RECORD OF DECISION

Computer Circuits Corporation Superfund Site

Suffolk County, New York

United States Environmental Protection Agency
Region 2
New York, New York

September 2008

DECLARATION

SITE NAME AND LOCATION

Computer Circuits Corporation Superfund Site
Hauppauge, Suffolk County, New York
Superfund Identification Number: NYD125499673

STATEMENT OF BASIS AND PURPOSE

This decision document presents the Selected Remedy for the Computer Circuits Corp. Superfund Site (hereinafter the Site) located in Hauppauge, Suffolk County, New York. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

This decision is based on the Administrative Record for this Site, which has been developed in accordance with Section 113(k) of CERCLA, 42 U. S. C § 9613(k). The Administrative Record file is available for review at the Smithtown Public Library in Smithtown, New York and at the United States Environmental Protection Agency Region 2 Superfund Records Center at 290 Broadway, New York, New York. The Administrative Record Index (Appendix III) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based. The State of New York, acting through the New York State Department of Environmental Conservation (NYSDEC), concurs with the selected remedy.

ASSESSMENT OF THE SITE

The response action selected in this Record of Decision (ROD) is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances from the Site into the environment.

DESCRIPTION OF THE SELECTED REMEDY

EPA will address the Site contamination as one operable unit. The selected remedy involves remediation of soil and indoor air through the continued operation of two separate soil vapor extraction (SVE) systems. Each SVE system will be operated in a distinct source area, namely areas surrounding the former industrial cesspools, and will also mitigate vapor intrusion by extracting vapors collecting below the slab of the building on the Site property. Remediating these contaminated soils will also result in the improvement of groundwater quality, as the soils are currently contributing to the low level groundwater contamination.

The selected remedy includes the following components:

- Treatment of Soils using SVE systems: Residual contamination will be treated using SVE systems in two distinct areas where former industrial cesspools were located. In addition, the SVE systems will remove contaminants from below the slab of the building on the Site property, thereby addressing vapor intrusion into the indoor air of the building;
- Implementation of a Long-term Groundwater Monitoring Program: A long-term groundwater monitoring program will be conducted, and samples will be collected from selected monitoring wells to monitor background contaminant concentrations and to ensure that the soil contamination on-Site is not significantly impacting groundwater;
- Implementation of Institutional Controls: To protect human health and the environment from exposure to the existing contamination while cleanup is ongoing, institutional controls will be used as appropriate, and may include the filing of an environmental easement and/or restrictive covenant to, at a minimum, require: (a) restricting the use of the property to commercial or industrial uses, (b) restricting new construction at the Site unless the potential for vapor intrusion is evaluated and, if necessary, mitigated, and (c) restricting groundwater use as a source of potable or process water unless groundwater quality standards are met;
- Development of a Site Management Plan (SMP): An SMP will be developed to address soil, groundwater, and indoor air at the Site and would provide for the proper management of all Site remedy components;
- Implementation of Engineering Controls: Engineering controls, such as housing each SVE system, will be implemented to prevent inadvertent exposure to Site

contaminants and to protect the integrity of the remedy; and

- Conduct Five-Year Review: Since hazardous substances may remain at this Site, pursuant to Section 121(c) of CERCLA, EPA will review the selected remedy no less often than every five years after the initiation of the remedy.

DECLARATION OF STATUTORY DETERMINATIONS

Statutory Requirements

The Selected Remedy attains the mandates of CERCLA Section 121, and the regulatory requirements of the NCP in that it is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable.

Statutory Preference for Treatment

The Selected Remedy satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduce the toxicity, mobility, or volume of hazardous substances through treatment). Remedial actions at the source areas and below the on-site building are expected to remove site-related contaminants and eliminate the threat of further migration of the contaminants into either indoor air or the groundwater.

Five-Year Review Requirements

Hazardous substances are not expected to remain at this Site above levels that would prevent unlimited use and unrestricted exposure. However, if hazardous substances do remain at this Site above such levels for at least five years, then, pursuant to Section 121(c) of CERCLA, EPA will review site remedies no less often than every five years after the initiation of the remedy.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for the Site, the index of which is presented in Appendix III of this document.

- Contaminants of concern and their respective concentrations (See ROD, pages 6,7,8 and Appendix II, Table A)
- Baseline risk represented by the chemicals of concern (see ROD, page 10 and Appendix II, Tables A - F)
- Remediation goals (e.g., cleanup levels) established for chemicals of concern and the basis for these levels (see ROD, page 19)
- A discussion of source materials constituting principal threats may be found in the "Principal Threat Waste" section. (see ROD, page 39)
- Current and reasonably-anticipated future land use assumptions and current and potential future beneficial use assumptions for groundwater used in the baseline risk assessment and ROD (see ROD, page 9)
- Anticipated land and groundwater use that will be available at the Site as a result of the selected remedy (see ROD, page 41)
- Estimated capital, annual operation and maintenance, and total present-worth costs, and the number of years over which the remedy cost estimates are projected (see ROD, pages 35 and 39, and Appendix VI)
- Key factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, emphasizing criteria key to the decision) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections. (see ROD, pages 31 through 39, and page 45)

_____________________________________ __________

George Pavlou — Date
Acting Director,
Emergency and Remedial Response Division
USEPA Region 2

RECORD OF DECISION FACT SHEET
EPA REGION 2

Site

Site name: Computer Circuits Corp. Superfund Site

Site location: Hauppauge, Suffolk County, New York

Listed on the NPL: May 10, 1999

Record of Decision

Date signed: **September 29, 2008**

Selected remedy:

Soil: Residual contamination in two distinct areas will be treated using soil vapor extraction (SVE) systems.

Indoor Air: The SVE systems will remove contaminants from below the slab of the on-site building, thereby eliminating vapor intrusion into the indoor air of the building.

Groundwater: Through treatment of the source areas, continued migration of contaminants from soil to groundwater will be mitigated. Contaminant levels in groundwater are expected to continue to decrease.

Capital cost: $ 0

Operation and Maintenance
and Monitoring costs: $ 28,860

Total Present-worth cost: $124,000

Lead: EPA

Primary Contact: Mark Dannenberg, Remedial Project Manager, (212) 637-4251

Secondary Contact: Angela Carpenter, Chief, Eastern New York Remediation Section, (212) 637-4263

Main PRP: 145 Marcus Blvd., Inc.

Waste

Waste type:	Volatile organics, including trichloroethylene.
Waste origin:	Wastewater discharged from the Computer Circuits Corp. facility containing solvents used in the computer circuit board manufacturing process.
Contaminated media:	Soil, groundwater, indoor air

RECORD OF DECISION

DECISION SUMMARY

Computer Circuits Corp. Superfund Site

Hauppauge, Suffolk County, New York

United States Environmental Protection Agency
Region 2
New York, New York

September 2008

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APPENDICES

SITE NAME, LOCATION, AND DESCRIPTION

The Computer Circuits Superfund Site (Site) is located within an industrial park in Hauppauge, New York (see Figure 1 in Appendix I). The Site includes a property that is approximately 2 acres in size, and a 21,600 square foot, one-story building. The Site is bordered by Marcus Boulevard to the west and other industrial and commercial properties to the north, south, and east. A residential area is located to the north of the Site with the nearest residence approximately one-half mile from the Site property.

Based on the 2000 Census, it is estimated that 5,769 people live within one mile of the Site. All residences in the vicinity of the Site use public water for the potable water supply.

The Site property is currently owned by 145 Marcus Blvd., Inc. The former owner, MCS Realty Company, owned the Site from 1969 to 1991 and leased the Site property to Computer Circuits Corporation (Computer Circuits) from 1969 to 1977. Computer Circuits operated a circuit board manufacturing facility at the Site and discharged industrial wastewaters into industrial cesspools on the Site property. Industrial cesspools were located on the south side of the building on the Site property and a single industrial cesspool located on the north side of that same building.

The topography of the Site is generally flat with a slight, downward slope to the west towards Marcus Boulevard. The Site is underlain by glacial deposits which consist of heterogeneous sand, gravel, and boulders with occasional silt and clay lenses. Glacial deposits are approximately 150 feet in thickness and are underlain by more than 1000 feet of Cretaceous coastal plain sediments.

Long Island is made up of a series of interconnected sand and gravel aquifers. All of Long Island's water supply comes from underground water held in the aquifers. Three major aquifers make up the Long Island aquifer system. In sequence from shallowest to deepest, the three major Long Island aquifers are the Upper Glacial, the Magothy, and the Lloyd aquifers. The saturated, highly permeable glacial sediments extend down through the underlying Magothy Formation. Depth to groundwater in the underlying Upper Glacial Aquifer is approximately 105 feet below the ground surface at the Site. The Upper Glacial Aquifer has been impacted by site-related contamination.

Groundwater flow in the area has a minor downward component, which transports groundwater from the glacial deposits to the Magothy formation. The Site also has a horizontal component for groundwater flow. As it is situated north of the regional groundwater divide, groundwater in the vicinity of the Site generally flows in an east-northeast direction toward the headwaters of the Nissequogue River.

There are no surface water bodies near the Site. Artificial recharge basins are located throughout the industrial park to accept storm water runoff from roadside catch basins. The water table surface does not intersect with the base of the recharge basins in this area.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The former Computer Circuits facility property was owned by MCS Realty from 1969 to 1991. Computer Circuits leased the entire property from MCS Realty from 1969 to 1977. In 1991, 145 Marcus Blvd, Inc. purchased the Site from MCS Realty. Since 1991, the Site property has been leased to various companies and is currently being leased by 145 Marcus Realty, LLC.

Computer Circuits was a manufacturer of printed circuit boards for both military and commercial applications. Waste liquids from the circuit board manufacturing process were discharged to five industrial leaching pools located beyond the southeast corner of the building located on the Site property. These waste liquids contained metals, acids, and solvents. Photographic chemicals and trichloroethylene (TCE), which were used in association with the dark room and silk screening room located in the northern part of the building, were discharged to a single industrial leaching pool adjacent to the north side of the building.

Between 1976 and 1977, the Suffolk County Department of Environmental Control (SCDEC) collected samples from the industrial pools and found that the discharge from the Computer Circuits facility was in violation of its State Pollutant Discharge Elimination System permit. In 1976, at

SCDEC's request, Computer Circuits hired a contractor who excavated and subsequently backfilled the five former industrial leaching pools located near the southeast corner of the building. Two new leaching pools were installed in the same general area in the latter half of 1976. The two new pools were used until Computer Circuits ceased its operations in 1977.

In 1977, SCDEC determined that the industrial cesspool located on the north side of the building was completely clogged. The discharge pipe to this industrial pool was capped in 1977, and the discharge ceased. In 1977, NYSDEC obtained an injunction against Computer Circuits and all Site operations ceased. Computer Circuits Corporation subsequently vacated the premises.

NYSDEC placed the Site on the New York Registry of Inactive Hazardous Waste Disposal Sites in December 1986, under a Class 2 classification, meaning that the Site posed a significant threat to the public health or the environment and that action will be required.

In 1989, soil and groundwater were investigated at the Site pursuant to an Order on Consent between the NYSDEC and the property owner. After the transfer of the property, additional groundwater monitoring was performed by a consultant to 145 Marcus Blvd, Inc. in February 1991 and February 1994. In 1995, five additional soil borings were drilled (one at the main sanitary cesspool west of the building, one at the industrial leaching pool located on the north side of the building, and three in the vicinity of the industrial pools off the southeast corner of the building) and soil samples were collected. Volatile organic compounds (VOCs) were not detected in the soil samples above NYSDEC guidance values. However, metals including lead, silver, copper, nickel, and zinc were detected in the soil samples above NYSDEC guidance values.

Another round of groundwater sampling was performed in 1995 from the three existing groundwater monitoring wells located along the property boundary, one on the southwest corner of the property, one near the northeast corner, and one north of the building. The data collected from this round of groundwater sampling indicated that certain VOCs (including TCE, 1,2-dichloroethene, 1,1,1-trichlorethane, and tetrachloroethene) were present above NYSDEC standards and Maximum Contaminant Levels (MCLs) established by the Safe Drinking Water Act.

In 1996, 145 Marcus Blvd, Inc. had an additional three groundwater monitoring wells installed at the Site, one adjacent to the southwest corner of the building (to supplement the three that were already there), one adjacent to the southeast corner of the building, and one along the southern edge of the Site property (s**ee Appendix I, Figure 3**). Groundwater samples were subsequently collected from the new monitoring wells as well as two of the three original monitoring wells; the data collected indicated the presence of one or more of the same VOCs (e.g., TCE, 1,2-dichloroethene, 1,1,1-trichlorethane, and tetrachloroethene) above NYSDEC standards and MCLs in each of these wells.

On May 10, 1999, EPA placed the Site on CERCLA's National Priorities List (NPL) of sites. EPA took over as the lead regulatory agency overseeing the implementation of a Remedial Investigation (RI) and Feasibility Study (FS). On September 29, 2000, Respondent voluntarily entered into an administrative order on consent to conduct a remedial investigation/feasibility study (RI/FS) to determine the nature and extent of contamination.

On January 3, 2003, 145 Marcus Boulevard, Inc. submitted a draft RI Report for the Site. During the RI, samples were collected from several media including surface and subsurface soils, groundwater, and air. The RI identified the presence of elevated levels of several contaminants in the soil. In addition, air samples collected from the indoor air of the building at the Site identified the presence of volatile organic compounds, including TCE. TCE was identified at levels of concern in indoor air, in soils just beneath the slab of the northern portion of the on-Site building, and in soils within the leaching pool adjacent to the north side of the building.

On September 28, 2004, the Regional Administrator signed an Administrative Order on Consent that provides for the performance of a removal action by 145 Marcus Blvd. Inc. The Order calls for the construction and operation of both a soil vapor extraction (SVE) system and a sub-slab depressurization system at the Site. Under the 2004 Removal Order, operation and maintenance (O&M) of the SVE system and sub-slab depressurization system is to continue until six months after the later of the following: (1) concentrations of TCE in indoor air do not exceed 0.36 ug/m3 or, if approved by EPA, a different Site-specific indoor air background level for TCE; and (2) concentrations of TCE in representative soil-gas samples at the intake of the SVE and the sub-slab depressurization systems do not exceed 36 ug/m3 and 3.6 ug/m3, respectively. These levels were risk-based goals expected to be consistent with any ultimate remedial action selected for the Site.

COMMUNITY PARTICIPATION

A Proposed Plan (which proposes a remedy for the Site) and supporting documentation for the Site were made available to the public on August 8, 2008 at the EPA Region 2 Administrative Record File Room in New York, New York, and at the Smithtown Public Library in Smithtown, New York. EPA published a public notice in *Newsday* on August 8, 2008, which identified the 30-day duration of the public comment period, the date of a scheduled public meeting, and the availability of the Proposed Plan and the Administrative Record. This notice was sent to all addresses on the mailing list of parties which had indicated an interest in the Site.

On August 19, 2008, EPA held a public meeting at the Smithtown Public Library, at 1 North Country Road in Smithtown, New York. The purpose of the meeting was to inform interested citizens and local officials about the Superfund process, to discuss the Proposed Plan and the preferred remedy for the Site, to receive comments on the Proposed Plan and the preferred remedy, and to respond to questions from area residents and other interested parties.

The public comment period which began August 8, 2008 ended on September 6, 2008. EPA has compiled all comments and questions it received throughout the 30-day public comment period, including written comments and comments and questions raised at the August 19, 2008 public meeting, into a Responsiveness Summary. EPA’s responses to those comments and questions are included as part of this Record of Decision in the Responsiveness Summary (Appendix V).

SCOPE AND ROLE OF RESPONSE ACTION

This Record of Decision addresses the remediation of the contaminated soil and indoor air at the Site. The entire Site is addressed as one operable unit and this is intended to be the sole and final remedy for this Site. The site-specific media impacted at the Site are soils (in the former industrial cesspool areas), groundwater, and indoor air in the on-Site building. The two main objectives for response action at this Site are to remediate contaminated soil and to mitigate vapor intrusion into the building on the Site property.

Although the contaminant levels in the soil do not exceed soil cleanup standards, the source areas continue to act as a source of groundwater and indoor air contamination which are at unacceptable levels. Contaminant levels in indoor air are at levels that present a risk to workers. The objectives are to ensure that soil concentrations are reduced such that vapors in the building are reduced to acceptable levels.

SITE CHARACTERISTICS

This section of the ROD provides an overview of the Site's geology and hydrogeology, the sampling strategy used at the Site, the conceptual Site model, and the nature and extent of contamination at the Site. Further detailed information about the Site's characteristics can be found in the RI Report.

Overview of the Site

The Town of Hauppauge is situated in central Suffolk County. It is estimated that 5,769 people live within one mile of the former facility. All residences in the vicinity of the former facility use public water for the potable water supply. The latitude of the Town of Hauppauge is 40.485N and the longitude is 73.144W.

The Site is in a commercial and industrial area. The Site property consists primarily of a paved parking lot and a building (which is approximately 22,000 square feet in size). The Site is bordered on the west by Marcus Boulevard and on the north, south and east by other commercial properties.

The area where the Site is located is zoned for commercial and industrial use. The nearest residences to the Site are located approximately one-half mile to the north of the Site property.

Geology/Hydrogeology

The hydrology and hydrogeology of the area of the Site is clearly understood. Studies of Long Island hydrology and geology in the vicinity of the Site indicate that the uppermost Pleistocene deposits are generally composed of highly permeable glacial sands and gravel. Water penetrates these sandy deposits which store large quantities of water called the Upper Glacial aquifer. Three major aquifers make up the Long Island aquifer system. From shallowest to deepest, the three major Long Island aquifers are the Upper Glacial, the Magothy, and the Lloyd aquifers. Precipitation and surface water that recharge within the Upper Glacial zone have the potential to replenish the deep Magothy and Lloyd aquifer systems lying below the Upper Glacial aquifer. This groundwater system is the primary source of drinking water for all of Suffolk County, and, as such, has been designated a sole source aquifer.

Ecology

The Site includes a large one-story building (approximately 22,000 square feet). Asphalt driveways and parking areas are present to the north, south, and east of the building. The paved areas and building occupy over 50 percent of the total area of the property. The remainder of the property consists of an area of landscaped plants and mowed grass (75 feet X 240 feet) in the front of the building (on the west side of the property along Marcus Avenue), and an unpaved and unvegetated area along the eastern property edge (180 feet X 150 feet). A thin, wooded strip (10 to 15 feet wide) runs along the eastern property line at the rear of this vacant area. Future land use of this area is likely to remain under commercial/industrial use for the foreseeable future.

Trees, shrubs, and groundcover present at the Site are either the result of landscaping or second stage fallow growth. Suitable wildlife habitat is absent from the area encompassing the Site. During the site reconnaissance, no insects, birds, or mammals were observed.

There are no freshwater bodies existing either on the Site or within the general vicinity of the Site. The site reconnaissance also revealed that there were no surface water pathways associated with the Site (other than the storm drain located in front of the property on Marcus Blvd that empties into a recharge basin approximately one mile north of the Site). Furthermore, there are no sensitive environmental areas located on or near the Site.

Cultural Resources

A Cultural Resources Survey was performed for the Site and indicated that there were neither any significant National Register of Historic Places, or National Register of Historic Places-eligible properties, nor any likely prehistoric resources within the project boundaries. As such, the regulatory requirements relating to the identification and protection of historic properties/places have been addressed, and no additional archaeological investigations are considered necessary at the Site.

Nature and Extent of Contamination

Activities performed as part of the RI included: geophysical studies, on-Site soil borings, soil sampling, monitoring well drilling and installation, groundwater sampling, soil-gas sampling, and indoor air monitoring. These activities were primarily performed by 145 Marcus Blvd, Inc., the potentially responsible party (PRP) at the Site, pursuant to an administrative order on consent signed by 145 Marcus Blvd, Inc. and EPA on September 29, 2000, with EPA and NYSDEC oversight; some additional activities (including indoor air and sub-slab soil gas monitoring) were performed by the EPA. Site-related contamination was found in soil, soil-gas, indoor air, and groundwater. The results of the RI are summarized below.

Soil: The first phase of the field work portion of the RI was conducted by PW Grosser Consulting, as a consultant to 145 Marcus Blvd, Inc., from December 17, 2001 to July 24, 2002. The soil sampling activities were primarily focused in the areas where contaminant sources existed, namely, the industrial cesspools used for wastewater from operations at the Computer Circuits facility. Cesspools were located beyond the southeastern corner of the building and another cesspool was located on the north side of the building. These areas were identified as contributing to contamination in the underlying aquifer. The primary contaminants identified during soil sampling activities include: 1,1-dichloroethene; 1,1,1-trichloroethane; 1,2-dichloroethane; acetone; chloromethane; methylene chloride; TCE; tetrachloroethene (PCE), and vinyl chloride.

During the soil sampling phase of the RI, 48 shallow and 4 deep soil borings were advanced at the Site. Analyses of samples were conducted for inorganic (e.g., metals) and organic contaminants. Compounds detected above preliminary screening values (namely, the EPA Region 9 Preliminary Remediation Goals) were considered contaminants of potential concern (COPCs) for the Site. The following compounds were selected as COPCs for subsurface soils: TCE, benzo(a)pyrene, and nickel. In addition, since the NYSDEC Recommended Soil Cleanup Objectives (RSCO) for copper, silver, and zinc were exceeded, these metals were also retained as COPCs.

Results from the shallow borings revealed concentrations of TCE above screening values in the vicinity of the industrial leaching pool on the north side of the building, and beneath the concrete slab floor in the former silk screening room. TCE was detected in six shallow borings in excess of the EPA soil screening value of 60 micrograms per kilogram (µg/kg). The highest reported VOC concentration (namely, for TCE) in a shallow soil boring was 12,000µg/kg, which was found in the top 2 feet below the concrete slab in the northern portion of the building. The NYSDEC Unrestricted Use RSCO value for TCE is 470µg/kg. One of the four deep soil borings revealed TCE at a concentration of 55,000µg/kg (an exceedence of the NYSDEC RSCO value for TCE) 22 feet below ground surface (bgs) at the base of the former industrial leaching pool on the north side of the building. The EPA soil screening value for TCE (60µg/kg) was also exceeded in one deep soil boring in the vicinity of the former leaching pools off of the southeast corner of the building on the Site property. TCE was the only compound detected in excess of its NYSDEC RSCO value or the EPA soil screening level from the deep soil borings.

Soil sampling data collected from shallow borings reflected that the NYSDEC RSCO was exceeded for metals, predominantly copper and nickel, in the area of the former industrial pools near the southeast side of the building. The NYSDEC RSCO was also exceeded for silver and zinc in the industrial pool on the north side of the building. The maximum level of copper detected was 12,300mg/kg in the area of the former industrial pools near the southeast corner of the building at a depth of 15 feet bgs. The next highest value of copper detected was 312mg/kg. The NYSDEC Unrestricted Use RSCO for copper is 50mg/kg; EPA does not have a soil screening level for copper.

Only one subsurface soil sample of nickel was detected above the preliminary screening value, and this sample was co-located with the maximum detected level of copper (in the area of the former industrial pools near the southeast corner of the building at a depth of 15 feet bgs). Silver was detected (at a level of 168mg/kg) above the preliminary screening value from only one subsurface soil sample, at a depth of 20 feet bgs near the former industrial leaching pool on the north side of the building on the Site property. The NYSDEC Unrestricted Use RSCO for silver is 2mg/kg.

EPA does not have a preliminary screening value for zinc. However, the NYSDEC Unrestricted Use RSCO for zinc (which is 109mg/kg) was exceeded in one sample collected at a depth of 20 feet bgs, (again from the former industrial leaching pool on the north side of the building on the Site property), at a concentration of 90.9mg/kg.

As the industrial cesspool on the north side of the building was a known source of contamination, on January 23, 2002, sediments within the industrial cesspool were removed prior to advancing a deep soil boring. This was performed to prevent introducing contaminated materials to the underlying aquifer. These sediments were removed by a “Guzzler” vacuum truck, which utilizes a strong vacuum to extract the sediments and water through a 5 inch hose, and they were placed in a container for disposal.

Groundwater: The groundwater monitoring program included sampling of groundwater from Site-related monitoring wells and analysis of these samples for organic and inorganic compounds. Groundwater monitoring was performed in several separate field mobilizations conducted between 2001 and 2008. The investigations included:

- Installing additional permanent groundwater monitoring wells to act as fixed monitoring and/or compliance points within the aquifer. A total of 18 groundwater monitoring wells currently exist in the study area (See Figure 2);

- Collecting a series of groundwater samples from the assembled monitoring well network;

- Identifying the COPCs in groundwater; and

- Characterizing the nature and extent of the groundwater contamination.

Evaluation of the data demonstrates that the groundwater at the Site generally flows in an east-northeast direction.

The following compounds were initially identified as COPCs for groundwater: PCE, TCE, chromium VI, manganese, iron, and nickel. Chromium VI was not detected in groundwater monitoring wells on Site property, but it was detected at one monitoring well located upgradient of the Site property and one monitoring well located downgradient of the Site property. Furthermore, the RI Report documents that Computer Circuits did not use chromium in any of its operations. Manganese and iron are frequently found at elevated levels in groundwater on Long Island and are not considered Site-related. Nickel was not detected above NYSDEC groundwater standards, and there is no federal standard for nickel. For these reasons, chromium VI, manganese, iron, and nickel were eliminated as COPCs at the Site, leaving only PCE and TCE.

The primary contaminants identified in groundwater were TCE and PCE, both of which were detected at concentrations above both MCLs, and New York State Groundwater Standards in wells located within the property boundary and in wells located upgradient and downgradient of the property boundary. Sampling data collected during the RI in 2002 revealed elevated concentrations of TCE and PCE of 280 parts per billion (ppb) and 370 ppb, respectively. Earlier groundwater data, collected prior to the Site being listed on the NPL, reflected even higher concentrations of TCE and PCE.

More recent groundwater sampling data indicate that the concentrations in the on-Site monitoring wells and downgradient of the Site have continued to decrease significantly. Groundwater data collected between December 2006 and April 2007 indicate that the highest concentrations of TCE and PCE were 28 ppb and 36 ppb, respectively. Also, EPA had an additional six monitoring wells installed in the Site area in 2008, two of which were upgradient of the property boundary and four of which were downgradient from the property boundary. These new wells, along with the previously existing wells associated with the Site, were sampled between May 27, 2008 and June 4, 2008. This latest round of groundwater monitoring indicates that the highest concentrations of TCE and PCE are 24 ppb and 31 ppb, respectively. Significantly, the well that yielded the 24 ppb of TCE was non-detect in the previous sampling event (June 2007). Similarly, the well that yielded the 31 ppb of PCE was also non-detect for PCE in the previous sampling event. This disparity between the 2007 and 2008 groundwater data supports the conclusion that there are no continuous sources of contamination overlying these monitoring wells and no discernable plume associated with the Site. Historical groundwater monitoring data is presented in **Tables 8, 9, and 10**.

In general, the 2008 groundwater monitoring data shows that in the instances where TCE or PCE exceeded MCLs, the concentrations were approaching the MCL value. The wells located within the property boundary and the wells downgradient of the property boundary now have concentrations that are very similar to the low concentration levels found in upgradient wells.

MCLs and New York State Groundwater Standards are primary standards to protect public health by limiting the levels of contaminants in drinking water. As these standards were exceeded, TCE and PCE are retained as COPCs. However, PCE was reportedly never used at the Site, and only trace amounts of PCE were found in Site soils. As such, the PCE in the groundwater is believed to come predominantly from a source (or sources) upgradient to the Site.

All residences in the vicinity of the Site rely on public water for their potable water supply. Two public water supply wells are located approximately three-quarters of a mile to the north of the Site. One of these public water supply wells has been impacted by VOCs from a source other than the Site. As the direction of groundwater flow under the Site is generally in an east-northeasterly direction, these public water supply wells are not directly downgradient of the Site nor within the zone of influence. Nonetheless, these public water supply wells are equipped with well-head treatment that removes VOCs (including TCE and PCE) from the water prior to distribution to the public. The public water supply is routinely monitored to ensure compliance with federal and state standards for drinking water.

Indoor Air: Air samples were collected on July 24, 2002 from four locations (3 inside the building and one outside and adjacent to the building). Results were compared to the EPA Region 9 preliminary screening values (EPA Region 9 Preliminary Remediation Goals) and New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance to assess the ambient indoor air quality. The VOCs detected above the screening values are: 1,1-dichloroethene; 1,1,1-trichloroethane; 1,2-dichloroethane; acetone; chloromethane; methylene chloride; TCE; and vinyl chloride. Based on these findings, it was determined that a corrective measure was necessary. EPA and 145 Marcus Blvd., Inc. signed an Administrative Order on Consent on September 28, 2004 requiring that work be performed to remove VOC contamination from the soil and mitigate vapor intrusion into the building. This work involves the operation of a SVE system which remediates contaminated soils in a contaminant-source area on the north side of the building and mitigates vapor intrusion into the building.

Additional air monitoring activities were conducted by EPA in May, 2008. Several summa canisters were placed in various locations within the building to determine levels of VOCs in the indoor air. Only two VOCs were detected during these activities, namely, TCE and trans-1,2-dichloroethene. The highest concentrations of TCE and trans-1,2-dichloroethene were 6.07 $\mu g/m^3$ and 0.381 $\mu g/m^3$, respectively. As part of the Site monitoring activities, EPA also collected soil-gas samples from around the perimeter of the building and beneath the foundational slab. These samples were analyzed for certain VOCs including TCE and PCE. The soil-gas samples reflected maximum TCE and PCE levels of 80,613$\mu g/m^3$ and 8815$\mu g/m^3$, respectively. These activities also reflected the need to perform additional corrective actions in the vicinity of the former industrial cesspools located near the southeast corner of the building.

CONTAMINANT FATE AND TRANSPORT

Migration of contaminants at the Site occurs from contaminated soils to the groundwater and from contaminated soils to the indoor air of the building on the Site property. Migration of dissolved contaminants also occurs within the groundwater aquifers. The Site-related VOCs emanate from the former industrial cesspools (located on both the north side and the south side of the building) which still acts as an ongoing source of groundwater and indoor air contamination. Recent groundwater data supports the conclusion that contaminant levels are approaching MCLs and there is currently no groundwater contaminant plume associated with the Site. Groundwater data does reflect the presence of VOCs; however, contaminant levels in groundwater are currently analogous to contamination upgradient and downgradient of the Site **(see Appendix II, Tables 8, 9, and 10)**.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

The Site is in an area used for commercial and industrial purposes. The zoning of the Site (commercial/industrial) is not expected to change in the near future. The groundwater at the Site is classified by NYSDEC as “GA”, which is defined as groundwater suitable as a source of drinking water. All residences in the vicinity of the Site rely on public water for their potable water supply. Two public water supply wells are located approximately three-quarters of a mile to the north of the Site. One of the public water supply wells has been impacted by VOCs from a source other than from the Site. As the direction of groundwater flow under the Site is generally in an east-northeasterly direction, these public water supply wells are not directly downgradient of the Site, nor within the zone of influence. Nonetheless, these public water supply wells are already equipped with well-head treatment that removes VOCs (including TCE and PCE) from the water prior to distribution to the public. Furthermore, the public water supply is routinely monitored to ensure compliance with federal and state standards for drinking water.

SUMMARY OF SITE RISKS

As part of the RI/FS, EPA conducted a baseline risk assessment to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and future land uses. The baseline risk assessment includes a human health risk assessment and an ecological risk assessment. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by a remedial action. This section of the ROD summarizes the results of the baseline risk assessment for the Site.

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification* – uses the analytical data collected to identify the COPCs at the Site for each medium, with consideration of a number of factors explained below; *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed; *Toxicity Assessment* - determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations which exceed acceptable levels, defined by the NCP as an excess lifetime cancer risk greater than 1×10^{-6} – 1×10^{-4} or a Hazard Index greater than 1.0; contaminants at these concentrations are considered COCs and are typically those that will require remediation at the Site. Also included in this section is a discussion of the uncertainties associated with these risks.

Hazard Identification

In this step, the COPCs in each medium were identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations, mobility, persistence, and bioaccumulation. Analytical information that was collected to determine the nature and extent of contamination revealed the presence of PCE, TCE, and methylene chloride at the Site at concentrations of potential concern. Based on this information, the risk assessment focused on groundwater and indoor air contaminants which may pose significant risk to human health.

A comprehensive list of all COPCs can be found in the "Former Computer Circuits Site – Human Health Risk Assessment (2006)" (BHHRA). This document is available in the Administrative Record file. Only the COCs, or these chemicals requiring remediation at the Site, are listed in Table 1.

Exposure Assessment

Consistent with Superfund policy and guidance, the BHHRA is a baseline human health risk assessment and therefore assumes no remediation or institutional controls to mitigate or remove hazardous substance releases. Cancer risks and noncancer hazard indices were calculated based on an estimate of the reasonable maximum exposure (RME) expected to occur under current and future conditions at the Site. The RME is defined as the highest exposure that is reasonably expected to occur at a site. For those contaminants for which the risk or hazard exceeded the acceptable levels, the central tendency estimate, or the average exposure, was also evaluated.

The Site is currently zoned for commercial use, although there are residential properties in the vicinity of the Site. It is anticipated that the future land use for this area will remain consistent with its current use. The BHHRA evaluated potential risks to populations associated with both current and potential future land uses.

Exposure pathways were identified for each potentially exposed population and each potential exposure scenario for the groundwater and indoor air. Exposure pathways assessed in the BHHRA for the groundwater include ingestion of tap water, dermal contact with tap water, and inhalation in the shower by adult and child residents. In addition, ingestion of tap water and inhalation of indoor air were assessed for on-Site workers. A summary of the exposure pathways that were associated with elevated risks or hazards can be found in Table 2. Typically, exposures are evaluated using a statistical estimate of the exposure point concentration, which is usually an upper-bound estimate of the average concentration for each contaminant, but in some cases it may be the maximum detected concentration. A summary of the exposure point concentrations for the COCs in each medium can be found in Table 1, while a comprehensive list of the exposure point concentrations for all COPCs can be found in the BHHRA.

Toxicity Assessment

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards because of exposure to site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of the Site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the human health risk assessment were provided by the Integrated Risk Information System database, the Provisional Peer Reviewed Toxicity Database , or another source that is identified as an appropriate reference for toxicity values consistent with EPA’s directive on toxicity values. This information is presented in Table 3 (noncancer toxicity data summary) and Table 4 (cancer toxicity data summary). Additional toxicity information for all COPCs is presented in the BHHRA.

Risk Characterization

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated drinking water) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the HQs for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

HQ = Intake/RfD

Where: HQ = hazard quotient
Intake = estimated intake for a chemical (mg/kg-day)
RfD = reference dose (mg/kg-day)

The intake and the RfD will represent the same exposure period (i.e., chronic, subchronic, or acute).

As previously stated, the HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1.0 indicates that the potential exists for noncarcinogenic health effects to occur as a result of Site-related exposures, with the potential for health effects increasing as the HI increases. When the HI, which is calculated for all chemicals for a specific population, exceeds 1.0, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1.0 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A summary of the noncarcinogenic risks associated with these chemicals for each exposure pathway is contained in Table 5.

It can be seen in Table 5 that the HI for noncancer effects as a result of potential exposure to tetrachloroethene and trichloroethene in tap water is 12 for the child resident. The noncancer HI was below one for the adult resident and on-Site workers.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

Where: Risk = a unitless probability (1×10^{-6}) of an individual developing cancer
LADD = lifetime average daily dose averaged over 70 years (mg/kg-day)
SF = cancer slope factor, expressed as [1/mg/kg-day)]

These risks are probabilities that are usually expressed in scientific notation (such as 1×10^{-4}). An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the assessment. Again, as stated in the NCP, the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

Results of the BHHRA presented in Table 6 indicate that the adult resident (2.1×10^{-3}) and child resident (4.6×10^{-3}) exceed the acceptable EPA risk range as a result of exposure to PCE and TCE in tap water. In addition, the on-Site worker had elevated risks from exposure to PCE and TCE in tap water (2.5×10^{-4}) and from exposure to TCE and methylene chloride (5.5×10^{-3}) in indoor air.

In summary, PCE and TCE in groundwater, as well as TCE and methylene chloride through vapor intrusion contribute to unacceptable risks and hazards to receptor populations that may use the Site or lie over contaminated groundwater. The non-cancer hazards and cancer risks from all COPCs can be found in the BHHRA.

The response action selected in this Record of Decision is necessary to protect the public health or welfare of the environment from actual or threatened releases of contaminants into the environment.

<u>Ecological Risk Assessment</u>

A screening-level ecological risk assessment (SLERA) was prepared to identify the potential environmental risks associated with groundwater and soil. The results of the SLERA suggested that there are contaminants in groundwater and soils, but they are not present at levels posing significant risks to ecological receptors. Furthermore, based on the industrial nature of the former facility and surrounding properties and the minimal natural vegetation at the Site, it was determined that the Site does not have any valuable ecological resources. In addition, two other physical factors also support the finding that there are no significant risks to ecological receptors, namely, that the depth to groundwater is approximately 105 feet, and that groundwater to surface water pathways are not present. As there are no complete exposure pathways based on an absence of a suitable habitat to support ecological receptors, it was determined that the Site does not pose a potential for adverse ecological effects.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis;
- environmental parameter measurement;
- fate and transport modeling;
- exposure parameter estimation; and
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near the Site, and it is highly unlikely to underestimate actual risks related to the Site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the risk assessment report.

Basis for Remedial Action

A response action is necessary to protect the public health or welfare or the environment from actual releases of hazardous substances in to the environment. A response action is warranted because of the following:

The contaminated soil continues to be a source of groundwater and indoor air contamination. As such, a remedial action is warranted to reduce or eliminate contamination in the soil, in particular, the two existing source areas.

Recent groundwater data (e.g., from 2006, 2007, and 2008) supports the conclusion that there is currently no groundwater contaminant plume associated with the Site. Groundwater data does reflect the presence of VOCs, both upgradient and downgradient of the Site. The long-term groundwater monitoring will be used to monitor background groundwater contaminant levels and to ensure that residual soil contamination at the Site is not contaminating the groundwater.

Indoor air COCs are present in concentrations both above New York State guidelines and that pose a potential risk from direct exposure to potentially exposed populations. As such, a remedial action is warranted to remove contamination from below the slab of the building and eliminate the source of indoor air contamination.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) describe what the Site Remedy is designed to accomplish. The RAOs are based on the nature and extent of the contamination, the resources that are currently and potentially threatened, and the potential for human and environmental exposure. Remedial action goals are media-specific goals to protect human health and the environment and utilize available information and standards such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and risk-based levels established in the risk assessment. Section 121(d) of CERCLA requires that, at a minimum, any remedial action implemented at a site achieve overall protection of human health and the environment and comply with all ARARs. ARARs at a site may include other federal and state environmental statutes and regulations.

The general RAOs identified for the Site are:

- to prevent exposure of human receptors to contaminated groundwater;
- to minimize migration of contaminants from soils to groundwater;
- to ensure that hazardous constituents within the soil meet acceptable levels consistent with reasonably anticipated future use;
- to prevent exposure of human receptors to contaminated indoor air; and
- to minimize migration of contaminants from soils to indoor air.

Implementing active remedies in the source area and below the slab of the building on the Site property will address the risks associated with the Site-related contaminants. Specifically, implementation of the Site remedy is expected to reduce the concentration of contaminants in soils below soil cleanup objectives and, thereby, mitigate these areas as sources of indoor air contamination. Table A below lists the cleanup levels for the Site contaminants in groundwater, soil, and indoor air based on federal and state promulgated ARARs, risk-based levels, background concentrations, and guidance values.

Table A: Cleanup Objectives

Contaminant	Groundwater (ug/L) *	Soils (ug/kg)	Indoor Air (µg/m³)
Trichloroethylene	5	470 **	0.36***
Tetrachloroethylene	5	1,300 **	
cis-1,2-dichloroethylene	5	250 **	
Trans-1,2-dichloroethylene	5	190 **	
1,1,1-trichloroethane	5	680 **	

* Groundwater cleanup levels for organic COCs are based on the more conservative of the Federal Maximum Contaminant Levels (MCLs) and the New York Ambient Groundwater Standards and Guidance Values (NYSDEC TOGs 1.1.1, June 1998).
** The values shown are from *NYSDEC Subpart 375: Remedial Program Soil Cleanup Objectives*.
*** Indoor Air cleanup levels are based on levels agreed to in an Administrative Order on Consent for Removal Action signed by EPA and 145 Marcus Blvd, Inc.

DESCRIPTION OF ALTERNATIVES

CERCLA § 121(b)(1), 42 U.S.C. § 9621(b)(1), requires that any selected remedy be protective of human health and the environment, be cost-effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

A number of alternatives for the Site were evaluated in light of the RAOs. Three alternatives were selected for final evaluation. These alternatives are described below.

Remedial Alternatives:

The following three alternatives were evaluated for the remediation of contamination:

Alternative 1: No Further Action

The "No Action" alternative is considered in accordance with NCP requirements and provides a baseline for comparison with other alternatives. If this alternative were implemented, the current status of the Site would remain unchanged. Institutional controls would not be implemented to restrict future Site development or use. Engineering controls would not be implemented to prevent Site access or exposure to Site contaminants. Although existing fencing at the Site would remain, it would not be monitored or maintained under this alternative. Operation of the SVE system on the north side of the building would be discontinued.

Table 2: Cost Data for Alternative 1

Capital Cost	$ 0
O & M Cost	$ 0
Present Worth Cost	$ 0
Construction Time	N/A

Alternative 2: Continued Operation of two Soil Vapor Extraction Systems

This alternative involves the continued operation of two SVE systems (one on the north side of the building and one on the south side of the building). SVE is a remedial technology that reduces concentrations of volatile organics adsorbed to soils in the unsaturated (vadose) zone. Volatile constituents of the contaminant mass “evaporate” and the vapors are drawn towards the extraction wells by the vacuum. The vapors are extracted (removed) from the ground by applying a vacuum to pull the vapors out. The SVE system currently operating on the north side of the building would be optimized to extract greater quantities of VOCs and, thereby, reduce the amount of time needed to achieve cleanup goals and the time needed to operate the system. Another SVE system on the south side of the building has been installed by EPA. Operation of the two SVE systems will mitigate vapor intrusion into the building on the Site property, and thereby reduce the elevated levels of TCE in the building's indoor air.

In addition, a groundwater monitoring program would be performed to collect information to confirm the declining trend in COPC concentrations at and downgradient of the Site, and to measure the effectiveness of the source control measures discussed above.

The groundwater monitoring program would involve collecting samples from groundwater monitoring wells associated with the Site. Initially, sampling of groundwater monitoring wells would be performed on a periodic (e.g., quarterly) basis. The frequency of groundwater monitoring would be assessed on an annual basis and may be adjusted based on that assessment. Furthermore, this assessment would consider whether certain monitoring wells may be omitted from this. In addition, monitoring of indoor air would be conducted periodically until cleanup objectives are met. Furthermore, the SVE systems will be tested to ensure that their radius of influence sufficiently covers the building on the Site property.

As it may take longer than five years to achieve cleanup levels, a review of Site conditions will be conducted no less often than once every five years, consistent with the requirement in Section 121(c) of CERCLA.

A Site Management Plan (SMP) would be developed to provide for the proper management of all Site remedy components post-construction, including: (a) monitoring of Site groundwater to ensure that, following remedy implementation, the groundwater quality improves; (b) monitoring of indoor air in the on-Site building and soil gas below the slab of the building to ensure that indoor air is safe for occupants/tenants and that vapor intrusion is under control; (c) provision for any operation and maintenance required of the components of the remedy; and (d) periodic certifications by the owner/operator or other person implementing the remedy that any institutional and engineering controls are in place.

Additional institutional controls would be required as appropriate and may include an environmental easement and/or restrictive covenant filed in the property records of Suffolk County that would: (a) limit the use of the active industrial area to commercial and/or industrial uses only; (b) require that any new or renovated building or structure at the Site that will be occupied in the future be evaluated for soil vapor intrusion; and (c) restrict the use of groundwater at the Site as a source of potable or process water unless groundwater quality standards are demonstrated to have been met.

In addition to the environmental easement, the New York State Department of Health State Sanitary Code regulates installation of private potable water supply wells in Suffolk County, adding an additional level of control. Furthermore, EPA would rely on the current zoning in the area as another safeguard to restrict the land use to commercial and industrial uses.

Table 3: Cost Data for Alternative 2

Capital Cost	$0 *
O & M Cost	$28,860
Present Worth Cost	$124,000
Construction Time	N/A

* the capital cost is considered to be zero based on the fact that the two SVE systems were both constructed and installed previous to the signing of this Record of Decision.

Alternative 3: Continued Operation of Two SVE Systems and Installation and Operation of an Air Sparging System

This alternative incorporates the continued operation of the two SVE systems (one on the north side of the building and one on the south side of the building) described above in Alternative 2. In addition, this alternative would include the installation and operation of an air sparging system. Air sparging is the process of injecting air directly into groundwater. Air sparging remediates groundwater by volatilizing contaminants. Essentially, air is injected into the groundwater causing bubbling. The volatile contaminants are stripped from the groundwater bound to the rising bubbles, and are carried up into the overlying soil. As the contaminants move into the soil, the SVE system would be used to remove the contaminants. In addition, this alternative includes the groundwater monitoring program, Site Management Plan, and Institutional Controls described above under Alternative 2.

Table 4: Cost Data for Alternative 3

Capital Cost	$122,000
O & M Cost	$76,454
Present Worth Cost	$504,270
Construction Time	8 to 12 months

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy for a site, EPA considers the factors set forth in CERCLA §121, 42 U.S.C. § 9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 CFR §300.430(e)(9), and EPA OSWER Directive 9355.3-01. The detailed analysis consists of an assessment of the individual alternatives against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

- Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

- Compliance with applicable or relevant and appropriate requirements addresses whether or not a remedy would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and regulations or provide grounds for invoking a waiver.

- Long-Term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

- Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies, with respect to these parameters, that a remedy may employ.

- Short-Term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

- Cost includes estimated capital and operation and maintenance costs, and net present-worth costs.

- State acceptance indicates whether, based on its review of the RI/FS reports, the Proposed Plan, and a draft ROD, the State concurs with, opposes, or has no comment on the preferred remedy for a Site.

- Community acceptance will be assessed in the ROD, and refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports.

A comparative analysis of these alternatives based upon the evaluation criteria noted above, follows.

Comparative Analysis of Alternatives

1. Overall Protection of Human Health and the Environment

Alternative 1 would not be protective of human health and the environment, since it would not actively address the contaminated soils which present unacceptable risks of exposure and are a source of groundwater and indoor air contamination at the Site. Alternatives 2 and 3 would be protective of human health and the environment, since each alternative relies upon a remedial strategy or treatment technology capable of eliminating human exposure and mitigating the source of groundwater and indoor air contamination.

2. Compliance with ARARs

The indoor air, groundwater, and soil cleanup objectives used for the Site are based the cleanup objectives cited earlier in the RAO Section.

The contamination in the soils and below the slab of the building on the Site property would not be addressed under Alternative 1. As such, vapor intrusion into the building would continue unabated and indoor air cleanup objectives would not be achieved. Alternatives 2 and 3 would, through operation of the SVE systems, each achieve indoor air cleanup objectives for the Site by remediating the source areas and the area below the slab of the building, and, thereby, mitigate vapor intrusion into the building.

Furthermore, through remediating the source areas, Alternatives 2 and 3 reduce and/or eliminate migration of contaminants from these source areas to groundwater. As such, Alternatives 2 and 3 may contribute to the decreasing trend of contaminants in groundwater.

Although Alternative 3 does employ an active groundwater remediation technology, groundwater contaminant levels have been detected at levels well below those where this technology is typically used, and, as such, this technology does not offer any significant advantage over operation of the SVE systems alone. Furthermore, as there is no discernable groundwater contaminant plume to address, Alternative 3 does not offer any real advantage over Alternative 2 for reducing levels of contaminants in groundwater.

In addition, Alternatives 2 and 3 would require compliance with air emission standards for the SVE systems. Specifically, treatment of off-gases would have to meet the substantive requirements of New York State Regulations for Prevention and Control of Air Contamination and Air Pollution (6 NYCRR Part 200, et seq.) and comply with the substantive requirements of other state and federal air emission standards.

3. Long-Term Effectiveness and Permanence

Alternative 1 would not involve any active remedial measures, and, as such, not be effective in eliminating the potential exposure to contaminants in soil and would result in the continued migration of contaminants from the soil to indoor air and the groundwater. Alternatives 2 and 3 would each be effective in the long term by permanently removing the contaminants from the soils through the operation of the two SVE systems.

4. Reduction in Toxicity, Mobility or Volume through Treatment

Alternatives 1 would provide no reduction in toxicity, mobility, or volume of contaminants. Under Alternatives 2 and 3, the toxicity, mobility, and volume of the contaminants would be reduced by removing contamination from Site soils through treatment by SVE. Furthermore, Alternatives 2 and 3 would reduce the migration of contaminants from soil to both indoor air and groundwater. Though Alternative 3 does employ an active groundwater remediation technology, groundwater contaminant levels have been detected at levels well below those where this technology is typically used, and there is no discernable Site related plume to address. As such, this technology does not offer any significant advantage over operation of the SVE systems alone relative to reducing the concentration or volume of contaminants in the groundwater.

5. Short-Term Effectiveness

Alternative 1 does not include any physical construction measures in any areas of contamination and, therefore, would not present any potential adverse impacts to on-Site workers or the community as a result of its implementation. Alternative 3 could result in some exposure to on-property workers through dermal contact and inhalation related to the installation of the air sparging system. The risks to on-property workers under Alternative 3 could, however, be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by using proper protective equipment.

Since no actions would be performed under Alternative 1, there would be no implementation time. The SVE systems associated with Alternative 2 are already in operation, so there would be no additional implementation time. It is estimated that Alternative 3 would require a few months to complete installation of the air sparging system. It is also estimated that Alternatives 2 and 3 would require two to five years to complete, though groundwater monitoring would likely continue several more years.

6. Implementability

Alternative 1 would be the easiest alternative to implement in that there are no field activities to undertake.

The technologies presented in Alternatives 2 and 3 have been used at other Superfund sites and have been proven effective, reliable, amd readily implemented. In addition, the actions under these alternatives would be administratively feasible.

Monitoring the effectiveness of the SVE systems (in Alternatives 2 and 3) would be easily accomplished through soil-vapor and indoor air sampling and analysis.

7. Cost
The estimated capital, annual O&M (including monitoring), and present-worth costs for each of the alternatives are presented in the table below.

Alternative	Capital Cost	Annual O&M	Present Worth
1	$0	$0	$0
2	$0	$28,860	$124,000
3	$122,000	$76,500	$504,000

According to the capital cost, O&M cost and present worth cost estimates, Alternative 1 has the lowest cost and Alternative 3 has the highest cost. As discussed earlier, Alternative 3 does not offer any significant advantage over operation of the SVE systems alone (as presented in Alternative 2), so the additional cost to implement Alternative 3 is not warranted.

8. State Acceptance
New York State (NYSDEC and NYSDOH) concurs with the selected remedy.

9. Community Acceptance
During the public comment period, the community expressed some concerns about the Proposed Remedy. The attached

Responsiveness Summary summarizes all of the community comments on the Proposed Plan and EPA's responses to those comments.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430 (a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. Source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using the remedy selection criteria which were described above. The manner in which principal threats are addressed provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

Although treatment will be applied to the VOC contaminated soil, there are no principal threats at the Site. The identified contamination is in the groundwater, on-Site soils, and indoor air; no evidence was found during the remedial investigation that nonaqueous phase liquids are present within the aquifers. Soil sample results indicate that while source materials are present, they are not considered to be high in concentration, highly toxic, or highly mobile and could be remediated in place. Therefore, no principal threat wastes are present at the Site.

SELECTED REMEDY

Based upon an evaluation of the various alternatives, EPA recommends Alternative 2 as the preferred alternative. This alternative would substantially reduce contamination in the source areas and reduce the amount of time needed to achieve cleanup objectives for indoor air.

Summary of the Rationale for the Selected Remedy

EPA chose the source control remedy (SVE systems) because this alternative best meets the cleanup objectives by treating contaminated soils at the Site and thereby eliminating the sources of ongoing indoor air and potential groundwater contamination. The alternative reduces the volume, mobility, and toxicity of the contaminants in soils at the Site by permanently removing the contaminants from the soil.

Based on information used in evaluating the alternatives, EPA and NYSDEC believe that the Alternative 2 would be protective of human health and the environment, would comply with ARARs, would be cost-effective, and would utilize permanent solutions to the maximum extent practicable. Because it would treat the source materials, the remedy would also meet the statutory preference for the selection of a remedy that involves treatment as a principal element.

Description of Selected Remedy

The selected remedy includes the following components:

<u>Treatment of soils and contaminants below the slab of the on-Site building through continued operation of SVE systems</u>: SVE is a remedial technology that reduces concentrations of volatile organics adsorbed to soils in the unsaturated (vadose) zone. Volatile constituents of the contaminant mass “evaporate” and the vapors are drawn towards the extraction wells. The vapors are extracted (removed) from the ground by applying a vacuum to pull the vapors out. The air would be treated, if necessary, using carbon adsorption, prior to being re-circulated or exhausted to the atmosphere. During the SVE mode, the system would be operated at higher air flow rates which would be selected to optimize the removal of the VOCs constituents using SVE.

<u>Long-term Groundwater Monitoring Program</u>: A long-term groundwater monitoring program will be implemented to verify that the concentrations and the extent of the groundwater contaminants are declining. Results of the

long-term groundwater monitoring will be used to evaluate the effectiveness of the remedy.

Indoor Air and Sub-Slab Monitoring Program: An indoor air and sub-slab monitoring program will be implemented to verify that the indoor air concentrations are declining. Results of this monitoring will be used to evaluate the effectiveness of the remedy.

Institutional Controls: To protect human health from exposure to the existing contamination while cleanup is ongoing, institutional controls, which may include an environmental easement/restrictive covenant filed in the property records of Suffolk County. The environmental easement/restrictive covenant would, at a minimum, require: (a) limit the use of the property to commercial and industrial uses; (b) restricting new construction at the Site unless an evaluation of the potential for vapor intrusion is conducted and mitigation, if necessary, is performed in compliance with an EPA-approved SMP; and (c) restricting the use of groundwater as a source of potable or process water unless groundwater quality standards are met.

Site Management Plan: A SMP will be developed to address soil and groundwater at the Site and will provide for the proper management of all Site remedy components post-construction, including the institutional controls discussed above, and will also include: (a) monitoring of Site groundwater to ensure that, following remedy implementation, the groundwater quality improves; (b) provision for any operation and maintenance required of the components of the remedy; and (c) periodic certifications by the owner/operator or other person implementing the remedy that any institutional and engineering controls are in place.

Engineering Controls: Engineering controls, including proper housing of the SVE systems, would be implemented to prevent inadvertent exposure to Site contaminants by the local populace.

Five-Year Review: Hazardous substances remain at this Site above levels that would not allow for unlimited use and unrestricted exposure for at least five years. Pursuant to Section 121(c) of CERCLA, EPA will review site remedies no less often than every five years. The first five-year review would be performed in 2013.

Summary of the Estimated Remedy Costs: Detailed cost estimates for the Selected Remedy can be found in Appendix VI. The information in the cost estimate summary tables is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design and implementation of the remedial alternative. Depending on their magnitude, changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Difference, or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50% to -30% of the actual project cost.

Expected Outcomes of the Selected Remedy: The results of the human health risk assessment indicated that there are unacceptable hazards from potential exposure to indoor air and to groundwater through ingestion and inhalation.

All groundwater at the Site is classified as GA, which is groundwater suitable as a source of drinking water. Currently, all residents in the vicinity of the Site receive their drinking water from the public water supply.

The selected remedy will:

- Prevent or minimize potential, current, and future human exposures including inhalation of vapors and ingestion of groundwater contaminated with VOCs;

- Prevent exposure of human receptors to contaminated soils;

- Remediate contaminated soils and contamination below the slab of the building;

- Minimize migration of contaminants from soils to groundwater; and

- Minimize migration of contaminants from soils to indoor air.

STATUTORY DETERMINATIONS

As previously noted, Section 121(b)(1) of CERCLA mandates that a remedial action must be protective of human health and the environment, be cost effective, and utilize permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at the Site. Section 121(d) of CERCLA further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to section 121(d)(4) of CERCLA. As discussed below, EPA has determined that the Selected Remedy meets the requirements of Section 121 of CERCLA.

Protection of Human Health and the Environment

The Selected Remedy will adequately protect human health and the environment through removal of contaminants from both Site soil and contamination below the slab of the building via operation of SVE systems.

Compliance with ARARs

At the completion of the response or remedial action, the remedy will have complied with appropriate ARARs (see Appendix II, Table G)

Cost-Effectiveness

EPA has determined that the selected remedy is cost effective in mitigating the principal risks posed by contaminated soil, indoor air, and groundwater. Section 300.430(f)ii)(D) of the NCP requires evaluation of cost effectiveness. Overall effectiveness is determined by the following three balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility, and volume through treatment; and short-term effectiveness. Overall effectiveness is then compared to the cost to ensure that the remedy is cost effective. The selected remedy meets the criteria and provides for overall effectiveness in proportion to its cost. The estimated present worth of the Selected Remedy is $124,000.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the selected remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable, and it provides the best balance of trade-offs in terms of the five balancing criteria, while also taking into consideration the statutory preference for treatment as a principal element and considering State and community acceptance.

Of those alternatives considered to address the contamination at the Site, the selected remedy is a permanent remedy that treats the soil and thereby removes the source(s) of indoor air and groundwater contamination. The SVE systems will reduce the mass of contaminants in the subsurface, thereby reducing the toxicity, mobility, and volume of contamination. Furthermore, operation of the SVE systems holds the advantage of accelerating the cleanup at the Site.

Preference for Treatment as a Principal Element

By using technologies that permanently remove contaminants from the soil, the Selected Remedy satisfies the statutory preference for remedies that employ treatment as a principal element.

Five-Year Review Requirements

Hazardous substances may remain at this Site above levels that would allow for unlimited use and unrestricted exposure. Pursuant to Section 121(c) of CERCLA, EPA will review site remedies no less often than every five years. As all construction activities have already been completed, the first five-year review is due within five years of the signing of this Record of Decision. As such, the first five-year review will be due in the year 2013.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Site was released for public comment on August 8, 2008 and the public comment period ran from that date through September 6, 2008. The Proposed Plan identified Alternative 2 (Operation of two SVE systems) as the Preferred Alternatives.

All written and verbal comments submitted during the public comment period were reviewed by EPA. EPA has determined that no significant changes to the remedy, as it was originally identified in the Proposed Plan, are necessary.