluated in the FS report which is available at the document repositories identified in Section 1.

A summary of the remedial alternatives that were considered for this site are 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, soil vapor and indoor air at the site.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Natural Attenuation of Off-Site Groundwater and Soil Vapor Intrusion Mitigation

Present Worth: *$770,000*
Capital Cost: *$320,000*
Annual OM&M: *$43,000*

Under this alternative, contaminated groundwater would be remediated through natural attenuation. Natural attenuation relies on natural processes to break down groundwater contaminants. Natural attenuation processes include physical, chemical or biological processes that, under favorable conditions, act without human intervention to reduce mass, toxicity, mobility, volume or concentration of contaminants in groundwater. These processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation or destruction of contaminants.

Long-term monitoring would be required to measure the progress of the remedy. Up to three new pairs of nested monitoring wells would be installed south of Old Country Road at 90 feet bgs and 125 feet bgs as part of the long-term monitoring program. Three existing monitoring wells would also be monitored. The locations of these wells are shown in Figure 5. Groundwater samples would be obtained periodically for VOCs, dissolved oxygen, nitrates, sulfates, dissolved iron, carbon dioxide and methane.

As mentioned earlier, the selected remedy for the NCIA combined off-site groundwater plume (OU3) will treat the groundwater contamination south of Old Country Road using in-well vapor stripping systems. Any groundwater contamination that does not naturally attenuate would be remediated by the OU3 remedy. The locations of the in-well vapor stripping systems are shown in Figure 6.

This alternative would meet remedial goals for groundwater contamination. Natural attenuation would reduce and eventually eliminate: human exposure to site-related VOCs, release of contaminants into the indoor air and public water supply, and migration of the contaminant plume. Natural attenuation would also attain ambient groundwater quality standards and restore the groundwater to its expected beneficial use.

This alternative would also address soil vapor intrusion in off-site buildings. Three affected buildings would be mitigated using sub-slab depressurization (SSD) systems. As part of the SSD system, one or more pipes would be installed through the slab of each building. A fan at the other end of the pipe would create suction through the pipe and would induce a negative pressure beneath the slab. This negative pressure would prevent the intrusion of vapors into the indoor air and prevent human exposure to indoor air contamination. An SSD schematic is shown in Figure 7. Also, periodic monitoring would be performed in three buildings with the potential for vapor intrusion.

The cost estimate conservatively assumes that the remedy would meet remedial goals within 15 years based on the time needed for the groundwater contamination to naturally attenuate or be treated by the OU3 remedy. This estimate would be refined based on groundwater monitoring data. Design and construction of SSD systems would take one year and 18 months, respectively.

Alternative 3: In-Situ Chemical Oxidation of Off-Site Groundwater and Soil Vapor Intrusion Mitigation

Present Worth: *$1,100,000*
Capital Cost: *$900,000*
Annual OM&M (Years 1-5): *$40,000*
Annual OM&M (Years 6-7): *$19,000*

Under this alternative, a chemical oxidant would be injected into the contaminated groundwater. The oxidant would react with the contaminants to form nontoxic byproducts. The oxidant would

consist of either sodium permanganate or potassium permanganate. The choice of oxidant would be determined based on bench scale testing.

The cost estimate assumes that sodium permanganate would be injected. In this scenario, 89,000 pounds of sodium permanganate in a 12.5% solution would be injected into the groundwater. As the sodium permanganate is purchased in a 40% solution, the chemical would be diluted at the site before injection. Figure 8 shows a schematic of the injection process.

To inject the oxidant, approximately six injection wells would be installed into the aquifer. Three wells would be screened at 90-120 feet bgs while the other three wells would be screened at 60-90 feet bgs. Figure 9 depicts the proposed locations of the injection wells.

Long-term monitoring would be required to measure the progress of the remedy. Three new pairs of nested monitoring wells would be installed south of Old Country Road at 90 feet bgs and 125 feet bgs as part of the long-term monitoring program. Three existing monitoring wells would also be monitored. The locations of these wells are shown in Figure 5. Groundwater samples would be obtained periodically for VOCs.

By remediating the groundwater contamination, in-situ chemical oxidation would meet the groundwater related remediation goals. The remedy would reduce human exposure to contaminants in groundwater, eliminate the source of soil vapor contamination, protect the public water supply, prevent migration of the contaminant plume, restore the aquifer to its beneficial use and meet ambient water quality standards.

This alternative would also address soil vapor intrusion in off-site buildings. Three affected buildings would be mitigated using sub-slab depressurization (SSD) systems. As part of the SSD system, one or more pipes would be installed through the slab of each building. A fan at the other end of the pipe would create suction through the pipe and would induce a negative pressure beneath the slab. This negative pressure would prevent the intrusion of vapors into the indoor air and prevent human exposure to indoor air contamination. An SSD schematic is shown in Figure 7. Periodic monitoring would be performed in three buildings with the potential for vapor intrusion.

After a one-year design period, the alternative would require approximately seven years to meet the remediation goals. Approximately five years will be required for implementation of the remedy followed by about two years of groundwater monitoring.

Alternative 4: Air Sparge/Soil Vapor Extraction of Off-Site Groundwater and Soil Vapor Intrusion Mitigation

Present Worth: *$2,200,000*
Capital Cost: *$1,200,000*
Annual OM&M (Years 1-2): *$480,000*
Annual OM&M (Years 3-5): *$40,000*
Annual OM&M (Years 6-7): *$19,000*

Under this alternative, off-site groundwater contamination would be remediated using a combination of air sparging (AS) and soil vapor extraction (SVE). Approximately 39 air sparge wells would be installed into the aquifer. Air would be injected into these wells and would bubble up through the aquifer. As the air rises, it removes contaminants from contaminated groundwater. Once the air reaches the water table, it would be captured using 27 soil vapor extraction wells. Before being discharged into the atmosphere, the air would pass through activated carbon to remove the VOCs. The locations of the air sparge and soil vapor extraction wells are shown in Figure 10. A schematic of a typical AS/SVE system is depicted in Figure 11.
The air sparge wells would be screened below the water table while the SVE wells would be screened above the water table. Approximately 29 air sparge wells would be screened from 50 to 95 feet bgs while approximately ten air sparge wells would be screened from 50 to 120 feet bgs. All of the SVE wells would be screened from 35 to 55 feet bgs.

Long-term monitoring would be required to measure the progress of the remedy. Three new pairs of nested monitoring wells would be installed south of Old Country Road at 90 feet bgs and 125 feet bgs as part of the long-term monitoring program. Three existing monitoring wells would also be monitored. The locations of these wells are shown in Figure 5. Groundwater samples would be obtained periodically for VOCs.

By remediating the groundwater contamination, AS/SVE would meet the groundwater related remediation goals. The remedy would reduce human exposure to contaminants in groundwater, eliminate the source of soil vapor contamination, protect the public water supply, prevent migration of the contaminant plume, restore the aquifer to its beneficial use and meet ambient water quality standards.

This alternative would also address soil vapor intrusion in off-site buildings. Three affected buildings would be mitigated using sub-slab depressurization (SSD) systems. As part of the SSD system, one or more pipes would be installed through the slab of each building. A fan at the other end of the pipe would create suction through the pipe and would induce a negative pressure beneath the slab. This negative pressure would prevent the intrusion of vapors into the indoor air and prevent human exposure to indoor air contamination. An SSD schematic is shown in Figure 7. Periodic monitoring would be performed in three buildings with the potential for vapor intrusion.

After a one-year design period, the alternative would require approximately seven years to meet the remediation goals. Approximately five years will be required for implementation of the remedy followed by about two years of groundwater monitoring.

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 State. 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 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 3.

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.

In general, the public comments received were supportive of the selected remedy. However, the property owner's consultant was concerned that the new monitoring wells would not be able to monitor the natural attenuation from OU2 because of the nearby OU3 remedy. The Department will coordinate the remedies for the two operable units to ensure that this situation does not occur.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 2, Natural Attenuation of Off-Site Groundwater and Soil Vapor Intrusion Mitigation as the remedy for this site. The elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS. Alternative 2 has been 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.

Alternative 2 will achieve the remediation goals for the site by mitigating any vapor intrusion impacts and allowing groundwater contamination to naturally attenuate. Achieving the remediation goals will satisfy the two threshold criteria, achievement of SCGs and protection of human health and the environment. The vapor intrusion mitigation measures will meet the goal of eliminating exposures to contaminants in indoor air. The groundwater remedy will restore the groundwater to its beneficial use and would meet ambient groundwater quality standards. Alternatives 3 and 4 would achieve these goals through active groundwater remediation and sub-slab depressurization.

Alternative 1 would not achieve remediation goals because no remedial action would be implemented. Therefore, Alternative 1 would not meet the threshold criteria and is eliminated from consideration.

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

Alternative 2 (natural attenuation) is favorable because of limited short-term impacts. As major construction activities will be limited to installation of monitoring wells and sub-slab depressurization systems, Alternative 2 will not detrimentally affect the surrounding businesses. However, Alternatives 3 (chemical oxidation) and 4 (AS/SVE) would have significant short-term impacts. For both alternatives, treatment wells and equipment would be placed inside one or more buildings in the study area. This would affect business activities at these properties.

Alternatives 2, 3 and 4 would achieve long-term effectiveness. All three alternatives would mitigate vapor intrusion impacts. Alternative 2 will remediate the groundwater contamination within 15 years while Alternatives 3 and 4 would remediate the groundwater contamination within seven years.

Alternative 2 will be most easily implementable because all construction activities will be performed outside, except for vapor mitigation equipment. Alternatives 3 and 4 would require construction and placement of treatment equipment in buildings with active businesses, making these alternatives more difficult to implement.

Alternatives 3 and 4 would reduce the toxicity, mobility and volume of contaminated groundwater. Alternatives 3 and 4 would satisfy this criterion through active groundwater remediation while Alternative 2 will reduce groundwater concentrations over time through natural attenuation.

Alternative 2 will be implemented at a lower overall cost than Alternatives 3 and 4. Capital costs for Alternatives 3 and 4 are significantly higher than the capital costs for Alternative 2 because Alternatives 3 and 4 require the construction of active groundwater remediation systems. Alternative 4 has the highest overall operation and maintenance (O&M) costs followed by Alternatives 2 and 3. Alternative 4 would require maintenance of a groundwater treatment system while Alternatives 2 and 3 would only require groundwater monitoring. Alternative 2 will require groundwater monitoring for a longer time period (15 years) than Alternatives 3 and 4 (7 years each), which increases the monitoring costs of Alternative 2. However, the total cost of Alternative 2 is less than either Alternatives 3 or 4.

In summary, Alternative 2 has been selected because it is favorable for three of the five balancing criteria. Alternative 2 is the superior remedy for short-term effectiveness, implementability and cost. All three alternatives are satisfactory for the other two balancing criteria: long-term effectiveness and reduction of toxicity, mobility and volume.

The estimated present worth cost to implement the remedy is $770,000. The cost to construct the remedy is estimated to be $320,000 and the estimated average annual operation, maintenance, and monitoring costs for 15 years is $43,000.

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.

2. Sub-slab depressurization systems will be installed in three off-site buildings that have vapor intrusion impacts.

3. Periodic vapor sub-slab vapor, indoor air and outdoor air samples will be obtained at three properties where the potential for vapor intrusion exists. Periodic sampling will continue until sampling results indicate that continued sampling is no longer required.

4. Groundwater contamination within the study area will be allowed to naturally attenuate.

5. Imposition of an institutional control in the form of an environmental easement on the site that will require: (a) compliance with the approved site management plan; and (b) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

6. Development of a site management plan which will include the following institutional and engineering controls: (a) monitoring of groundwater, sub-slab vapor, indoor air and outdoor air; and (b) provisions for the continued proper operation and maintenance of the components of the remedy.

7. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

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

9. Since the remedy results in untreated hazardous waste remaining at the site, a long term monitoring program will be instituted. Up to nine monitoring wells will be sampled periodically for VOCs to track the progress of the natural attenuation. In addition, sub-slab vapor, indoor air and outdoor air samples will be obtained and analyzed for VOCs at three buildings with potential vapor intrusion impacts. This program will allow the effectiveness

of the natural attenuation and soil vapor intrusion mitigation measures to be monitored and will be a component of the operation, maintenance, and monitoring for the site.

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:

1. Repositories for documents pertaining to the site were established.

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

3. Fact sheets were mailed to the public contact list in July 2004 and February 2008.

4. A public meeting was held on March 4, 2008 to present and receive comment on the PRAP.

5. A press release was sent to local media to announce the public meeting in February 2008.

6. 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
September 2004 to May 2007

HYDROPUNCH GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	ND to 100	5	7 of 84
	Tetrachloroethene	ND to 67	5	17 of 84
	cis-1,2-Dichloroethene	ND to 44	5	2 of 84
	Toluene	ND to 22	5	1 of 84
	1,1,1-Trichloroethane	ND to 11	5	2 of 84
	Methylene Chloride	ND to 10	5	1 of 84

MONITORING WELL GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	8.6 to 220	5	2 of 2
	cis-1,2-Dichloroethene	4.4 to 84	5	1 of 2
	Trichloroethene	33 to 54	5	2 of 2
	1,1-Dichloroethene	1.4 to 22	5	1 of 2
	1,1,1-Trichloroethane	3.6 to 17	5	1 of 2

TABLE 1
Nature and Extent of Contamination
September 2004 to May 2007

SOIL GAS	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	ND to 1,600	N/A	N/A
	Acetone	ND to 1,000	N/A	N/A
	Cyclohexane	ND to 960	N/A	N/A
	Xylenes (total)	ND to 780	N/A	N/A
	Isooctane	ND to 750	N/A	N/A
	Toluene	ND to 720	N/A	N/A
	1,2,4-Trimethylbenzene	ND to 490	N/A	N/A
	n-Heptane	ND to 350	N/A	N/A
	p-Ethyltoluene	ND to 290	N/A	N/A
	Dichlorodifluoromethane	ND to 270	N/A	N/A
	n-Hexane	ND to 240	N/A	N/A
	1,3,5-Trimethlybenzene	ND to 210	N/A	N/A
	Benzene	ND to 200	N/A	N/A
	Ethylbenzene	ND to 180	N/A	N/A
	2-Butanone	ND to 110	N/A	N/A
	1,1,1-Trichloroethane	ND to 98	N/A	N/A
	Trichloroethene	ND to 75	N/A	N/A
	1,3-Butadiene	ND to 17	N/A	N/A
	Trichlorofluoromethane	ND to 15	N/A	N/A
	Methylene Chloride	ND to 14	N/A	N/A
	Carbon Disulfide	ND to 12	N/A	N/A
	Chloroform	ND to 6.8	N/A	N/A
	2-Hexanone	ND to 4.9	N/A	N/A
	1,1-Dichloroethane	ND to 3.2	N/A	N/A
	Chloromethane	ND to 1.3	N/A	N/A

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil
$\mu g/m^3$ = microgram per meter cubed
ND = non-detect
N/A = not applicable
[b] SCG = standards, criteria, and guidance values

Table 2
Soil Vapor Intrusion Recommendations Based on NYSDOH Decision Matrices

Utility Manufacturing/Wonder King, OU2
Town of North Hempstead, Nassau County, New York

Location	Compound	Sub-slab Air Concentration	Indoor Air Concentration	Outdoor Air Concentration	Action Recommended	Final Action Recommended
Property 1	PCE	339D	0.81	0.26 U	Monitor	Based on PCE results, monitoring is recommended to determine whether concentrations in the indoor air or sub-slab vapor have changed.
	TCE	3.11	1.88	2.04	Reasonable Action	
	1,1,1-TCA	100	0.12 U	0.12 U	Monitor	
Property 2	PCE	182	20	0.68 J	Monitor/Mitigate	Based on TCE results, mitigation is recommended to minimize current or potential exposures associated with soil vapor intrusion.
	TCE	74.6	1.13	1.02	Mitigate	
	1,1,1-TCA	8.7	0.12U	0.12 U	No Further Action	
Property 3	PCE	19	0.88	0.81	No Further Action	Based on PCE and TCE results, no further action is necessary due to the low concentrations detected.
	TCE	1.5	0.12 U	0.25 U	No Further Action	
	1,1,1-TCA	0.24 U	0.12 U	0.55 U	No Further Action	
Property 6	PCE	80.7	3.58	0.95	Reasonable Action	Based on TCE results, mitigation is recommended to minimize current or potential exposures associated with soil vapor intrusion.
	TCE	22.7	5.47	0.25 U	Mitigate	
	1,1,1-TCA	45.6	1.36	0.55 U	No Further Action	

Notes:

1. Concentrations in ug/m^3.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. 1,1,1-TCA = 1,1,1-Trichloroethane.
5. Compounds listed were detected at concentration greater than NYSDOH (2006) decision matrix value in at least one sample.
6. "U" indicates the compound was not detected at or above the quanititation limit shown.
7. "Action Recommended" based on NYSDOH Decision Matrices for Soil Vapor Intrusion.
8. "Final Action Recommended" is strictest action recommended for the structure based on recommendations listed.
9. "D" indicates the sample was diluted during analysis due to high contaminant concentrations.

Table 2
Soil Vapor Intrusion Recommendations Based on NYSDOH Decision Matrices

Utility Manufacturing/Wonder King, OU2
Town of North Hempstead, Nassau County, New York

Location	Compound	Sub-slab Air Concentration	Indoor Air Concentration	Outdoor Air Concentration	Action Recommended	Final Action Recommended
Property 7	PCE	37.6	1.9 J	2.44	No Further Action	Based on TCE results, monitoring is recommended to determine whether concentrations in the indoor air or sub-slab vapor have changed.
	TCE	12.3	3.27 J	3.96	Monitor	
	1,1,1-TCA	1.58	0.87 J	0.12 U	No Further Action	
Property 9	PCE	436 D	1.02	0.26 U	Monitor	Based on TCE results, mitigation is recommended to minimize current or potential exposures associated with soil vapor intrusion.
	TCE	39.4	35.4	1.93	Mitigate	
	1,1,1-TCA	640 D	0.12 U	0.12 U	Monitor	
Property 11	PCE	244	1607 D	96.3	Mitigate	This property is used as an active auto paint shop. The TCE and PCE concentrations are likely a result of current activities at the site. Therefore, No further action is recommended for this property.
	TCE	0.39 U	0.59	0.12 U	Reasonable Action	
	1,1,1-TCA	5.33	0.12 U	0.12 U	No Further action	
Property 13	PCE	71.3	1.9	0.26 U	No Further Action	Based on TCE results, monitoring is recommended to determine whether concentrations in the indoor air or sub-slab vapor have changed.
	TCE	42.4	0.48	1.93	Monitor	
	1,1,1-TCA	76.3	0.12 U	0.12 U	No Further Action	

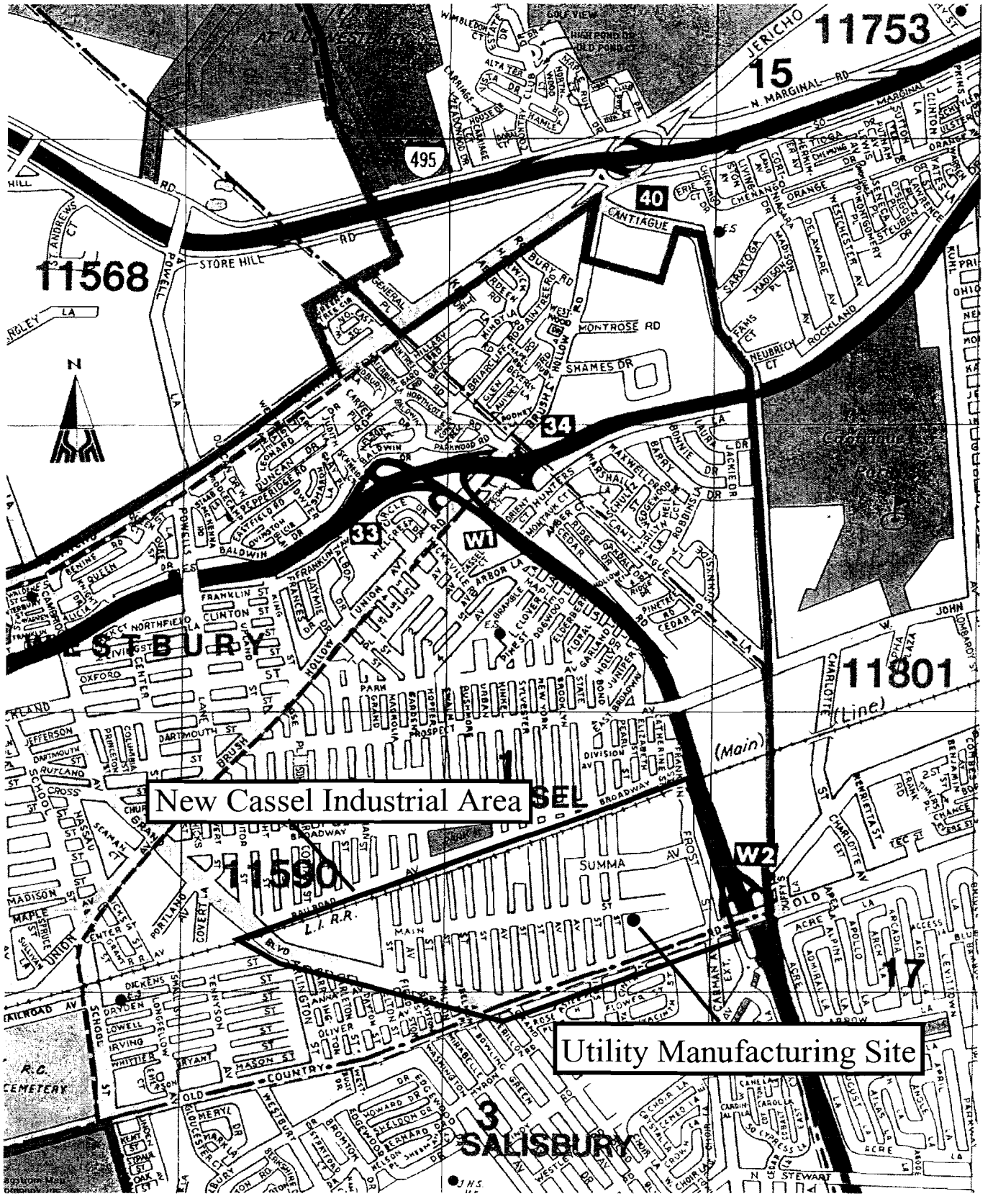
Notes:

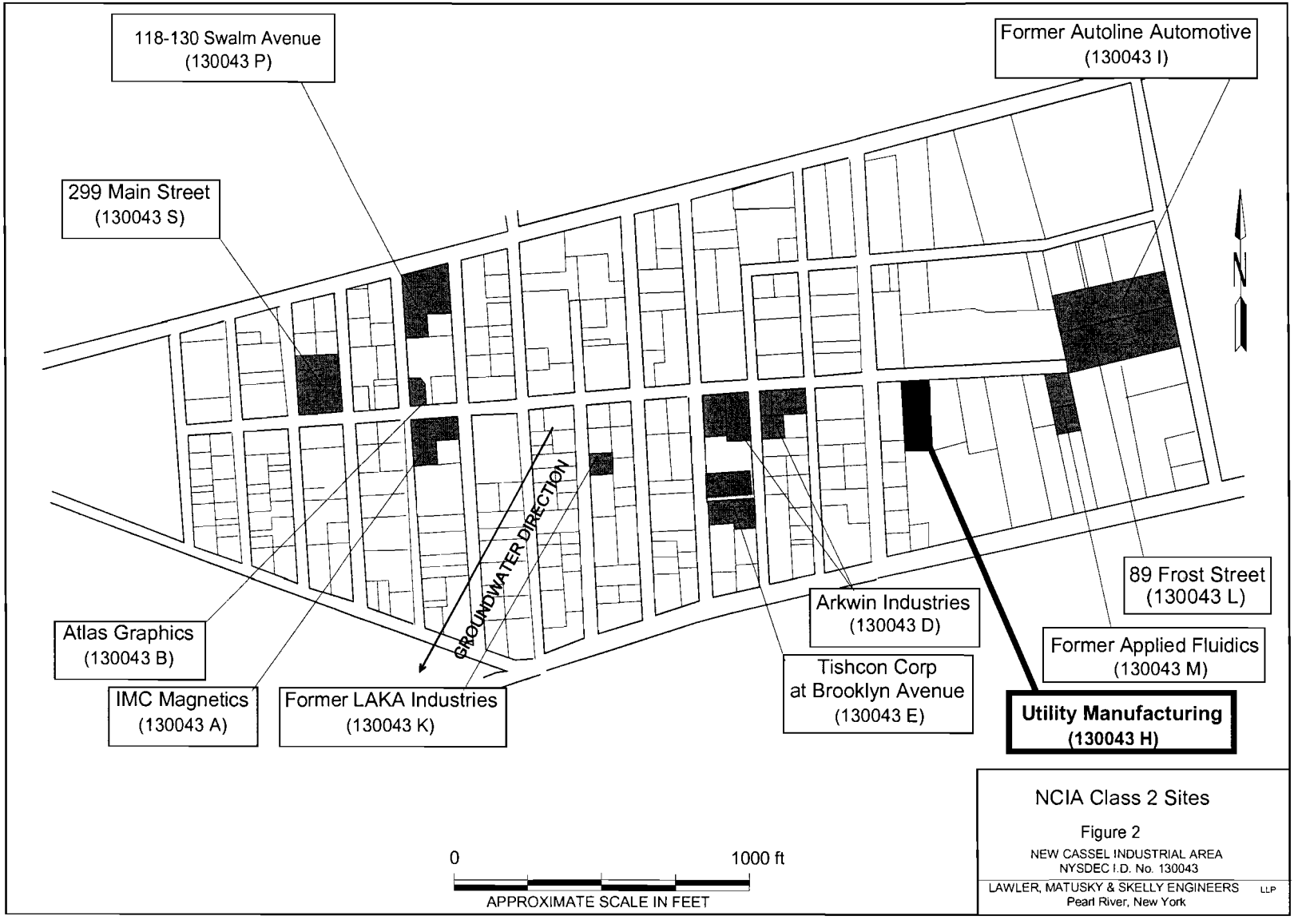
1. Concentrations in ug/m^3.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. 1,1,1-TCA = 1,1,1-Trichloroethane.
5. Compounds listed were detected at concentration greater than NYSDOH (2006) decision matrix value in at least one sample.
6. "U" indicates the compound was not detected at or above the quanititation limit shown.
7. "Action Recommended" based on NYSDOH Decision Matrices for Soil Vapor Intrusion.
8. "Final Action Recommended" is strictest action recommended for the structure based on recommendations listed.
9. "D" indicates the sample was diluted during analysis due to high contaminant concentrations.

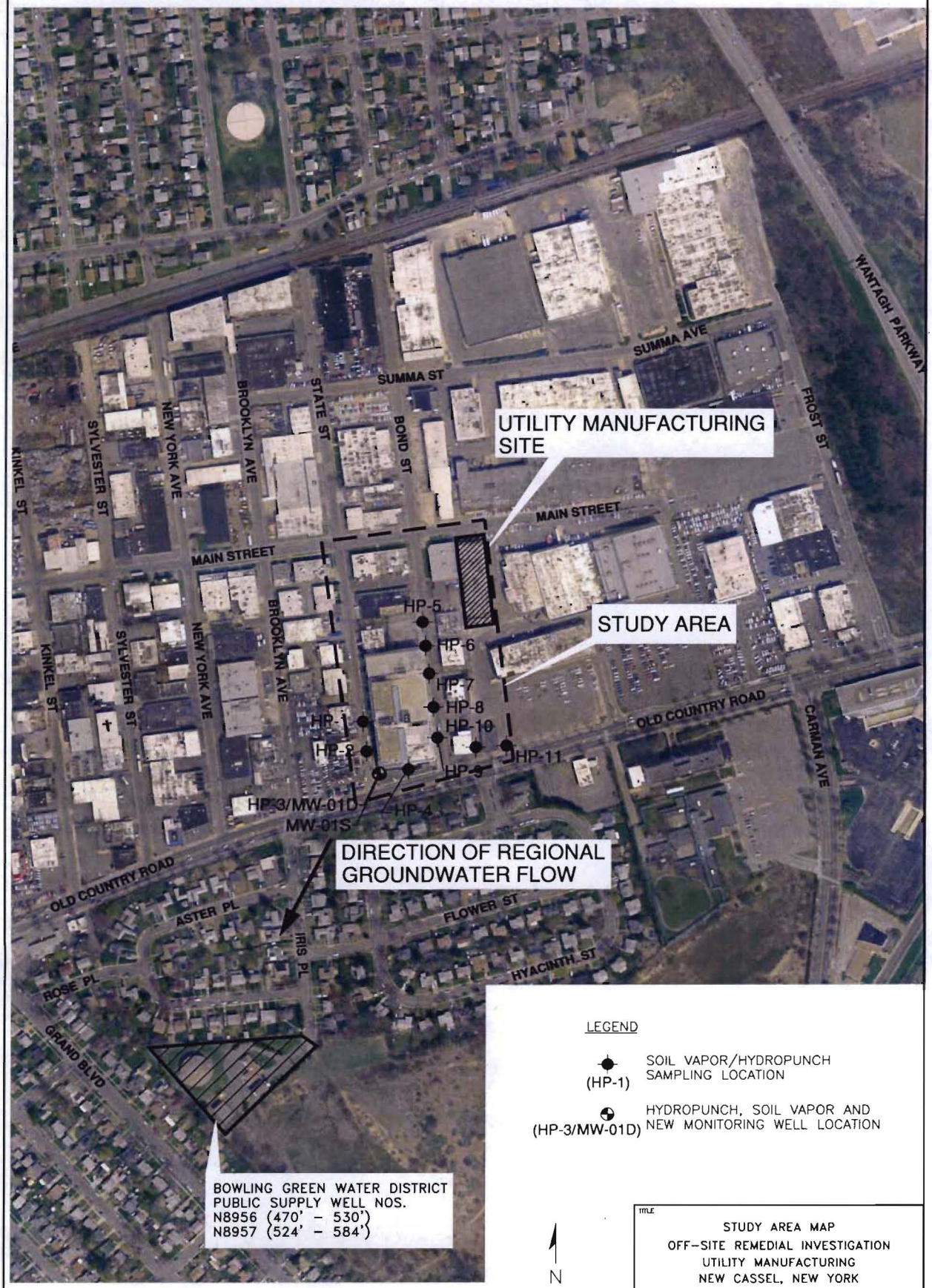
Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual OM&M	Total Present Worth
Alternative 1: No Action	$0	$0	$0
Alternative 2: Natural Attenuation of Off-Site Groundwater	$320,000	$43,000	$770,000
Alternative 3: In-Situ Chemical Oxidation of Off-Site Groundwater	$900,000	Years 1-5: $40,000 Years 6-7: $19,000	$1,100,000
Alternative 4: Air Sparge/Soil Vapor Extraction of Off-Site Groundwater	$1,200,000	Years 1-2: $480,000 Years 3-5: $40,000 Years 6-7: $19,000	$2,200,000

Figure 1 - Site Location Map




118-130 Swalm Avenue
(130043 P)
Former Autoline Automotive
(130043 I)
299 Main Street
(130043 S)
N
GROUNDWATER DIRECTION
89 Frost Street
(130043 L)
Arkwin Industries
(130043 D)
Atlas Graphics
(130043 B)
Former Applied Fluidics
(130043 M)
Tishcon Corp
at Brooklyn Avenue
(130043 E)
IMC Magnetics
(130043 A)
Former LAKA Industries
(130043 K)
Utility Manufacturing
(130043 H)
0
1000 ft
APPROXIMATE SCALE IN FEET
NCIA Class 2 Sites
Figure 2
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043
LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York
LLP



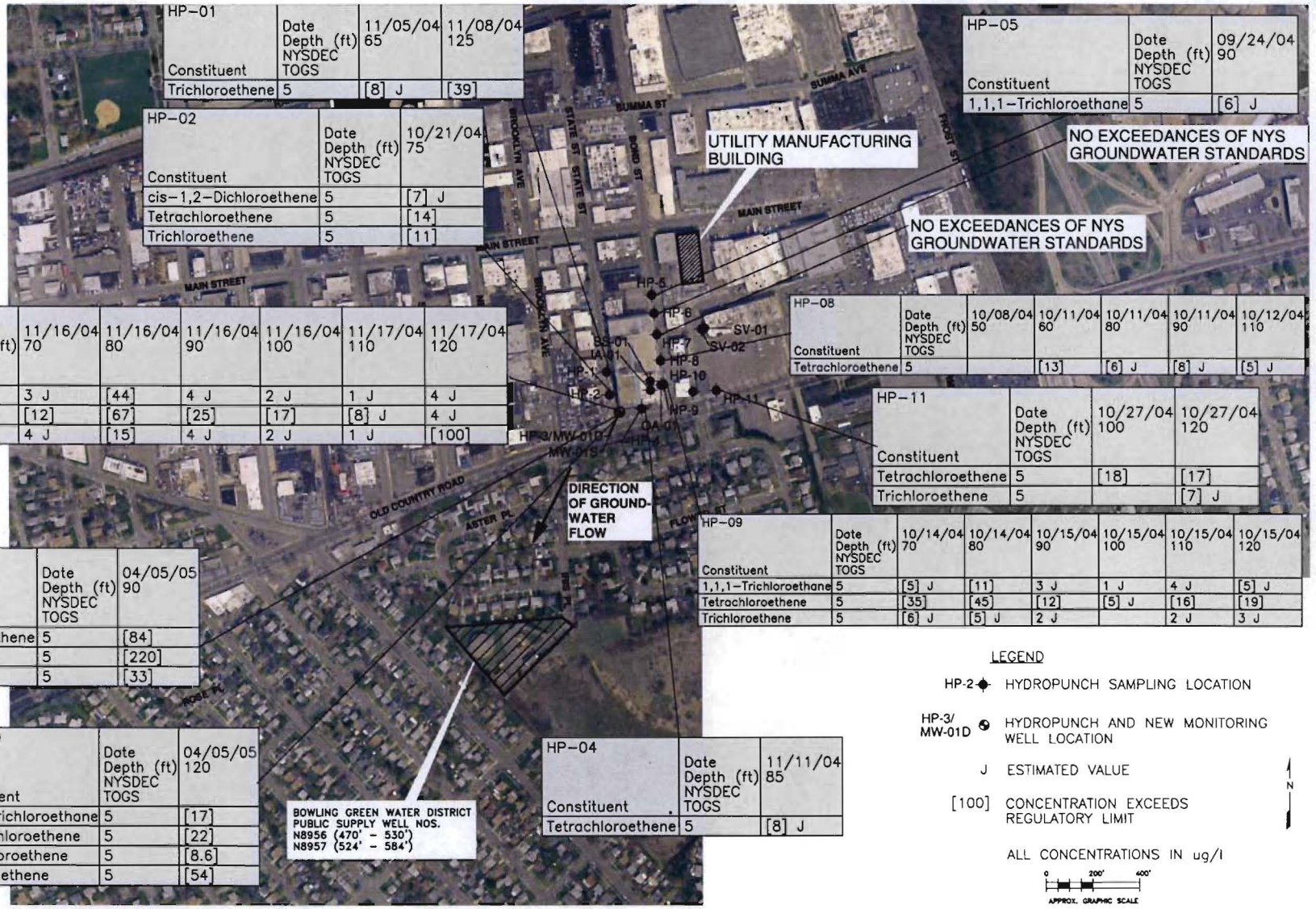
TITLE

STUDY AREA MAP
OFF-SITE REMEDIAL INVESTIGATION
UTILITY MANUFACTURING
NEW CASSEL, NEW YORK

PREPARED FOR
NYSDEC SITE CODE No.1-30-043H

ERM — Environmental Resources Management

DRAWN	JOB NO.	FILE NAME	SCALE	DATE	FIGURE
EMF	0020116	0020116-00-021	GRAPHIC	12/19/05	3



HP-01	Date	11/05/04	11/08/04
Constituent	Depth (ft)	65	125
	NYSDEC TOGS		
Trichloroethene	5	[8] J	[39]

HP-02	Date	10/21/04
Constituent	Depth (ft)	75
	NYSDEC TOGS	
cis-1,2-Dichloroethene	5	[7] J
Tetrachloroethene	5	[14]
Trichloroethene	5	[11]

HP-03	Date	11/16/04	11/16/04	11/16/04	11/16/04	11/17/04	11/17/04
Constituent	Depth (ft)	70	80	90	100	110	120
	NYSDEC TOGS						
cis-1,2-Dichloroethene	5	3 J	[44]	4 J	2 J	1 J	4 J
Tetrachloroethene	5	[12]	[67]	[25]	[17]	[8] J	4 J
Trichloroethene	5	4 J	[15]	4 J	2 J	1 J	[100]

HP-05	Date	09/24/04
Constituent	Depth (ft)	90
	NYSDEC TOGS	
1,1,1-Trichloroethane	5	[6] J

HP-08	Date	10/08/04	10/11/04	10/11/04	10/11/04	10/12/04
Constituent	Depth (ft)	50	60	80	90	110
	NYSDEC TOGS					
Tetrachloroethene	5		[13]	[6] J	[8] J	[5] J

HP-11	Date	10/27/04	10/27/04
Constituent	Depth (ft)	100	120
	NYSDEC TOGS		
Tetrachloroethene	5	[18]	[17]
Trichloroethene	5		[7] J

HP-09	Date	10/14/04	10/14/04	10/15/04	10/15/04	10/15/04	10/15/04
Constituent	Depth (ft)	70	80	90	100	110	120
	NYSDEC TOGS						
1,1,1-Trichloroethane	5	[5] J	[11]	3 J	1 J	4 J	[5] J
Tetrachloroethene	5	[35]	[45]	[12]	[5] J	[16]	[19]
Trichloroethene	5	[6] J	[5] J	2 J		2 J	3 J

MW-01S	Date	04/05/05
Constituent	Depth (ft)	90
	NYSDEC TOGS	
cis-1,2-Dichloroethene	5	[84]
Tetrachloroethene	5	[220]
Trichloroethene	5	[33]

MW-01D	Date	04/05/05
Constituent	Depth (ft)	120
	NYSDEC TOGS	
1,1,1-Trichloroethane	5	[17]
1,1-Dichloroethene	5	[22]
Tetrachloroethene	5	[8.6]
Trichloroethene	5	[54]

HP-04	Date	11/11/04
Constituent	Depth (ft)	85
	NYSDEC TOGS	
Tetrachloroethene	5	[8] J

LEGEND

HP-2 ◆ HYDROPUNCH SAMPLING LOCATION

HP-3/MW-01D ◉ HYDROPUNCH AND NEW MONITORING WELL LOCATION

J ESTIMATED VALUE

[100] CONCENTRATION EXCEEDS REGULATORY LIMIT

ALL CONCENTRATIONS IN ug/l

0 200' 400'
APPROX. GRAPHIC SCALE

N

NYSDEC SITE CODE No. 1-30-043H

Environmental Resources Management
ERM

GROUNDWATER SAMPLING RESULTS

4

EFR/EMF | 12/19/05 | GRAPHIC | 0020116 | 0020116-00-022


UTILITY MANUFACTURING BUILDING
SUMMA ST
SUMMA AVE
MAIN STREET
MAIN STREET
OLD COUNTRY ROAD
OLD COUNTRY ROAD
FLOWER ST
RYACKER ST
ASTER PL
SYLVESTER ST
NEW YORK AVE
BROOKLYN AVE
STATE ST
BOND ST
FROST ST
KINKEL ST
CARMAN AVE
MW-01D
MW-01S
NC-12
BOWLING GREEN WATER DISTRICT
PUBLIC SUPPLY WELL NOS.
N8956 (470' - 530')
N8957 (524' - 584')
LEGEND
EXISTING MONITORING WELL LOCATION
NEW NESTED MONITORING WELL LOCATION
0
300'
600'
APPROX. GRAPHIC SCALE
N
TITLE
LOCATIONS OF MONITORING WELLS
PREPARED FOR
NYSDEC SITE CODE No.1-30-043H
ERM
SCALE
GRAPHIC
FIGURE
5
DRAWN
EMF
JOB NO.:
0020117
FILE NAME:
0020117-00-001w
DATE
2/1/05

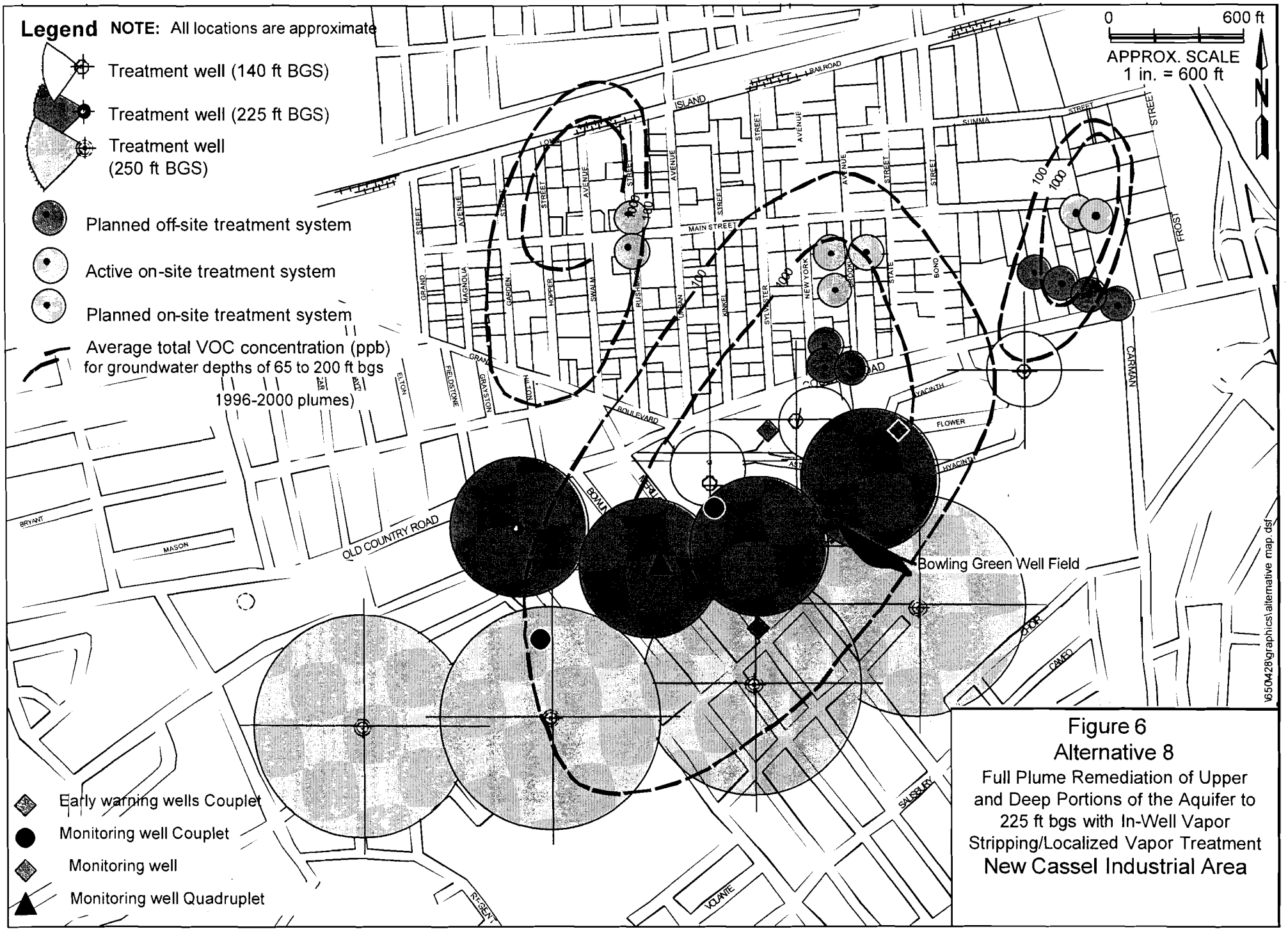
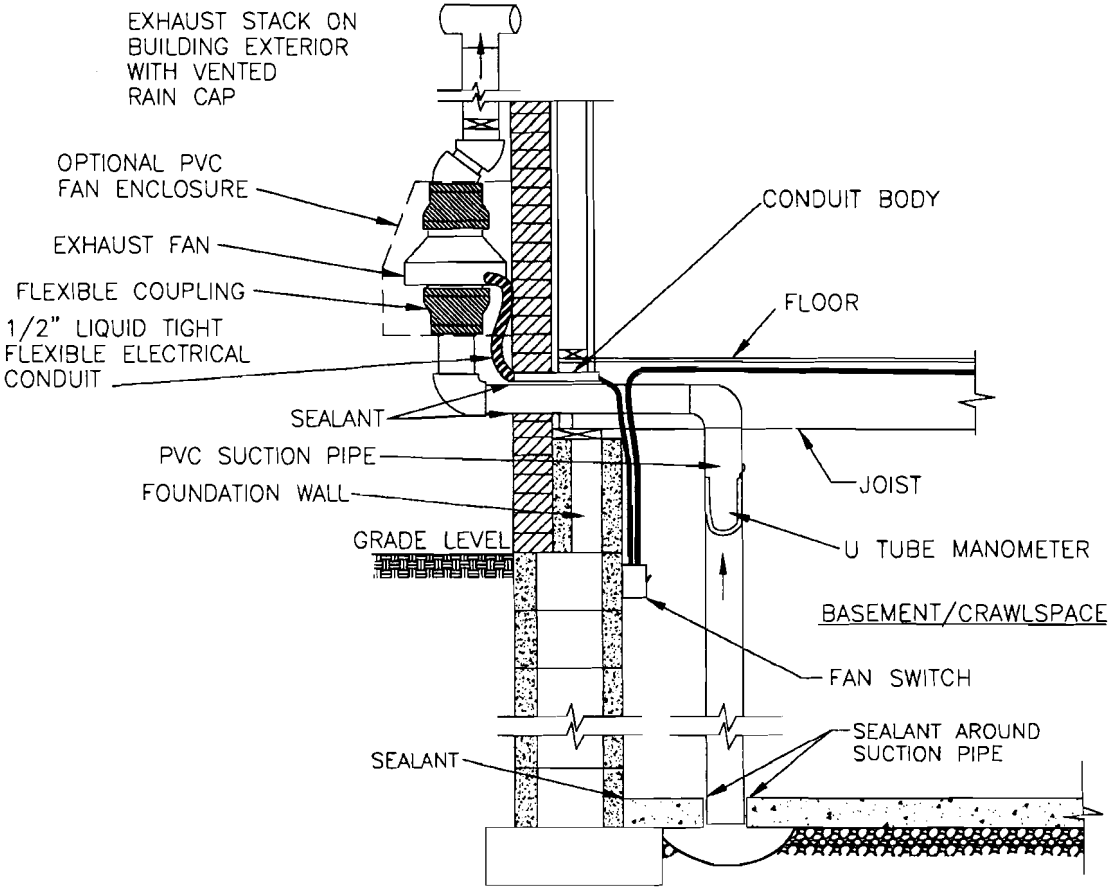


Figure 6
Alternative 8
Full Plume Remediation of Upper and Deep Portions of the Aquifer to 225 ft bgs with In-Well Vapor Stripping/Localized Vapor Treatment
New Cassel Industrial Area



TYPICAL SECTION
NOT TO SCALE

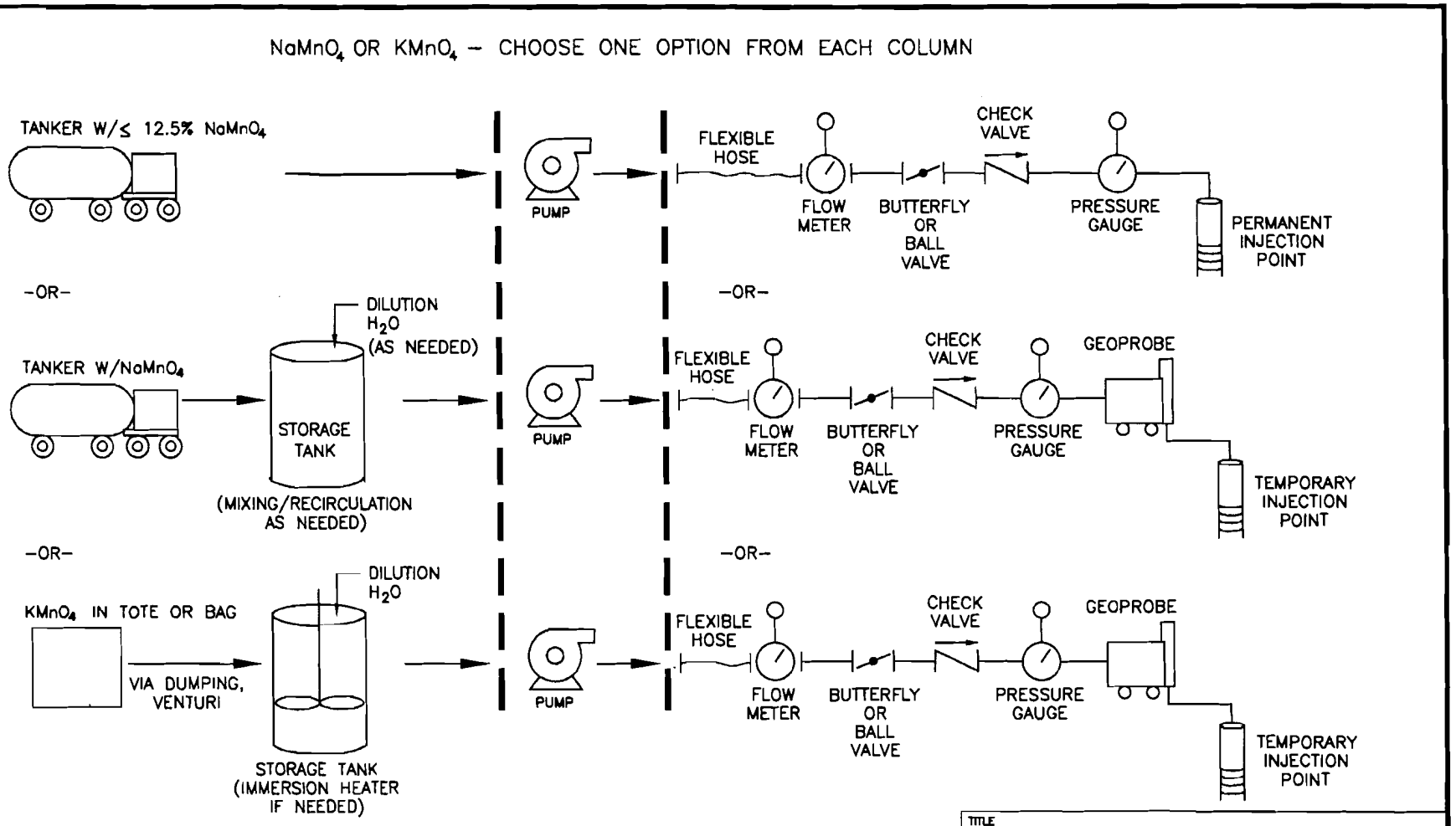
SOURCE: NYSDOH VI PRESENTATION

TITLE

SCHEMATIC OF THE SUBSLAB DEPRESSURIZATION SYSTEM

PREPARED FOR
NYSDEC SITE CODE NO. 1-30-043H

ERM Environmental Resources Management			SCALE: NTS	FIGURE: 7
DRAWN: EMF	JOB NO.: 0020117	FILE NAME: 0020117-00-002bw	DATE: 1/1/06	



TITLE

SCHEMATIC OF THE IN-SITU CHEMICAL OXIDATION SYSTEM

PREPARED FOR

NYSDEC SITE CODE NO. 1-30-043H

ERM Environmental Resources Management			SCALE: NTS	FIGURE: 8
DRAWN: EMF/CWW	JOB NO.: 0020117	FILE NAME: 0020117-00-004bw	DATE: 2/15/06	


UTILITY MANUFACTURING BUILDING
SUMMA AVE
SUMMA ST
MAIN STREET
OLD COUNTRY ROAD
FLOWER ST
HYACINTH ST
ASTER PL
SYLVESTER ST
NEW YORK AVE
BROOKLYN AVE
STATE ST
BOND ST
KINKEL ST
FROST ST
CAMMAN AVE
MW-01D
MW-01S
BOWLING GREEN WATER DISTRICT
PUBLIC SUPPLY WELL NOS.
N8956 (470' - 530')
N8957 (524' - 584')
LEGEND
EXISTING MONITORING WELL LOCATION
NEW NESTED MONITORING WELL LOCATION
DEEP ISCO INJECTION POINTS (90'-120' bgs)
SHALLOW ISCO INJECTION POINTS (60'-90' bgs)
0
300'
600'
APPROX. GRAPHIC SCALE
N
LOCATIONS OF PROPOSED
ISCO INJECTION POINTS
UTILITLY MANUFACTURING
700-712 MAIN STREET
NEW CASSEL, NEW YORK
NYSDEC SITE CODE No.1-30-043H
ERM
GRAPHIC
EMF
0020117
1/11/06
9

LEGEND

⊠ SVE POINTS

● AS POINTS

0 40' 80'

APPROX. GRAPHIC SCALE

N

LOCATIONS OF PROPOSED
AIR SPARGING POINTS AND
SVE COLLECTION AREAS
700-712 MAIN STREET
NEW CASSEL, NEW YORK

PREPARED FOR
NYSDEC SITE CODE No. 1-30-043H

ERM

DRAWN EMF

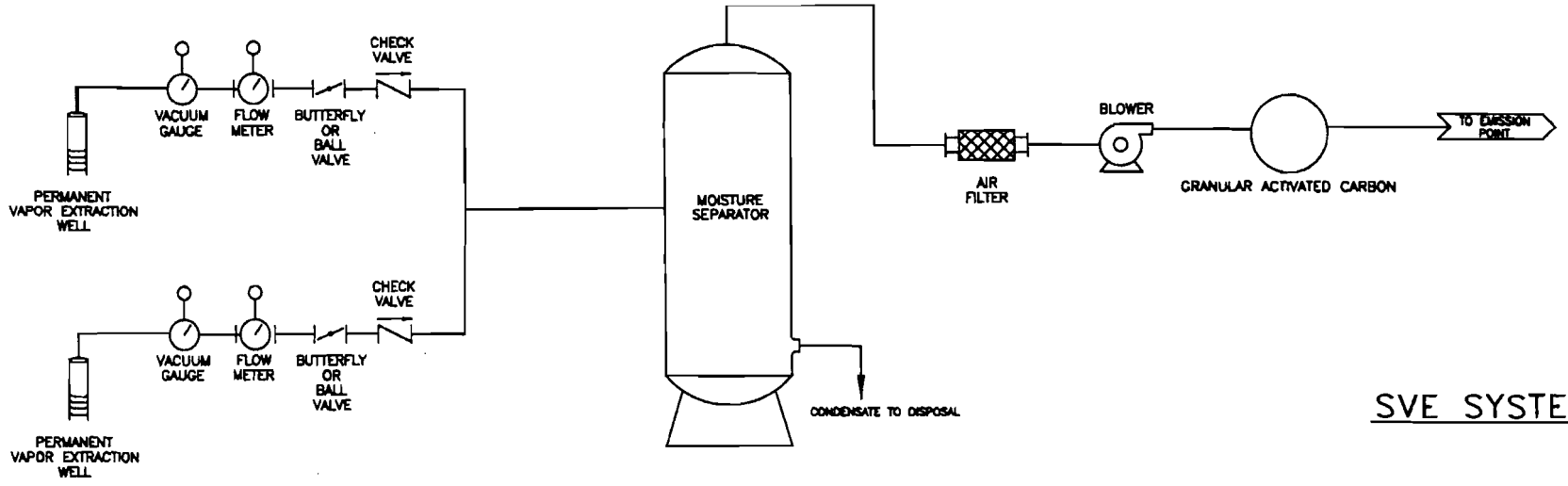
JOB No. 0030618

FILE NAME 0030618-00-006

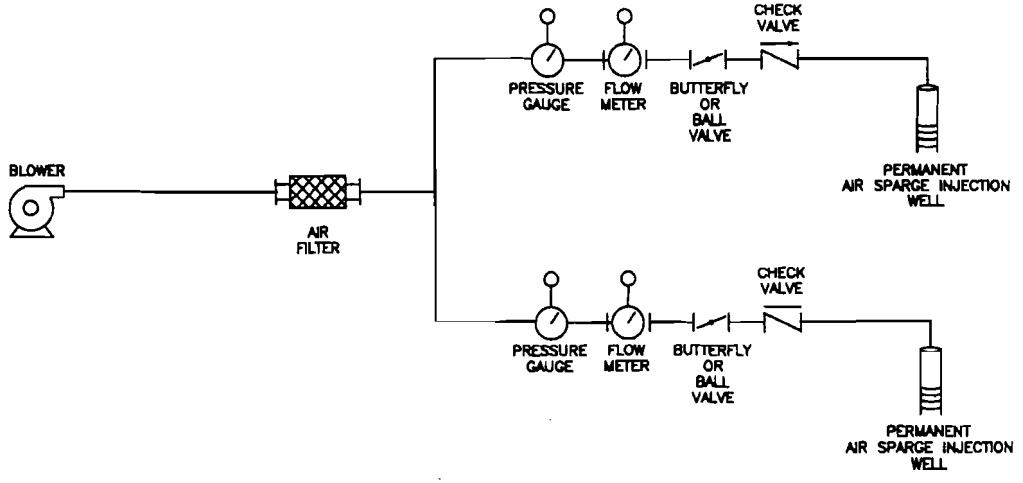
SCALE GRAPHIC

DATE 2/3/06

FIGURE 10



SVE SYSTEM



AS SYSTEM

NYSDEC SITE CODE NO. 1-30-043H

ERM

SCHEMATIC OF THE PROPOSED AS/SVE SYSTEMS

11

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Utility Manufacturing/Wonder King Site
Operable Unit No. 2
Town of North Hempstead, Nassau County, New York
Site No. 130043H

The Proposed Remedial Action Plan (PRAP) for the Utility Manufacturing/Wonder King 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 22, 2008. The PRAP outlined the remedial measure proposed for the contaminated groundwater and soil vapor at the Utility Manufacturing/Wonder King (Utility) 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 March 4, 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 21, 2008.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: I live on Brooklyn Avenue near Prospect Avenue. Are the residents in my neighborhood exposed to contamination from this site? What are the potential impacts to our health? What exams should we have done?

RESPONSE 1: Prospect Avenue is located upgradient of the site and is not affected by site-related contamination.

COMMENT 2: Are homes being affected by site-related contamination?

RESPONSE 2: Homes to the north of the New Cassel Industrial Area (NCIA) are not affected by either groundwater or soil vapor contamination associated with the Utility Manufacturing site or with the NCIA in general. Groundwater located south of the NCIA is impacted with site-related contaminants and is flowing under homes. No resident is expected to be consuming this contaminated groundwater since drinking water for the area comes from the Bowling Green public water supply and is treated for volatile organic compound contamination prior to water distribution to area residents.

COMMENT 3: Do owners of buildings with vapor intrusion issues have to notify tenants and/or employees about the findings of vapor intrusion investigations? It seems that New York State has decided to protect property owners instead of the public or employee health.

RESPONSE 3: The State provides information to the owners of the buildings sampled and strongly encourages the owners to communicate with the tenants and/or appropriate employees.

COMMENT 4: I work in the Century 21 building. Has this building been checked for indoor air contamination?

RESPONSE 4: The Century 21 building is located on the Former Applied Fluidics site (Site Number 130043M). Vapor intrusion sampling was conducted in the building and no indoor air contamination was detected.

COMMENT 5: Why did you wait until after installing the air sparge/soil vapor extraction system to sample beneath the Century 21 building? Was there an issue with indoor air prior to the installation of the soil vapor extraction system in Century 21?

RESPONSE 5: The air sparge/soil vapor extraction system was originally installed to remediate contaminated groundwater at the Former Applied Fluidics site (Site Number 130043M). The system provides protection against soil vapor intrusion as an added benefit. The indoor air at the Century 21 building was sampled to evaluate the indoor air quality after the soil vapor extraction system was installed to ensure it was not adversely impacted.

COMMENT 6: Can you tell us which off-site buildings will be mitigated for vapor intrusion?

RESPONSE 6: The Department is keeping the building locations confidential to protect the privacy of the property owners.

COMMENT 7: If there is no problem in the affected buildings, why are people not being told which buildings are affected so we can make our own judgments on whether we want to be exposed to that area?

RESPONSE 7: We try to protect confidentiality of all private property, and strongly encourage communication with tenants and employers when there are exposures.

COMMENT 8: The DEC discovered homes impacted with soil vapor intrusion in the 1990s. The DEC has known about vapor intrusion for 10 to 12 years already.

RESPONSE 8: Improvements in analytical techniques and knowledge gained from site investigations in New York and other states has recently led to an increased awareness of soil vapor as a medium of concern and of the potential for exposures from the soil vapor intrusion pathway. Based on this additional information, New York is currently re-evaluating previous assumptions and

decisions regarding the potential for soil vapor intrusion exposures at sites. As a result, all past, current, and future contaminated sites will be evaluated to determine whether these sites have the potential for exposures related to soil vapor intrusion. Consequently, the Department is currently conducting a vapor intrusion investigation for the homes located south of Old Country Road.

COMMENT 9: If the owner of a property with a soil vapor intrusion problem sells the property, does he/she have to notify the buyer?

RESPONSE 9: Should such an owner decide to transfer ownership of the property in the future, the Department believes that the Real Property Disclosure Act, which went into effect on March 1, 2002, requires that the potential purchaser of the structure be informed of the results of the environmental sampling that was performed.

COMMENT 10: I recently purchased a home in the area. I believe that buyers should be notified about vapor intrusion problems.

RESPONSE 10: See Response Number 9.

COMMENT 11: Why did you stop remediating the on-site groundwater when PCE levels were at 26 parts per billion (ppb)? Isn't the groundwater standard 5 ppb for PCE?

RESPONSE 11: The Department ceased operation of the on-site remediation system when the limits of the remediation technology were reached. The Department also determined that the remaining contamination could not be cost-effectively treated using existing technologies. See also Response Number 2.

COMMENT 12: What is the difference between the groundwater remediation technology in remedial alternative one, "no action," and natural attenuation?

RESPONSE 12: Natural attenuation involves stricter monitoring than no action. However, neither remedy involves active groundwater remediation.

COMMENT 13: What contaminant levels are entering the Bowling Green public water supply?

RESPONSE 13: The Town of Hempstead Water Department regularly samples the raw and treated water at the Bowling Green public water supply. Please contact that department for the most up to date results.

COMMENT 14: The groundwater has moved off-site, south of Old Country Road and impacted the Bowling Green drinking water wells. Eventually these wells may be overburdened by the contamination impacting them. Shouldn't either the property owner or the DEC pay for the treatment of the drinking water, not the water district?

RESPONSE 14: The Department provided the funding for the treatment system on the Bowling Green drinking water wells. The Department is currently suing the responsible parties of the New Cassel Industrial Area sites to recover the cost of the treatment system.

COMMENT 15: Do you have the results of what we are actually getting following the treatment at the Bowling Green Wells?

RESPONSE 15: In order to distribute drinking water to the public, public water supplies must meet drinking water standards. The treated water at the Bowling Green public water supply meets drinking water standards. Updated sampling results can be obtained from the Town of Hempstead Water Department.

COMMENT 16: How far has the plume traveled south of Old Country Road?

RESPONSE 16: This ROD only addresses off-site contamination north of Old Country Road. The Department previously conducted an investigation south of Old Country Road for all of the New Cassel Industrial Area sites. The results of the investigation, which delineated the groundwater south of Old Country Road, can be found in the document entitled, "Record of Decision, New Cassel Industrial Area Sites, Off-site Groundwater South of the New Cassel Industrial Area, Operable Unit 3", dated October 2003, which is available at the document repository.

COMMENT 17: When will the remedy for operable unit 3 be implemented?

RESPONSE 17: The Department estimates that construction of the operable unit 3 remedy will begin in approximately two years.

COMMENT 18: You have not sunk one well south of Old Country Road to determine how far the plume has gone. There is no information about this site south of Old Country Road. Current monitoring wells are in line to monitor contamination from sites that are west of Utility Manufacturing, but there are no wells far enough east to measure the amount of contamination coming from this specific site. You are doing things backwards. You should address the plume first and then remediate the sources instead of the other way around.

RESPONSE 18: The Department has conducted a comprehensive investigation of the groundwater contamination south of Old Country Road and has selected a remedy for that contamination. The details of the investigation and the selected remedy can be found in the document entitled, "Record of Decision, New Cassel Industrial Area Sites, Off-site Groundwater South of the New Cassel Industrial Area, Operable Unit 3", dated October 2003, which is available at the document repository.

COMMENT 19: What is the total amount of contamination coming from all the area's known sites?

RESPONSE 19: The Department has not calculated a total contaminant mass for all of the New Cassel Industrial Area sites. This would be very difficult to estimate and is not needed to select remedies to clean up the sites.

COMMENT 20: When does the public comment period end?

RESPONSE 20: The public comment period for this PRAP ends on March 21, 2008.

COMMENT 21: This is the first time I have heard about this contamination. Why did I receive no previous notification?

RESPONSE 21: The Department strives to ensure adequate citizen participation in its remedial program. We have held numerous meetings on the New Cassel Industrial Area sites over the last several years. We send out fact sheets for each public meeting and update the public mailing list for each meeting.

COMMENT 22: There are known areas upgradient of Utility Manufacturing that used and improperly release chlorinated solvents into the environment which may be impacting or creating the plume attributed to the Utility Manufacturing site. This information has been supplied to the DEC. Will this issue be addressed in the ROD?

RESPONSE 22: Prior to on-site remediation, the groundwater contaminant levels on the site and downgradient of the site exceeded concentrations on the upgradient end of the site. Therefore, the on-site investigation demonstrated that the Utility Manufacturing/Wonder King site is responsible for the on-site and downgradient plume.

COMMENT 23: On slide number 16, it shows that the DEC has drilled numerous wells that detected elevated levels of volatile organic compounds (VOCs). There appears to be a gap of detection of VOCs in the data. How do you explain the gap?

RESPONSE 23: The Department detected VOC levels exceeding groundwater standards at several locations in the off-site study area. Therefore, the Department does not believe there is a gap in detections.

COMMENT 24: In the selected alternative, you have proposed adding three monitoring wells south of Old Country Road in OU-3. These wells would be ineffective due to the fact that there is a remedy for OU-3. These wells would not give proper readings of what is occurring in OU-2 due to the implementation of the OU-3 remedy. This does not add to the protection of human health or the environment, and it is not cost effective.

RESPONSE 24: In order to monitor the progress of the natural attenuation, groundwater monitoring wells downgradient of the study area are needed. The Department will coordinate the Utility Manufacturing/Wonder King Site OU2 remedy with the New Cassel Industrial Area Sites, Off-site Groundwater South of the New Cassel Industrial Area OU3 remedy.

Mr. Eric Weinstock of C.A Rich Consultants, the property owner's consultant, submitted a letter (dated March 20, 2008), which includes comments on the PRAP and other site-related documents. The Responsiveness Summary addresses Mr. Weinstock's comments on the PRAP and other comments that are relevant to the PRAP.

Mr. Weinstock's letter contains several comments on the design elements of the remedial alternatives in the Feasibility Study Report. As the selected remedy will be designed after the ROD is issued, these comments are premature as the design elements have not been finalized and it is not know whether these will apply at that time.

Mr. Weinstock's comments include:

COMMENT 25: The public comment period began on February 22, 2008, however, we were not provided a copy of the October 2007 Supplemental Remedial Investigation Report – a critical document used in the development of the PRAP – until March 10, 2008. Furthermore, the copy of the October 2007 Supplemental Remedial Investigation Report that we received is missing a key figure which identifies the locations of the eight properties that were investigated. As such, we believe that it is unfair to begin the public comment period until this crucial piece of information – which was developed using public funds – is made available.

RESPONSE 25: The Supplemental Remedial Investigation Report was available in the document repositories for the entire comment period. The report does not identify the locations of the buildings sampled for vapor intrusion to protect the privacy of the off-site property owners.

COMMENT 26: Based on records from the NCDH, there were several former businesses located on Old Country Road and on Bond Street between Utility and Old Country Road that used chlorinated solvents and were serviced by on-site cesspools. The 1995 Site Investigation Report prepared by the NYSDEC identified tenants at 44, 45 and 50 Bond Street that used and disposed of chlorinated solvents prior to the building being connected to public sewers. These include, but are not limited to: 1,1,1-TCA; TCE; benzene; lacquer thinner; mineral spirits; an unknown trade name chemical; petroleum distillates; naphtha; various oils; and kerosene. Some of the former occupants of these addresses were Supreme Edgelight, Precision Mechanisms, Motorworks, and All-Tronics. Building number 1025 Old Country Road is also listed as having housed Cadillac, Dodge and Nissan auto dealerships which may have performed vehicle maintenance at this location. It is also believed that prior to being connected to sewers, 1025 Old Country Road housed the tenant "Scappy Auto Body". There are clearly numerous other potential sources of VOCs that have not been addressed in the PRAP. As these buildings were 1) serviced by septic systems prior to the installation of public sewers in the 1980's and 2) housed tenants that used solvents, it is reasonable to assume these structures are likely sources of the VOC contamination to the underlying soil and groundwater. However, the NYSDEC has continually overlooked these findings and has alleged that Utility is the only source of VOCs in the soil vapor and groundwater below Bond Street. How will this information be incorporated into the finial [sic] Remedy?

RESPONSE 26: The Department has conducted several Preliminary Site Assessments for the New Cassel Industrial Area. To date, the Department has not listed any of the properties between the site and Old Country Road on the Registry of Inactive Hazardous Waste Disposal Sites (Registry). As this ROD addresses the off-site contamination from the Utility site, the Department will not expand the scope of this ROD to include other properties.

COMMENT 27: The Remedial Investigation indicated that the source of approximately 70% of the compounds detected in the soil vapor samples is unknown. The cesspools from the former tenants along Old Country Road and Bond Street are a possible source of this contamination that has not been investigated. If there are no other local sources of VOCs (such as former cesspools or spills), what is the "unknown source" of these compounds? How will this information be incorporated into the finial [sic] Remedy?

RESPONSE 27: The purpose of the off-site remedial investigation was to determine the extent of contamination originating at the Utility site. The remedial investigation delineated this contamination and the Department incorporated the results of the investigation into the PRAP and ROD.

COMMENT 28: The geoprobe groundwater samples collected during the Remedial Investigation displayed a "gap" of VOCs in the groundwater between Utility and wells MW-1S and 1D. Hydropunch samples HP-5, 6, 7,and 8 displayed very low to no detections of VOCs. This information was presented on Figure 4 of the PRAP. Based on an evaluation of the data on Figure 4, it is possible that the VOCs detected in wells MW-1S and 1D originate from a local source, such as the former cesspools mentioned in comment number 1. Will an evaluation of this be incorporated into the final Remedy?

RESPONSE 28: Volatile organic compounds were detected in eight of ten off-site groundwater sampling locations at levels exceeding New York State groundwater standards. Therefore, the data does not indicate a gap in VOC detections.

COMMENT 29: There are known releases of chlorinated solvents in the groundwater upgradient of the Utility property. The PRAP does not mention these sites or the possibility that slugs of contaminated groundwater may have migrated from these upgradient sources and beneath the Utility property towards Old Country Road. How will this information be incorporated into the finial [sic] Remedy?

RESPONSE 29: The comment letter does not provide any information about the alleged releases or upgradient sources. Therefore, the Department cannot alter the proposed remedy based on this comment.

COMMENT 30: The selected alternative includes the installation of three new pairs of monitoring wells south of Old Country Road for natural attenuation monitoring purposes. However, these wells will be located in the portion of the aquifer that will be remediated by the in-well vapor stripping wells required under OU-3. As such, the addition of these wells does not provide any additional

protection to human health or the environment and are not a cost-effective component of the final remedy. The NYSDEC should develop a fifth Alternative that includes long-term monitoring of the existing monitoring wells without the installation of new wells in the area that will be addressed by the OU-3 remediation system. Will this Alternative be incorporated into the ROD?

RESPONSE 30: See Response Number 24.

COMMENT 31: In the introduction section, the SRI [Supplemental Remedial Investigation] Report states that "the facility [Utility] uses over 20,000 pounds of PCE per year." This statement is untrue. Utility does not, and never has used PCE.

RESPONSE 31: As stated in Section 3.1 of this ROD, Utility Manufacturing is an active facility that blends and repackages materials, including tetrachloroethene (PCE). This company has operated since 1976 and processes several thousand pounds of PCE each year. For example, Utility's annual PCE purchases from 1990-1994 ranged from 23,600-45,760 pounds. Utility stated in a December 26, 2002 letter that they repackage approximately 4,000 pounds of PCE each year. In 1971, two 550-gallon above ground storage tanks were installed inside the building. Utility has stored PCE in these tanks since occupying the facility.

COMMENT 32: The SRI states that Utility Manufacturing refused to perform this work [the off-site investigation] in accordance with the NYSDEC's requirements. The SRI, however, should include that Utility was willing to conduct an off-site investigation with a scope of work that would take into account the former septic systems of previous industrial and commercial tenants along Bond Street and Old Country Road.

RESPONSE 32: Before conducting the off-site investigation using State Superfund money, the Department gave the PRPs the opportunity to conduct the off-site investigation between the site and Old Country Road. No agreement between the PRPs and the State was reached, consequently, the State proceeded with the work.

COMMENT 33: The SRI Report states that a pre-sampling building survey was performed in accordance with NYSDOH Guidance (NYSDOH, 2006) that included identification of chemical usage. However, there is no log of the chemicals stored or used in any of the eight buildings that were tested. The chemical storage inventory logs for all eight properties should be provided. In fact, the SRI Report states that at property 2 the NYSDEC contractor "was denied access to the product inventory or chemical usage inside the building." However, the NYSDEC is recommending that a sub-slab depressurization (SSD) system be installed presumably because acetone was detected in the indoor air. Perhaps the tenant is storing acetone in the building. If this is the case, the SSD system would not be necessary. This issue should be resolved before funds are expended on a system that may have no effect on the acetone concentrations in the building.

RESPONSE 33: As shown in Table 2 of the ROD, the Department has chosen to mitigate property 2 based on TCE levels in the subslab vapor and indoor air.

COMMENT 34: The report states that high levels of PCE (1,607 ug/m3) and acetone (6,047 ug/m3) were detected in building 11. The PRAP states that this is an active auto paint shop. As spray guns used to paint cars produce VOC vapors, it is possible that the vapors from this property are migrating to neighboring buildings. A property location map must be provided before a proper evaluation of this report can be completed.

The report states that several buildings had indoor air VOC concentrations comparable to the outdoor air VOC readings. This was the case at properties 1, 2, 3, 7 and 13. As such, the indoor air readings may be an indication of the overall air quality in New Cassel and not be reflective of soil vapor intrusion. A sample location map is needed to adequately evaluate the data.

RESPONSE 34: The vapor intrusion data was evaluated using the NYSDOH soil vapor intrusion guidance. Recommendations in the report are based upon that guidance.

COMMENT 35: The post remediation monitoring reports performed on behalf of Utility indicate that the significant on-site threats have already been eliminated or mitigated by the IRM. Based on the information available to date, it is unclear whether the contamination detected off-site originated from the Utility site or from local sources below the Bond Street and 1025 Old Country Road properties.

RESPONSE 35: Although Utility Manufacturing conducted investigation and remediation activities on the site, they did not conduct an off-site investigation or remediation. The state-funded RI/FS indicated that volatile organic compounds have migrated from the site through the groundwater and soil vapor and are affecting off-site properties.

COMMENT 36: The Remedial Action Objectives for Groundwater stated in the FS Report are listed below:

- *Prevent exposure to contaminated groundwater, above acceptable risk levels;*
- *Prevent or minimize further migration of the contaminant plume; and*
- *Return groundwaters to their expected beneficial uses wherever practicable.*

These issues have already been addressed by the OU-3 ROD.

RESPONSE 36: The selected remedy meets the goals presented in the FS Report and the ROD for this site. The Record of Decision for the New Cassel Industrial Area Sites, Off-site Groundwater South of the New Cassel Industrial Area, Operable Unit 3, contains remedial goals for that remedy.

COMMENT 37: The RI Report states that the source of the nine VOCs found both in the soil vapor samples and the groundwater samples collected from beneath the Study Area is likely groundwater. The source of the other 21 VOCs detected in the soil vapor sample are presently unknown. The fact that approximately 70% of the compounds detected in the soil vapor samples below the study area were not detected in the groundwater below the Utility site indicates that there are other local sources of VOCs between Utility and Old Country Road. Likely source areas would include the

former cesspools mentioned above. The compounds carbon disulfide, chloroform, dichlorodifluromethane, Freon 113, isooctane, n-heptane, n-hexane and trichlorofluoromethane were detected in the soil vapor samples. However, Utility has not used these substances at their facility and they were not detected in any of the samples collected from the Site.

RESPONSE 37: The recommendations for remediation were based upon the levels of site-related contaminants in the groundwater, soil vapor, indoor air and outdoor air.

Audie Kranz of Utility submitted a letter (dated March 17, 2008) which included the following comments:

COMMENT 38: The PRAP mischaracterizes the events in 2002, as detailed on the bottom of page 5. Utility offered to do this work according to a plan that would be limited to what would be downgradient of the Site. Instead NYSDEC insisted with work that was far beyond that in scope. Even though Utility had and will continue to be cooperative, this was far beyond what could be reasonably expected of Utility.

RESPONSE 38: See Response 32.

COMMENT 39: The biggest criticism we have is that the PRAP does not reflect the fact that the contamination did not come from the Utility Manufacturing/Wonder King site. The reasons for this conclusion are outlined below:

1. In 1988, there was contamination found in the drainage structures at the Site. The soil above the ground water and beneath the drainage structures was confirmed to have met regulatory standards. Therefore this contamination did not contribute to ground water contamination. These structures were voluntarily remediated.

2. Although Utility Manufacturing has bought and resold, but never used, some of the chemicals found in the ground water, no sources at the site have ever been found as a source of the contamination.

3. Although the groundwater in the New Cassel Industrial Area (NCIA) generally flows in a southwesterly direction, however there are known exceptions to the rule, and studies around the Site have shown otherwise. Anson well MW-9, located a few hundred feet south of the Site and between the site and the off-site area, has shown that there is a mounding or eddy or perched water at that point. Further tests have shown that there are clay lenses throughout the area below the southern half of the Site. It is naïve and simplistic to think the ground below this area is completely homogenous. These natural structures do affect the flow of groundwater. These effects could be short distances of reverse flow, obstructions that could cause concentrating of contaminants and/or detours of the groundwater around these structures, etc. It seems that the NYSDEC has chosen to ignore this data because it does not fit neatly within their overall scenario.

4. A plume has been located passing just to the east of the Site. This plume is very large and contains the same subject contaminants, but in concentrations many magnitudes higher. In fact so high that it is nearly at the saturation point of the groundwater. Due to its size, proximity, and concentrations, this plume must be considered a more logical source of contamination, especially considering the effects of the geology mentioned in the previous paragraph.

5. There are known upgradient sources of contamination that flow beneath this entire area, namely contamination plumes from the General Instrument and Verizon sites, and possibly several others. NYSDEC has chosen, until recently, to ignore these known spills and sources and treated the Wantagh Parkway as a natural barrier although it runs along the surface of the land and does not extend down as a wall to the aquifers. These sites are sources of known spills that are higher in concentration and therefore more likely to be the cause of the nuisance.

6. The Long Island Railroad passes directly upgradient of this area. The possibility of contamination coming from this property was never investigated, in spite of the LIRR previous history of using chemicals to do maintenance and clear the tracks of vegetation.

7. Between the Site and the off-site subject area, geoprobe groundwater samples showed no contamination. How does contamination move from one area to another without passing through the points in between?

8. Just beyond the points referred to in paragraph #7 above, are several businesses along Bond Street that have not been investigated. These businesses are likely users of many of the contaminating chemicals. One of these businesses was actually the site of a reported spill. Yet these businesses have not been investigated although geographically they are the most likely suspects.

9. Only 30% of the contaminants found in the air samples were found in the groundwater below the Site and business at that site. This strongly indicates a different source. A much more likely source would be a business previously located along Bond Street called Motorworks. They were a user of most, if not all, of the chemicals found in the air contamination. There was also a known spill at the Motorworks site that was not further investigated.

10. There was also an auto body shop called Scappy-Peck originally located at the property now known as 1025 Old Country Road. A business like this could logically be the source of the contamination, especially since they were located in the off-site subject area.

RESPONSE 39: The Department has established groundwater and soil vapor contamination have traveled from, and downgradient of, the Utility site. The OU1 investigation provided evidence that the on-site soil and groundwater were contaminated, including the monitoring wells at the downgradient edge of the site. The OU2 investigation tracked a groundwater and soil vapor plume directly downgradient of the site.

COMMENT 40: Figure 22 of the PRAP is a map showing the plumes in the New Cassel Industrial Area. This map has been used over and over in many of the NYSDEC's reports. The map shows that there is no plume emanating from the Site. It shows two other plumes both east and west of the Site. There is no plume shown because the data doesn't indicate a plume. The NYSDEC can only come to the conclusion there is the existence of a plume by ignoring some data and selectively choosing other data.

RESPONSE 40: Figure 6 of the PRAP (it is presumed that the reference to Figure 22, which is similar to this Figure 6, was to the OU3 ROD) does not include the data collected during the off-site investigation for this OU. The data collected during this OU2 off-site investigation shows groundwater contamination associated with this site has traveled downgradient of Utility site.

Brian Butensky submitted a letter (dated March 17, 2008) which included the following comments:

COMMENT 41: The studies apparently have cost a lot of money, but I have seen little actual work done to remediate the problem. Why is this taking so long?

RESPONSE 41: Remediation has been implemented at several sites within the New Cassel Industrial Area, including the on-site remediation of the Utility site. The Department has also funded the treatment system on the Bowling Green public water supply. The Department will continue our work in the New Cassel Industrial Area until all of the sites are remediated.

COMMENT 42: Wouldn't you agree that it seems that the contamination coming from the General Instrument site and the Verizon site dwarf most other potential sources of contamination. Wouldn't you agree that these two sites are by far the largest dangers to the Bowling Green Water District? Why have these property owners not been required to do a clean-up? Wouldn't you agree that it would be most expedient to go after the major causes of the problems (General Instrument and Verizon site owners) and not those whose involvement may or may not even exist? Doesn't it seem that you are blaming the little guy when you focus on the small businessperson and not those that have the major responsibility?

RESPONSE 42: 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. While the Department is overseeing the investigation and remediation of both of the sites mentioned in your comment, the data collected during this OU2 off-site investigation shows groundwater contamination associated with this site has traveled downgradient of Utility site. This makes Utility Manufacturing/Wonder King responsible for that contamination.

COMMENT 43: The map contained within this document does not show any plume of contamination coming from the Utility Manufacturing/Wonder King Site. I have noticed other DEC maps also don't show any plume coming from this site. How could this site be responsible for contamination found downgradient, if there is no contamination coming from the site.

RESPONSE 43: Figure 4 in the ROD shows that the groundwater downgradient of the Utility site is contaminated with site-related compounds and establishes the presence of a groundwater contaminant plume downgradient of the Utility site.

APPENDIX B

Administrative Record

Administrative Record

Utility Manufacturing/Wonder King Site
Operable Unit No. 2
Site No. 130043H

1. Proposed Remedial Action Plan for the Utility Manufacturing/Wonder King site, Operable Unit No. 2, dated February 2008, prepared by the Department.

2. Referral Memorandum dated August 16, 2002 for the development and implementation of a Remedial Investigation/Feasibility Study for Operable Unit 2 of the site.

3. "Record of Decision, Utility Manufacturing/Wonder King Site, Operable Unit 1 - On-Site Contamination", dated March 2003, prepared by the Department

4. "Record of Decision, New Cassel Industrial Area Sites, Operable Unit 3", dated October 2003, prepared by the Department

5. "Off-Site Remedial Investigation & Feasibility Study Work Plan, Utility Manufacturing", dated June 2004, prepared by Environmental Resources Management

6. "Off-Site Remedial Investigation Report, Utility Manufacturing", dated December 2005, prepared by Environmental Resources Management

7. "Off-Site Feasibility Study Report, Utility Manufacturing", dated February 2006, prepared by Environmental Resources Management

8. "Work Plan, Off-Site Soil Vapor Intrusion Site Characterization and Mitigation, Utility Manufacturing/Wonder King, OU2", dated January 2007, prepared by Earth Tech

9. "Supplemental Remedial Investigation Report (Off-Site Soil Vapor Intrusion Site Characterization), Utility Manufacturing/Wonder King, OU2", dated October 2007, prepared by Earth Tech