Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

American Cleaners Site
Binghamton (C), Broome County
Site Number 7-04-030

November 2002

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* Erin M. Crotty, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

American Cleaners Inactive Hazardous Waste Disposal Site
Binghamton, Broome County, New York
Site No. 7-04-030

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the American Cleaners Class 2 inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law. The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the American Cleaners inactive hazardous waste site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. 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 release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the American Cleaners site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Building Demolition and Soil Excavation. The components of the remedy are as follows:

- Demolition of all above ground and below ground structures on the American Cleaners property.
- Excavation and off-site disposal of all contaminated soil containing perchloroethylene (PCE) above 1.4 ppm.
- Restoration of the site including backfilling of open excavations and foundation areas. The site will also be covered with six inches of topsoil to promote vegetative cover, graded and seeded to minimize erosion.

- A groundwater monitoring program will be instituted to confirm removal of the source area and demonstrate that any residual levels of contamination are attenuating.

New York State Department of Health Acceptance

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

Declaration

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

_____ _____

Date

Dale A. Desnoyers, Acting Director
Division of Environmental Remediation

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Binghamton, Broome County
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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the American Cleaners Class 2, inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, the operation of a dry cleaning business has resulted in the disposal of perchloroethylene (PCE), a listed hazardous waste, at the site. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- A significant threat to human health associated with the potential for contaminated groundwater or vapors entering the basements of nearby residences.

- A significant environmental threat associated with the impacts of contaminants to groundwater and the Clinton Street-Ballpark Valley sole source aquifer.

In order to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the American Cleaners has caused, the following remedy was selected:

- The American Cleaners building will be demolished and the PCE contaminated soil located beneath the basement slab will be excavated and disposed of off-site.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site, in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The American Cleaners site is located in a residential area on the west side of the City of Binghamton, Broome County, New York. The property is located on the northeast corner of Walnut Street and Seminary Avenue at the address of 48-50 Walnut Street (Figure 1). The property, which extends approximately 79 feet along Seminary Avenue and 50 feet along Walnut Street, is occupied by a dilapidated one story masonry block structure attached to a two story wood frame structure. A smaller, separate masonry block building occupies the north corner of the property. The total area of the property is approximately 0.1 acre.

The 93 Main Street inactive hazardous waste disposal site, Registry ID No. 7-04-027, is located less than 1/4 mile northwest of the American Cleaners site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The American Cleaners site is a former dry cleaner, which closed in 1991. Following closure of the business, the property was abandoned. In January 1998, the NYSDEC completed a records search which revealed that PCE, a listed hazardous waste, was disposed of on-site. PCE, also known as perchloroethylene or tetrachloroethene, is a common solvent used in dry cleaning. The PCE was stored in a 275 gallon tank in the basement. Other dry cleaning equipment and solvents were stored in a small cinder block building on the northeast corner of the property. Due to poor housekeeping practices, substantial amounts of dry cleaning solvents were spilled. The solvents permeated the concrete basement floor, contaminating underlying soil and groundwater. Several sump structures are located in the basement which were also apparently used for disposal of wastes.

The site was originally brought to the attention of the NYSDEC from a nuisance complaint. A NYSDEC spill inspector investigated the site in 1995 and confirmed that an unknown amount of PCE had spilled.

3.2: Remedial History

Four investigations have been conducted at the site. The following discussion summarizes these investigations.

April 1995: As part of an environmental assessment one composite soil sample, from twelve on-site locations, was analyzed for the presence of dry cleaning solvents and degradation byproducts. PCE was detected at a concentration reported as greater than 200 parts per million (ppm) in this sample. The recommended cleanup objective for PCE is 1.4 ppm. The presence of trichloroethene was also reported, but it was below the laboratory certified detection levels.

May 1995: Five discrete soil samples were collected and analyzed for PCE only. The results ranged from 1.4 ppm to 410 ppm. The analytical report also indicated that the samples showed light to heavy petroleum patterns, however, no other analysis was performed.

July 1995: A subsurface environmental investigation was performed by a prospective buyer under the supervision of the NYSDEC. Since previous site investigations confirmed the presence of PCE in the site soils, the objective of this investigation was to obtain groundwater data.

Four Geoprobe holes were advanced, one on each side of the site. The four sampling locations were designated GP-1 through GP-4 and ranged in depth from four to six feet below the ground surface. Though PCE and toluene were detected in soil gas samples from all four borings, no groundwater samples were obtained from this investigation. Due to local geologic conditions, the Geoprobe was unable to penetrate farther than six feet below ground surface (bgs). Groundwater is typically encountered at twelve feet bgs at the site.

February 1998: The NYSDEC conducted an Immediate Investigation Work Assignment (IIWA). Field investigation activities were conducted in February and March of 1998. These activities included:

- Installation of three monitoring wells;
- Collection and analysis of four subsurface soil boring samples and three groundwater samples;
- Collection of five subsurface soil samples from beneath the main building basement slab and one surface soil sample from the masonry block storage building floor;
- Collection of one sediment sample and two sump water samples from two of the three pits identified in the basement of the main building; and
- Installation of four piezometers to establish regional groundwater flow.

PCE was detected at levels up to 4,400 ppm in the soil below the concrete basement slab. PCE was also detected up to 24,000 parts per billion (ppb) in the groundwater. SCGs for PCE in soil and groundwater are 1.4 ppm and 5 ppb, respectively.

January 1999: The site was listed, as a Class 2, on the State's Registry of Inactive Hazardous Waste Disposal Sites.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, the NYSDEC has recently conducted a Remedial Investigation/Feasibility Study (RI/FS).

4.1: Summary of the Remedial Investigation

The purpose of the Remedial Investigation (RI) was to define the nature and extent of contamination resulting from previous activities at the site.

The RI was conducted in 2 phases. The first phase was conducted during November of 2000, the second phase was conducted between January and February of 2001. A report entitled "Remedial Investigation Report", July 2001 has been prepared which describes the field activities and findings, of the two RI phases, in detail.

The RI included the following activities:

- Subsurface soil sampling to determine the vertical and horizontal extent of contamination in soil;

- Installation of piezometers and monitoring wells to define local groundwater flow and the extent of local groundwater contamination; and

- Indoor air sampling of the American Cleaners building to determine the impact, if any, to indoor air quality.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data was compared to environmental SCGs. Groundwater, drinking water and surface water SCGs identified for the American Cleaners site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of Chapter One of the New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health-based exposure scenarios. In addition, for soils, site specific background concentration levels can be considered for certain classes of contaminants. The indoor air sample data was evaluated against the NYSDOH PCE guidance value of 100 micrograms per cubic meter ($\mu g/m^3$).

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.

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

4.1.1: Site Geology and Hydrogeology

The stratigraphic sequence in the vicinity of the site includes from the surface down: fill; stratified silts; sands and gravel; clayey silt/silty clay with boulders and gravel; and bedrock. The overburden is estimated to be approximately 50 to 75 feet thick based upon drilling information from municipal water wells nearby (USGS - Randall 1977). Bedrock was not penetrated as part of the remedial investigation drilling program. A thin veneer of fill was encountered at a few drilling locations which was described as clayey silt to silty sand containing some gravel and trace amounts of blacktop and cinders. A 2 to 5 foot thick layer of silty sand/silt and sand lies beneath the fill. A wedge of medium dense, permeable sand and gravel was identified north and east of the site. The wedge thickens toward the north and east. The sand and gravel layer grades into the thin layer of silty sand. The very dense silt layer lies immediately beneath the silty sand and underlies the basement of the building. The dense silt layer was determined to be approximately six feet thick at monitoring well 2 (MW-2) and approximately nine feet thick at piezometer 4 (P-4). A very dense clayey silt with shale fragments underlies the inter-stratified mixture of sand, gravel, and silt. The clayey silt unit is interpreted as glacial till. The upper surface of the clayey silt is highly variable in the site vicinity. The glacial till and dense silt layers form a mound beneath the site near MW-2.

The site is located above the southeastern edge of the Clinton Street-Ballpark Valley Aquifer, a federally designated sole source aquifer, which is the primary source of drinking water for Johnson City, NY. The Clinton Street-Ballpark Valley Aquifer is an unconsolidated glacial aquifer that underlies three square miles of urban land in the Susquehanna River valley, extending from the western part of Binghamton to Johnson City.

The unconfined water-table aquifer present in the overburden was characterized as part of the RI. Groundwater was encountered at depths approximately twelve to twenty two feet bgs.

The horizontal hydraulic gradient between MW-2 and P-3 is 0.0246 ft/ft and between MW-2 and MW-3 is 0.053 ft/ft. Figure 2 illustrates groundwater flow.

4.1.2: Nature of Contamination

As described in the RI report, soil, groundwater, and indoor air samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are volatile organic compounds (VOCs).

The VOC contaminants of concern are PCE, trichloroethene (TCE), and 1,2-dichloroethene (1,2-DCE).

4.1.3: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in subsurface soil and groundwater and compares the data with the SCGs for the site. All PCE data is reported as tetrachloroethene. The following are the media which were investigated and a summary of the findings of the investigation.

Subsurface Soil

Twenty soil samples were collected as part of the RI. All samples were analyzed for target compound list (TCL) VOCs. Nineteen samples were selected from locations beneath the concrete slab inside the building and one sample was selected from soil boring location SB-14, located outside the building. Detected compounds included acetone, PCE, TCE, 4-methyl-2-pentanone, and toluene. PCE was detected most frequently and at the highest concentrations. Detected concentrations of PCE ranged from 0.01 ppm in SB-23 to 37 ppm in SB-10. The highest reported concentrations of PCE were reported beneath the basement floor in the central portion of the building along Seminary Avenue. Sample locations are shown on Figure 3. The recommended cleanup objective for PCE is 1.4 ppm. The other reported VOCs were detected sporadically and typically at low concentrations.

Volatile organic gases were screened using a photoionization detector (PID) at each of the thirty-three jackhammer boring locations inside the building and at each of the four soil borings outside the building. Measurements inside the building were taken immediately below the concrete slab. PID concentrations ranged from non-detect to 460 ppm. The highest soil gas readings were reported beneath the slab in the central section of the main building along Seminary Avenue. No PID readings above background were detected in the four soil borings outside the building.

Figure 3 shows the approximate limits of subsurface soil contamination.

Groundwater

Several wells and piezometers were installed in the City right of way surrounding the site. A total of two new wells were installed during the remedial investigation. The investigation revealed that groundwater is mounded in the vicinity of MW-2 and flows radially away from this well. Groundwater generally flows northerly around the mound. Figure 2 illustrates groundwater flow.

Two rounds of groundwater sampling were conducted as part of the RI. The first round was conducted in November 2000 when three existing monitoring wells were sampled. Samples were analyzed for TCL VOCs. In addition to the three monitoring wells, two sump pits inside the building were sampled and analyzed for TCL VOCs. Based upon the analytical data from the first round sampling, a second phase of field work was conducted in February 2001. This involved installation of two additional monitoring wells and sampling of all the monitoring wells. PCE was detected in groundwater, at MW-1, up to 550 ppb. The groundwater quality standard for PCE in groundwater is 5 ppb.

Two sump water samples were collected as part of the RI. Samples were analyzed for TCL VOCs. Detected compounds included 1,2-DCE at 46 ppb, TCE, at 140 ppb, and PCE at 1800 ppb.

Despite the high concentrations of PCE detected in the soil beneath the basement slab, groundwater has remained only locally impacted. This is believed to be the result of fluctuations in the groundwater table which cause groundwater to only come in contact with the contaminated soil periodically.

The area is served by public water. Investigations to date have not identified any groundwater receptors downgradient of the site.

Indoor Air

Four indoor air samples were collected in the American Cleaners building for the analysis of volatile organics. Samples were collected using organic vapor monitor badges. Two badges were placed in the main basement area, where the highest levels of PCE were detected. One badge was placed in the small room located to the west of the main basement. One badge was also placed in the boiler room. The badges were exposed for approximately sixty-eight hours. The samples were analyzed by the NYSDOH Wadsworth Center laboratory. PCE was detected at concentrations ranging from 18 to 70 $\mu g/m^3$. The NYSDOH guidance value for PCE is 100 $\mu g/m^3$ for residential settings.

4.2: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 6.0 of the RI report.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure;

and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Pathways which are known to or may exist at the site include:

- The potential exists for contaminated groundwater to impact nearby residences through basement flooding which could result in direct contact with contaminated water or inhalation of vapors from the contaminated water.

- An exposure pathway exists for indoor air in the American Cleaners building if it were to be used now or in the future.

- The potential exists for off-site impacts to nearby residences, by VOC soil vapors.

- The potential exists for the federally designated sole source aquifer to be impacted by contaminated groundwater originating from the American Cleaners site. This aquifer is the primary source of drinking water for Johnson City.

4.3: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. During the RI it was determined that a Fish and Wildlife Impact Assessment was not necessary, due to its urban location and lack of any migration pathways to sensitive environmental areas. The following potential pathway for environmental exposure has been identified:

- A threat to the federally designated sole source aquifer.

SECTION 5: 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.

An Administrative Order on Consent, Order No. A7-0408-0001, has been executed by the Executor of the Estate of the former owner/operator of American Cleaners.

The Order requires the Estate to pay a lump sum towards the investigation and remediation of the American Cleaners site.

If additional PRPs are identified in the future, they will be subject to legal actions by the State for recovery of all response costs the State has incurred.

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. The overall remedial goal is to meet all SCGs and be protective of human health and the environment. 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 goals selected for this site are:

- Reduce, control, or eliminate to the extent practicable the contamination present within the soils on site.

- Eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria.

- Eliminate the threat to the sole source aquifer by removing or treating the source of contamination.

- Eliminate the potential for direct human contact with the contaminated soils or groundwater at the site.

- Eliminate the potential for indoor air impacts.

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 laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the American Cleaners site were identified, screened and evaluated in the report entitled "Feasibility Study", May 2002.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated subsurface soil and groundwater at the site.

Alternative 1 - No Action

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

Alternative 2 - Building Demolition and Soil Excavation

Present Worth:	$ 170,000
Capital Cost:	$ 164,800
Annual O&M:	$ 5,200
Time to Implement:	4 to 6 months

Above and below ground structures on site would be demolished and transported off-site for disposal as construction and demolition debris (C&D). Any contaminated C&D materials would be disposed as hazardous waste.

Following building demolition, soil exhibiting contamination in excess of SCGs (see Table 1) would be excavated and hauled off-site for treatment and/or disposal. Soil contaminated with chlorinated solvents would be excavated to the limits identified on Figure 3. Confirmatory samples would be collected from the floor and walls of the excavation to determine whether remedial goals have been achieved, or if further removal and sampling is necessary. Excavation would continue vertically and horizontally until confirmatory samples demonstrate complete removal of contaminated soil. If contaminated soils remain, due to impediments encountered during construction (e.g. buried utilities), alternatives to address the residual contamination, including institutional controls, would be evaluated.

Water collected during excavation dewatering would be treated as necessary with either an on-site water treatment system or at an off-site treatment facility. Active dewatering of the excavation would take place to recover as much contaminated groundwater as possible. Efforts beyond excavation dewatering (e.g. an active groundwater recovery and treatment effort such as a dedicated recovery well) do not appear warranted. The groundwater impacted by the PCE is limited to one monitoring well (MW-1) located immediately adjacent to the area of concern. Monitoring wells immediately downgradient of MW-1 show PCE concentrations at or below the NYSDEC water quality standard of 5 ppb. Removal of the PCE source area should allow for attenuation of any residual groundwater contamination to below standards in a short period of time.

The site would be backfilled with clean fill. Six inches of top soil would be spread over the site. The site would then be seeded to promote vegetative cover to control erosion. An annual groundwater monitoring program would be implemented for an estimated period of 2 years to verify that any residual levels of contamination in groundwater are attenuating. Installation of new monitoring wells may be necessary following completion of the excavation. Institutional controls would be necessary to restrict the use of groundwater during the monitoring program.

A Community Air Monitoring Plan would be implemented to monitor VOCs and dust. Dust suppression equipment (e.g. water sprinklers) would remain on hand to prevent airborne migration of contaminated soil. Other techniques would be used as necessary to prevent contaminants or nuisance odors from leaving the site. Temporary fencing and warning signs would be placed around the site during the remediation to keep trespassers out.

Alternative 3 - Soil Excavation without Building Demolition

Present Worth:	$ 160,000
Capital Cost:	$ 154,800
Annual O&M:	$ 5,200
Time to Implement:	6 to 8 months

This alternative would leave the American Cleaners building in place during excavation of the contaminated soil beneath the building. Prior to commencement of excavation activities, the building would be evaluated for structural integrity and any necessary structural enhancements would be implemented to ensure worker safety during excavation. Since contaminated soil has been identified both within the building footprint and outside the building foundation, appropriate structural controls (e.g. shoring) would be required. The contaminated soil would be excavated to the extent practicable with the building in place. If contaminated soils remain, due to impediments encountered during construction, alternatives to address the residual contamination, including institutional controls, would be evaluated. Active de-watering of the excavation would take place to recover as much contaminated groundwater as possible.

The excavation would be backfilled with clean fill and the building would be restored to the extent necessary to provide for re-use. A groundwater monitoring program would be implemented. Groundwater would be monitored to ensure that degradation of chlorinated solvents was taking place.

Health and safety measures similar to Alternative 2 would be implemented. Institutional controls would also be necessary to limit future intrusive activities.

Alternative 4 - In-Situ SVE Dual Phase Extraction

Present Worth:	$ 170,000
Capital Cost:	$ 110,000
Annual O&M:	$ 60,000
Time to Implement:	6 to 12 months

A dual phase soil vapor extraction (SVE) system would be installed in the basement of the American Cleaners building to remediate the contaminated subsurface soil and impacted groundwater. The dual phase system would consist of one pump to extract liquids from an extraction well(s) and a surface blower to extract contaminated soil vapor. A treatment system capable of handling both the contaminated vapor and groundwater collected would be necessary. Treated groundwater would be discharged to the publicly owned treatment works (POTW). Groundwater monitoring would take place to monitor the effectiveness of the SVE system.

Health and safety measures similar to Alternative 2 would be implemented.

Alternative 5 - In-Situ Chemical Oxidation

Present Worth:	$ 180,000
Capital Cost:	$ 170,000
Annual O&M:	$ 10,000
Time to Implement:	6 to 12 months

The contaminated subsurface soil would be flushed with a strong oxidizing agent, such as potassium permanganate, which would chemically breakdown the organic contaminants in the soil and groundwater. During the oxidation process carbon bonds within the contaminant are broken. Ultimately the contaminant would be degraded to carbon dioxide and water along with some halides (i.e. salts). A groundwater extraction and treatment system would be used to collect the impacted groundwater and the leachate generated during the oxidation treatment. The water would then be treated with continued oxidation and/or carbon treatment and either discharged or re-injected. Groundwater would be subject to periodic monitoring to ensure that the extraction and treatment system was operating effectively. Health and safety measures during treatment would be similar to Alternative 2 but would require special provisions/precautions for handling of the oxidizing agent.

7.2: Evaluation of Remedial Alternatives

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

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

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

Alternative 1 would not achieve compliance with SCGs, because high levels of PCE would be left on-site.

Alternatives 2 and 3 would meet applicable SCGs for contaminated soil since it would be removed from the site and disposed of at a permitted facility. It is anticipated that following removal of the source area, groundwater would attenuate to meet SCGs.

Alternative 4 and 5 would meet applicable SCGs for contaminated soil since it would be treated to below remedial goals, eliminating likely exposure pathways.

2. 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.

The no action alternative would not be protective of human health and the environment since high concentrations of PCE would be left on-site. The remaining alternatives, excavation with off-site disposal; dual phase soil vapor extraction; and chemical oxidation would all be protective of human health and the environment since contaminated soil would be removed from the site and/or the PCE contamination would be treated.

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.

The no action alternative would cause little or no increased short-term impacts since no intrusive work would take place. Alternatives 3, 4 and 5 would all result in relatively minor short-term impacts since the building would remain in place and work would be completed within it. Alternative 2 - Building Demolition with Excavation, would result in the highest short term impacts due to the demolition and earth moving activities, however, engineering controls would minimize and/or eliminate any possible impact. The controls would include air monitoring, personal protective equipment for workers, and dust suppression.

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

The no action alternative would not be effective in the long-term since high levels of PCE would remain on-site and continue to migrate/impact local groundwater. Given the tight nature of the soils it is uncertain if the SVE system would be able to remediate the entire source area.

The off-site disposal and chemical oxidation alternatives would be effective in the long-term since all likely exposure pathways would be eliminated. This would be achieved by removing and/or treating the contaminated soil.

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

The no action alternative would not reduce the toxicity, mobility, or volume of contamination. Each of the remaining alternatives, 2 through 5, would effectively reduce the toxicity, mobility, and volume of material contaminated with PCE by removing or treating them in place.

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

The no action alternative would be the easiest of the alternatives to implement since no construction would be necessary. Excavation with building demolition would be relatively easy to implement since no specialized equipment or techniques would be necessary. Standard demolition and excavation techniques would be employed. The dual phase SVE system would be more complicated, though treatment systems are readily available. Chemical oxidation would be more difficult to implement as special handling and storage of the oxidizing agent are required. Also, both chemical oxidation and dual phase SVE would require installation of treatment wells through the basement slab of the building. Due to the presence of glacial till approximately two feet below the basement slab, and the limited area in which to work, installation of the treatment wells would be difficult. The RI demonstrated the tight nature of these soils. Equipment would have to be a sufficient size/power to penetrate the till. Building modifications would be necessary to permit these alternatives. Excavation of the contaminated soil while leaving the building in place would be the most difficult effort. As with the SVE and chemical oxidation systems, because of the limited area in which to work, interior building modifications would be required to permit this alternative. This would include removal of a large portion of the first floor and removal of one or more of the exterior walls. Further, engineering controls and/or specialized excavation equipment would be required to support the building and maintain structural integrity during the excavation work.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

The potential exists for the operating time frame of the SVE and chemical oxidation systems to extend beyond the estimated operating time of 2 years. Any increase in operating time will result in an increased cost for the associated remedial alternative.

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 Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised.

In general the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 2, Building Demolition and Soil Excavation, as the remedy for this site. The American Cleaners building will be demolished and the PCE contaminated soil located beneath the basement slab will be excavated and disposed of off-site at a permitted facility

This selection is based on the evaluation of the five alternatives developed for this site. With the exception of the No Action alternative, each of the alternatives would comply with the threshold criteria. Alternative 3 would be difficult to implement due to the precautions necessary to secure the building and maintain its structural integrity. Also the size and type of excavation equipment able to be used inside the American Cleaners building would be limited (e.g. bobcat) and could pose difficulty excavating the glacial till. Also, with the building in place it may not be possible to remove the entire source area, and the difference in capital costs between Alternatives 2 and 3 is small.

Alternative 4 would be difficult to implement because modifications to the American Cleaners building would be necessary to allow a drill rig to access the basement. Previous portable methods employed in the basement encountered significant difficulty penetrating depths beyond two to three feet below the basement slab due to the presence of glacial till. In order to install the wells necessary for the SVE system, a drill rig would be necessary, thus building modifications would be required. Also, the effectiveness of the SVE system is questionable in light of the tight nature of the soil present.

Alternative 5 would also be difficult to implement because injection wells would be needed and the only feasible method of penetrating the till layer below the basement slab, for treatment well installation, is to use a drill rig.

Despite the high concentrations of PCE detected in the soil beneath the basement slab, groundwater has remained only locally impacted. This is due to fluctuations in the groundwater table which cause the groundwater to only come in contact with the contaminated soil periodically. It is anticipated that any residual levels of contamination in groundwater would attenuate once the source has been removed. To be sure this occurs, groundwater would be monitored for VOCs.

Alternative 2 will allow for the complete removal of the source area by eliminating obstacles associated with excavating with the building in place. Likewise, the selection of Alternative 2 avoids the uncertainties associated with soil vapor extraction and chemical oxidation technologies in this setting.

The site will be periodically evaluated to determine whether a change in classification (i.e. delisting) on the Registry of Inactive Hazardous Waste Disposal Sites is warranted. Once the site is delisted it is anticipated that the remedy will allow for unrestricted use of the property.

The estimated present worth cost to implement the remedy is $170,000. The cost to construct the remedy is estimated to be $164,800 and the estimated average annual operation and maintenance cost is $5,200.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program

2. Demolition of all above ground and below ground structures on the American Cleaners property.

3. Excavation and off-site disposal of all contaminated soil containing PCE above 1.4 ppm.

4. Restoration of the site including backfilling of open excavations and foundation areas. The site will also be covered with six inches of topsoil to promote vegetative cover, graded and seeded to minimize erosion.

5. Since residual levels of contamination may remain at the site, a groundwater monitoring program will be instituted. Reduction of PCE levels in impacted groundwater wells will confirm removal of the source area and demonstrate that any residual levels of contamination are attenuating. A notification will be sent to the county clerk for filing, to notify future owners of the residual contaminants remaining in the groundwater on the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

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

- A repository for documents pertaining to the site was established.

- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.

- Fact Sheet #1 was sent to the mailing list in November 2000 announcing the Remedial Investigation/Feasibility Study (RI/FS) process.

- The Remedial Investigation Report was finalized in July 2001 and made available at the document repository.

- The Feasibility Study Report was finalized in May 2002 and made available at the document repository.

- The Proposed Remedial Action Plan was finalized in July 2002 and made available at the document repository.

- Fact Sheet #2 was sent to the mailing list in August 2002 to announce the availability of the PRAP and to announce the Public Meeting.

- A public meeting was held on August 29, 2002.

- In November 2002 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Table 1
Nature and Extent of Contamination

Statistical Summary Soil - November 2000							
Parameter	**Units**	**SCG***	**Num. Of Samples**	**Num. Of Detections**	**Range of Detections**		**Num. Exceed**
					Min (ppm)	**Max (ppm)**	
Volatiles							
Acetone	PPM	0.2	20	6	0.003	0.03	NA
Trichloroethene	PPM	0.7	20	1	0.003	0.003	NA
4-Methyl-2-Pentanone	PPM	1	20	1	0.19	0.19	NA
Tetrachloroethene (PCE)	PPM	1.4	20	20	0.01	37	7
Toluene	PPM	1.5	20	1	0.001	0.001	NA
Statistical Summary Groundwater - November 2000/February 2001							
Parameter	**Units**	**SCG****	**Num. Of Samples**	**Num. Of Detections**	**Range of Detections**		**Num. Exceed**
					Min (ppb)	**Max (ppb)**	
Volatiles							
Vinyl Chloride	PPB	2	8	1	1	1	NA
1,2-Dichloroethene (Total)	PPB	5	8	2	1	2	NA
Tetrachloroethene PCE	PPB	5	8	5	4	550	4
2-Hexanone	PPB	50	8	1	2	2	NA
Statistical Summary Sump Water - November 2000							
Parameter	**Units**	**SCG****	**Num. Of Samples**	**Num. Of Detections**	**Range of Detections**		**Num. Exceed**
					Min (ppb)	**Max (ppb)**	
Volatiles							
1,2-Dichloroethene (Total)	PPB	5	2	1	ND	46	1
Trichloroethene	PPB	5	2	1	ND	140	1
Tetrachloroethene PCE	PPB	5	2	2	4	1800	1

*Criteria - NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046

**Criteria - NYSDEC TOGS(1.1.1), Ambient Water Quality and Guidance Values and Groundwater Effluent Limitations. June 1998

Note: Tetrachloroethene is also known as Perchloroethylene (PCE).

Table 1 (continued)
Nature and Extent of Contamination

Statistical Summary Indoor Air - June 2002							
Parameter	Units	SCG**	Num. Of Samples	Num. Of Detections	Range of Detections		Num. Exceed
					Min ($\mu g/m^3$)	Max ($\mu g/m^3$)	
Volatiles							
Tetrachloroethene PCE	$\mu g/m^3$	100	4	4	18	70	0

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
No Action	$0	$0	$0
Building Demolition & Excavation	$ 164,800	$ 5,200	$ 170,000
Excavation w/o Building Demolition	$ 154,800	$ 5,200	$ 160,000
In-Situ Dual Phase SVE Extraction	$ 110,000	$ 60,000	$ 170,000
In-Situ Chemical Oxidation	$ 170,000	$ 10,000	$ 180,000

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

American Cleaners
Proposed Remedial Action Plan
Binghamton, Broome County
Site No. 7-04-030

The Proposed Remedial Action Plan (PRAP) for the American Cleaners site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on August 14, 2002. This Plan outlined the preferred remedial measure proposed for the remediation of contaminated soil at the American Cleaners site. The preferred remedy is building demolition and excavation, with off-site disposal of perchloroethylene (PCE) contaminated subsurface soil.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on August 29, 2002 which included a presentation of the site history, the Remedial Investigation/Feasibility Study process, and 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 September 17, 2002.

The Responsiveness Summary responds to all questions and comments raised at the August 14, 2002 public meeting.

The following are the comments received at the public meeting, with the NYSDEC's responses:

COMMENT 1: Members of the public expressed their desire to have a paved parking lot in place of a grass lot when remediation is completed. The public presented a petition supporting the parking lot. The petition was received by Mayor Richard A. Bucci, who was in attendance.

RESPONSE 1: The NYSDEC is committed to remediating the site so the property can be returned to productive use, however, the future (post-remedial) use of the site is more appropriately discussed with the property owner and City representatives.

COMMENT 2: Please explain the time frame for cleanup.

RESPONSE 2: The next step in the remedial process is to issue the Record of Decision (ROD) which identifies the selected remedy. The Department will then evaluate the ability of the responsible party to conduct the design and cleanup of the property. If this party is willing to conduct the cleanup, the Department will enter into a consent order (legal agreement) for the remedial program. If this party is unwilling or unable to conduct the remedial program, the site will be referred for action under the State Superfund Program. A six to nine month time frame is typically associated with responsible party negotiations and/or Superfund referral. The remedial design which follows is expected to take an

additional six months. Remedial Action would then follow. Construction of the selected remedy has an estimated duration of four to six months.

COMMENT 3: Who will pay for the cleanup?

RESPONSE 3: Upon ROD issuance, the Department's Division of Environmental Enforcement will try to negotiate a consent order with the responsible party for implementation of the selected remedy. As explained in Response 2, if this party is unwilling or unable to conduct the remedial program, the site will be referred for action under the State Superfund Program.

COMMENT 4: Why will the taxpayers have to pay for the cleanup? Shouldn't the responsible party pay?

RESPONSE 4: In instances where a potentially responsible party(ies) is unwilling or unable to fund site investigation and cleanup, the State Superfund is used. When this party (ies) refuses to fund cleanup, the State will fund the remediation and attempt to recover costs after remediation is complete. In this instance, the former owner is deceased and the estate of his widow has contributed toward the remedial program. The Department's Division of Environmental Enforcement will evaluate the estate's ability to provide any additional funding toward cleanup.

COMMENT 5: So the soil is only contaminated three feet below the slab?

RESPONSE 5: Yes. At approximately three feet below the basement slab, glacial till is encountered. The physical characteristics of the till have served to contain/confine the PCE contamination. The till has a very low permeability, thus PCE has not migrated appreciably. Analytical data further supports the conclusions that while contamination exists below the slab, it is confined to the area above the till.

COMMENT 6: Please explain about the tank near the side of the building.

RESPONSE 6: In the past, a gas pump was located on the east side of the building. The pump is no longer present, but a vent pipe exists suggesting an underground storage tank may still be present. A tank was not located during the investigation and sample data showed no evidence of the contaminants typically associated with gasoline (e.g. benzene, toluene, xylene). If a tank is present, it is likely relatively small in size. As part of the remedial action, this area will be further investigated for the presence of a tank. If present, it will be removed as a component of the site remediation.

COMMENT 7: Was there any sampling done indoors?

RESPONSE 7: Soil gas sampling was conducted in three homes near the site, using a photoionization detector. No indoor air impacts were observed. Also, indoor air was sampled within the basement of the American Cleaners building, directly over the source area. This is where the highest impact to indoor air would be expected. Concentrations of PCE were below the New York State Department of Health (NYSDOH) guidance value of 100 micrograms per cubic meter, at all four sample locations.

COMMENT 8: What are the side effects of exposure to PCE?

RESPONSE 8: The Remedial Investigation completed for the American Cleaners site identified that no exposure pathways currently exist. Therefore, those who live in the vicinity of the site should not experience any symptoms. In response to the question, however, studies have revealed that those who are regularly/routinely exposed to PCE (e.g. those work with PCE) tend to have lower scores on certain aptitude tests. Also, long-term exposure could result in detrimental effects to the liver, kidney, and central nervous system.

COMMENT 9: Will the community be exposed during excavation?

RESPONSE 9: During the remedial action, a Community Air Monitoring Plan (CAMP) will be implemented. This will include real time air monitoring to assess any impacts from construction. If impacts are observed, work will be discontinued and appropriate engineering controls will be put in place. Work will not resume until the issue has been addressed.

COMMENT 10: Please explain if the 93 Main Street site will go first.

RESPONSE 10: At this time, the remedial program for the nearby 93 Main Street site is currently on hold because funding from the State Superfund has been fully allocated. Should the American Cleaners site also require funding from the State Superfund, this project will also be put on hold. Once funding is available, both projects would move forward. Under this scenario, it is likely that these projects would be in design and construction at approximately the same time.

COMMENT 11: Will you shut down the road during construction?

RESPONSE 11: At this point it seems unlikely that the road would have to be closed for any extended period of time. However, given the limited area in which to work (demolition, excavation, backfilling, etc.) the possibility exists that Walnut Street or Seminary Avenue may have to be closed temporarily for safety reasons. The community will be advised of any planned road closures in advance. An availability session will be held prior to the remedial action in order to keep the public informed. At that time there will be more information available regarding anticipated road closures and the schedule for the remedial action in general.

COMMENT 12: How long will construction take?

RESPONSE 12: The demolition of the building will be completed using standard techniques, however, prior to demolition, an asbestos survey and possible abatement program will have to be implemented. Once demolition commences, the duration of the remedial project (demolition, excavation, backfilling and restoration) is expected to last two to three months.

COMMENT 13: Will measures be in place to insure the excavated material isn't spread it all over town?

RESPONSE 13: An estimated 170 cubic yards of contaminated soil will be excavated and removed from the site. The soil will be disposed at a permitted disposal facility. Before leaving the site, trucks will be inspected to insure no loose material exists, and trucks will be covered/tarped.

COMMENT 14: Can construction take place in the winter, or will this have to occur during the summer months?

RESPONSE 14: The schedule for site remediation is difficult to predict at this time, in light of the funding issue (see Response 10). However, the construction techniques to be employed at this site are fairly common and winter construction is a possibility. This decision will be made by the remedial contractor, in consultation with the NYSDEC.

COMMENT 15: How come there is no money left in the Superfund, isn't this a political issue?

RESPONSE 15: The State Superfund Program had been financed primarily through the 1986 Environmental Quality Bond Act, resulting in more than 800 sites across the state being cleaned up or fully funded. Funds from the 1986 bond act were fully committed as of March 31, 2001, leaving the State unable to start or complete cleanups at hundreds of sites known or suspected of being contaminated. Currently, the Governor and the State Legislature are working to reach agreement on legislation to reform and refinance the State's remedial programs, including the State Superfund. Until an agreement is reached, it is unlikely that the American Cleaners site will be remediated.

COMMENT 16: Who do we contact concerning trespassing at the site (i.e. vandals, homeless, etc.)?

RESPONSE 16: Though the NYSDEC has taken action to restrict access, evidence of trespassers has been observed in the building in the past and as recently as this summer. In response, the Department did board up broken windows. You are encouraged to contact the police if trespassers are observed.

APPENDIX B

Administrative Record

Administrative Record

American Cleaners Site
Binghamton (C), Broome County
Site No. 7-04-030

The following documents constitute the Administrative Record for the American Cleaners Inactive Hazardous Waste Disposal Site Record of Decision.

Documents

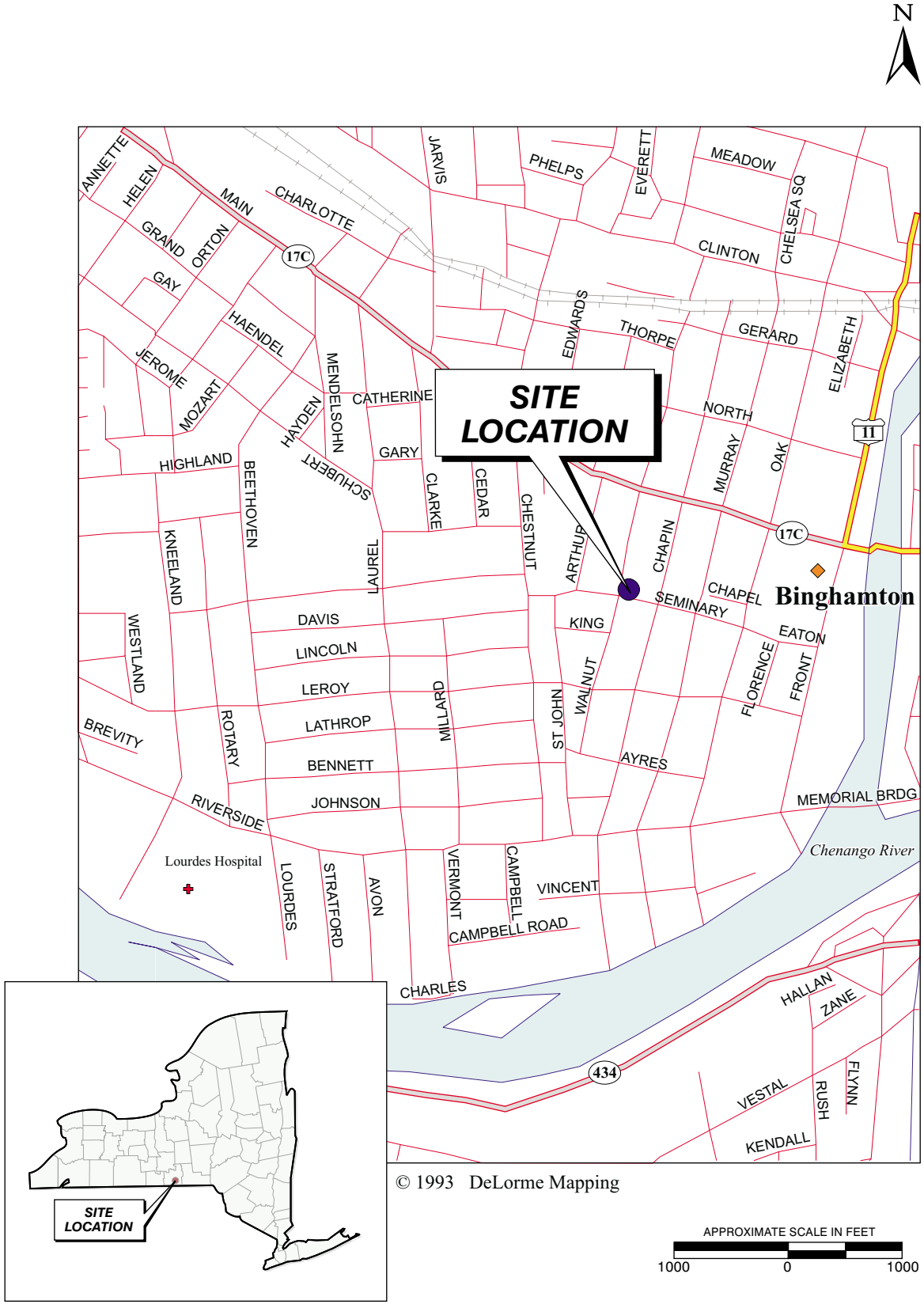
"Proposed Remedial Action Plan for the American Cleaners Inactive Hazardous Waste Disposal Site", NYSDEC, July 2002.

"American Cleaners Immediate Investigation Work Assignment Report" Vol. 1, May 1998

"American Cleaners Immediate Investigation Work Assignment Report" Vol. 2, May 1998

"Remedial Investigation Report, American Cleaners Inactive Hazardous Waste Disposal Site", NYSDEC, July 2001.

"Feasibility Study Report for the American Cleaners Inactive Hazardous Waste Disposal Site", NYSDEC, May 2002.



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URS

AMERICAN CLEANERS SITE
SITE LOCATION MAP

FIGURE 1

J:\35822.01\db\GIS\geology.apr 02/15/01 GROUNDWATER ELEVATIONS
4/11/2001

URS

AMERICAN CLEANERS
GROUNDWATER ELEVATION CONTOUR MAP
(FEBRUARY 15, 2001)

FIGURE 2

N

BLACKTOP DRIVEWAY

MW-02
2-Hexanone, 2 UG/L

GRAVEL

PROPERTY LINE

GARAGE
(52 WALNUT STREET)

PROPERTY LINE

WALNUT STREET

CONCRETE SIDEWALK

1 STORY CONCRETE BLOCK BUILDING

INTERIOR WALL

BOILER PIT

SW-02

SB-22

SB-23

WATER SOFTENER PIT

1 STORY BLOCK GARAGE (360 SQ FT)

MW-04

SB-21

STAIRS

CONCRETE WALL

PZ-04/SB-26

WINDOW WELLS

SB-27

SUMP PIT

SB-04
Tetrachloroethene, 7700 UG/KG

SB-03
Tetrachloroethene, 9000 UG/KG

SB-17

SB-19

SW-01
Trichloroethene, 140 UG/L
Tetrachloroethene, 1800 UG/L
1,2-Dichloroethene (Total), 46 UG/L

PZ-03/SB-04
Tetrachloroethene, 18000 UG/KG

SB-08
Tetrachloroethene, 5400 UG/KG

SB-11

SB-36

PZ-05/SB-18
Tetrachloroethene, 6300 UG/KG

SB-10
Tetrachloroethene, 37000 UG/KG

SB-34
Tetrachloroethene, 2700 UG/KG

2 STORY FRAME HOUSE

STAIRS

BLACKTOP DRIVEWAY

SB-28

PZ-01/SB-32

SB-29

MW-03
1,2-Dichloroethene (Total), 1 UG/L
Tetrachloroethene, 4 UG/L

CATCH BASIN

FUNNEL DRAIN

SB-14

MW-01
Tetrachloroethene, 550 UG/L

CONCRETE SIDEWALK

MW-05
Tetrachloroethene, 5 UG/L

SEMINARY AVENUE

Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria
- Estimated Extent of Soil Contamination

SB-03
Tetrachloroethene, 9000 UG/KG

Location ID — Compound Exceeding Criteria — Concentration — Units

NOTE:
(1) All data shown, except groundwater, is from the November 2000 sampling event.
(2) Results for MW-01, MW-02, MW-03, MW-04 and MW-05 are groundwater analytical results from February 2001.
(3) Results for SW-01 and SW-02 are sump water analytical results.
(4) All other data represented are soil analytical results.

10 0 10 Feet

AMERICAN CLEANERS
EXTENT OF CONTAMINATION

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FIGURE 3

J:\35822.01\db\GIS\vol\calc.apr EXTENT OF SOIL AND GROUNDWATER CONTAMINATION
2/27/2002