Five-Year Review Report
Rosen Brothers Scrap Yard/Dump Superfund Site
City of Cortland,
Cortland County, New York

Prepared by:

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

September 2008

EXECUTIVE SUMMARY

This is the second five-year review for the Rosen Brothers Scrap Yard/Dump Superfund site, located in the City of Cortland, Cortland County, New York. While the remedy is currently protecting human health and the environment, because of nationwide concerns regarding vapor intrusion at residential properties in the vicinity of sites with groundwater contaminated by volatile organic compounds, a vapor intrusion survey should be conducted at a school and residential properties located downgradient of the site.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site Name ***(from WasteLAN)*****:** Rosen Brothers Scrap Yard/Dump site

EPA ID ***(from WasteLAN)*****:** NYD982272734

Region: 2	**State:** NY	**City/County:** City of Cortland/Cortland County

SITE STATUS

NPL Status: ■ Final ☐ Deleted ☐ Other (specify)

Remediation Status (choose all that apply): ☐ Under Construction ☐ Operating ■ Complete

Multiple OUs? ☐ YES ■ NO	**Construction completion date:** 9/11/2003

Are portions of the site in use or suitable for reuse? ■ YES ☐ NO ☐ N/A

REVIEW STATUS

Lead agency: ■ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____

Author name: Mark Granger

Author title: Remedial Project Manager	**Author affiliation:** EPA

Review period: 9/24/2003 to 9/24/2008

Date(s) of site inspection: April 9, 2008

Type of review: ☐ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only
☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead
☐ Regional Discretion ☐ Policy ■ Statutory

Review number: ☐ 1 (first) ■ 2 (second) ☐ 3 (third) ☐ Other (specify)

Triggering action:
☐ Actual RA Onsite Construction at OU # ☐ Actual RA Start at OU #
☐ Construction Completion ■ Previous Five-Year Review Report
☐ Other (specify) _____

Triggering action date ***(from WasteLAN)*****:** 9/24/2003

Due date ***(five years after triggering action date)*****:** 9/24/2008

Does the report include recommendation(s) and follow-up action(s)? ■ yes ☐ no
Is human exposure under control? ■ yes ☐ no
Is contaminated groundwater under control? ■ yes ☐ no ☐ not yet determined
Is the remedy protective of the environment? ■ yes ☐ no ☐ not yet determined
Acres in use or suitable for use: **restricted:** 16.5 **unrestricted:** 0

Five-Year Review Summary Form (continued)

Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls

The selected remedy has been fully implemented. This site has ongoing operation, maintenance, and monitoring activities as part of the selected remedy. As was anticipated by the decision documents, these activities are subject to routine modification and adjustment.

Issues, Recommendations, and Follow-Up Actions

Because of nationwide concerns involving vapor intrusion at residential properties in the vicinity of sites with groundwater contaminated by volatile organic compounds, a vapor intrusion survey should be conducted at a school and residential properties located downgradient of the site.

Protectiveness Statement

The implemented remedial actions protect human health and the environment in the short-term. Currently, there are no exposure pathways that could result in unacceptable risks and none are expected, as long as the site use does not change and the implemented engineering, access and institutional controls are properly maintained. In order for the site to be protective in the long-term, a vapor intrusion survey should be conducted at a school and residential properties located downgradient of the site.

I. Introduction

This five-year review was conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(f)(4)(ii), and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of a five-year review is to ensure that implemented remedies are protective of public health and the environment and that they function as intended by the decision documents. This document will become part of the site file.

This is the second five-year review for the Rosen Brothers Scrap Yard/Dump site. Since contaminants remain on-site after the completion of the remedial action, a statutory five-year review is required. In accordance with Section 1.3.3 of the Comprehensive Five-Year Review Guidance, a subsequent statutory five-year review is triggered by the signature date of the previous five-year review report. Therefore, the trigger for this subsequent five-year review is the date of the previous five-year review report, which is September 24, 2003.

II. Site Chronology

Table 1 (attached) summarizes the site-related events from discovery to the present.

III. Background

Physical Characteristics

The Rosen Brothers site, located on relatively flat terrain, is an abandoned scrap-metal processing facility which occupies approximately twenty acres on the southern side of the City of Cortland, New York. Access to the site is restricted from the surrounding environs by a seven-foot-high fence with two locked gates. To the east of the site are the building and parking lot of the former Kirby Company, Pendleton Street, a vacant lot, and a small residential area consisting of approximately thirteen apartment buildings. To the north is Perplexity Creek (an eastward-flowing, seasonally-intermittent stream), railroad tracks associated with the New York, Susquehanna & Western Railroad, several industries (Acorn Products [vacant], Ames Linen, and Marietta Packaging), Huntington Street, a small residential area consisting of approximately twenty houses, and the Randall Elementary School. To the west are a vacant lot, several industries (GS Heavy Duty Electric, JTS Lumber, and Cortland Wholesale Lumber and Plywood), and South Main Street. To the south is Perplexity Creek Tributary, a former City of Cortland dump site, Valley View Drive, and the Cortland City Junior and Senior High Schools.

Perplexity Creek Tributary, which flows northeast, converges with Perplexity Creek at the northeast corner of the site. Perplexity Creek Tributary is also a seasonally-intermittent stream. At this point, Perplexity Creek continues through a culvert for approximately 2,000 feet, then

flows freely for approximately a one-half mile interval before emptying into the Tioughnioga River.

Site Geology/Hydrogeology

Surficial geology at the site is comprised of glacial sand and gravel overlain by a silt unit and a fill unit. The silt unit appears to overlay the sand and gravel unit across most of the site, ranging from two to six feet in thickness. For most of the site, the fill ranges in thickness from one to six feet, typically consisting of gravels, sands, and silts mixed with various materials such as slag, cinders, and ash. Other materials observed in the fill consist of metal, wire, brick, wood, glass, railroad ties, pipes, asphalt, plastics, and concrete.

There are two primary hydrogeologic units beneath the site – the upper outwash unit and the lower sand and gravel unit. In the southern portion of the site, the upper unit directly overlies the lower unit and they tend to act as one unit. In the northern portion of the site, the upper outwash and lower sand and gravel units become separated by a lower-permeability lacustrine unit, forming two distinct hydrogeologic units. The lacustrine unit also restricts the downward migration of contaminants from the upper outwash unit to the lower sand and gravel unit. The upper outwash unit is about 40 feet thick and the general direction of groundwater flow is toward the northeast.

The site overlies the Cortland-Homer-Preble aquifer, a sole source aquifer, which is used as a supply of potable water for the City of Cortland.

Land and Resource Use

The site was originally used as a steel mill and scrap yard; it is presently abandoned. In September 1998, EPA entered into a Prospective Purchaser Agreement (PPA) with the City of Cortland for the purchase, leasing, and redevelopment of the site. The PPA administratively cleared the way for the City to take title to the property in order to effect redevelopment. The City of Cortland took title to the property on March 21, 2003.

The area surrounding the site is characterized as residential, industrial, and commercial. Approximately 15,000 people live within a one-mile radius of the site. At present, all residences and businesses within the immediate vicinity of the site receive water from the City of Cortland's municipal water supply well, which is, as noted above, located approximately two miles upgradient of the site.

The City of Cortland's municipal water supply well is located approximately two miles upgradient of the site.

History of Contamination

The area currently occupied by the site is the eastern half of a 40-acre parcel of land which was originally referred to as "Randall's Vacant Fields." In the late 1800's, the land was developed by Wickwire Brothers, Inc. (Wickwire) as an industrial facility for the manufacture of wire, wire

products, insect screens, poultry netting, and nails. The eastern half of the property was used, primarily, as a scrap yard by Wickwire, supplying scrap metal for the steel mill (which was also located on the eastern half). An on-site pond was dammed and used as a cooling pond for water used in the manufacture of raw steel. This pond was approximately three acres in size and had an estimated capacity of one million gallons. The entire facility was sold to Keystone Consolidated Industries, Inc. (Keystone) in 1968. Keystone closed the facility in 1971. Shortly thereafter, the facility was destroyed by fire.

In the early 1970's, Phillip and Harvey Rosen (Rosen Brothers) transferred their existing scrap-metal processing operation in Cortland to the eastern portion of the Wickwire property. At this time, Rosen Brothers began the demolition of the Wickwire buildings on the western portion of the property. The demolition debris (allegedly comprising more than a 1.5 million square feet of buildings) was used to fill in most of the cooling pond to or above grade, hence the cooling pond is hereinafter referred to as "the former cooling pond." In exchange for this work, Rosen Brothers was granted title to the eastern portion of the property. The western portion of the Wickwire property was cleared for the development of new industry in 1979, and has since been known as the Noss Industrial Park.

Rosen Brothers' scrap-metal operations included scrap-metal processing and automobile crushing. The site was used to stage large quantities of abandoned vehicles, appliances, steel tanks, drums, truck bodies, and other scrap materials. Municipal waste, industrial waste, and construction waste were allegedly intermittently disposed of in or on the former cooling pond. Drums were routinely crushed on-site, the contents spilling onto the ground surface. Philip Rosen and Rosen Brothers were cited for various violations throughout this period, including illegally dumping into Perplexity Creek Tributary, improperly disposing of waste materials, and operating a refuse disposal area without a permit. Operations on the site ceased in 1985 and the site was abandoned.

Initial Response

In 1986, the New York State Department of Environmental Conservation (NYSDEC) conducted a Phase II investigation, which included a site inspection, geophysical studies, installation of soil borings and monitoring wells, and sampling and analysis of groundwater, soils, sediments, and waste materials. The site inspection concluded that hazardous materials were present on the site, including several hundred full and/or leaking drums, transformers filled with polychlorinated biphenyls (PCBs), and pressurized cylinders of unknown content. The results of sampling efforts indicated elevated levels of 1,1,1-trichloroethane (TCA), PCBs, anthracene, pyrene, lead, and chromium in site-related soil, sediment, and groundwater.

EPA performed a removal action at the site in 1987 to address immediate threats to the public health and the environment. This removal action included fencing the site, sampling, excavating visibly-contaminated soil, and securing and temporarily staging drums, tanks, cylinders, transformers, and the excavated soil.

Based on materials observed on the site and other evidence, EPA issued Administrative Orders to Keystone and several other potentially responsible parties (PRPs) in 1988 and 1989, including,

among others, Monarch Machine Tool Company (Monarch), Niagara Mohawk Power Corporation (Niagara Mohawk), and Overhead Door Corporation (Overhead Door), requiring them to remove the materials previously staged during the EPA removal action. This work was completed in April 1990.

These companies voluntarily undertook the demolition and removal of structurally unsound buildings and a 150-foot high smoke stack in December 1992. They also removed and recycled 200 tons of scrap materials in December 1993. In November 1994, the companies emptied and disposed of the contents of an abandoned underground storage tank and removed a small concrete oil pit. In August 1997, EPA removed and recycled more than 500 tons of scrap metal and more than 20 tons of tires from the site.

Basis for Taking Action

On March 30, 1989, the site was added to the Superfund National Priorities List. Overhead Door, Monarch, and Niagara Mohawk agreed to conduct a remedial investigation and feasibility study (RI/FS) in accordance with an Administrative Order on Consent (Index Number II CERCLA-00204) with EPA in January 1990. Keystone, Cooper Industries, Inc., and Potter Paint Co., Inc. assisted in the performance or funding of the RI/FS pursuant to the terms of a Unilateral Administrative Order (Index Number II CERCLA-00205) issued in February 1990. The companies completed the RI/FS in 1997. The RI detected the presence of elevated levels of PCBs, volatile organic compounds (VOCs), semi-volatile organic compounds, and inorganics in on-site soils and VOCs in the groundwater.

IV. Remedial Actions

Remedy Selection

Based upon the results of the RI/FS, in March 1998, EPA signed a Record of Decision (ROD) selecting a remedy for the site. The key components of the selected remedy include:

- Excavation of all TCA-contaminated soils above NYSDEC's recommended soil cleanup objective of 1 milligram per kilogram (mg/kg) identified in the Technical and Administrative Guidance Memorandum (TAGM) in two VOC hot-spot areas and PCB-contaminated soils above the TAGM objective of 10 mg/kg in two hot-spot areas. Clean or treated material would be used as backfill in the excavated areas.

- Consolidation of all excavated soils with PCB concentrations less than 50 mg/kg onto the former cooling pond. Those soils with PCB concentrations above 50 mg/kg would be sent off-site for treatment/disposal at a Toxic Substances Control Act-compliant facility. All excavated TCA-contaminated soils would either be sent off-site for treatment/disposal or treated on-site to 1 mg/kg for TCA and used as backfill in the excavations.

- Removal and consolidation onto the former cooling pond of nonhazardous debris located on surface areas where the site-wide surface cover will be installed and/or is commingled with the excavated soil.

- Placement of a cap meeting the requirements of New York State 6 NYCRR Part 360 (Part 360) regulations over the three-acre former cooling pond. Prior to the construction of the cap, the consolidated soils, nonhazardous debris, and existing fill materials would be regraded and compacted to provide a stable foundation and to promote runoff.

- Construction of a chain-link fence around the former cooling pond after it is capped.

- Placement of a surface cover over the remaining areas of the site (approximately 17 acres) to prevent direct contact with residual levels of contaminants in site soils. The nature of the surface cover would be determined during the remedial design phase.

- Monitored natural attenuation (MNA) to address the residual VOC groundwater contamination in downgradient areas. As part of a long-term groundwater monitoring program, sampling would be conducted in order to verify that the level and extent of groundwater contaminants are declining from baseline conditions and that conditions are protective of human health and the environment.

- Implementation of regrading and storm-water management improvements to protect the integrity of the cap/surface cover.

- Long-term monitoring to evaluate the remedy's effectiveness.

- Institutional controls in the form of deed restrictions and contractual agreements, as well as local ordinances, laws, or other government action, for the purpose of restricting the installation and use of groundwater wells at and downgradient of the site, restricting excavation or other activities which could affect the integrity of the cap/site-wide surface cover and restricting residential use of the property in order to reduce potential exposure to site-related contaminants.

Remedy Implementation

On March 6, 1998, EPA issued a Unilateral Administrative Order to the entities noted above and several other entities to excavate approximately 1,000 cubic yards of PCB-contaminated soils from the two PCB-contaminated soil hot-spot areas noted above, backfill the excavation with clean fill, and install a surface cover on a five-acre portion of the site in anticipation of planned on-site redevelopment activities. A total of 850 cubic yards of the excavated soils with PCB concentrations less than 50 mg/kg was consolidated onto the former cooling pond and 150 cubic yards of the excavated soils (greater than 50 mg/kg PCBs) were shipped off-site for disposal. This work was performed from September to December 1998.

In September 1998, EPA entered into a Consent Decree with fifteen PRPs to design and implement the remaining portions of the remedy selected in the ROD (*i.e.*, excavation of TCA-contaminated soils, construction of cooling pond cap and site-wide cover, and implementation of MNA of the groundwater). The Consent Decree was entered in May 1999. The remedial design (RD) for this effort was initiated in August 2001; it was approved by EPA in April 2002.

From July 2002 to July 2003, approximately 900 cubic yards of TCA-contaminated soils were excavated from the two hot spots, the excavations were backfilled with clean fill, and the excavated soils were shipped off-site for disposal. In addition, an 11.5-acre site-wide cover, consisting of a permeable geotextile overlain by a one-foot protection/topsoil layer was installed and a 3.5-acre Part 360 cap was installed over the cooling pond.

The groundwater remedy called for in the ROD required the reduction of VOC concentrations in the groundwater to groundwater standards by source removal in combination with MNA. Quarterly groundwater sampling was initiated in May 2003 as part of the assessment of the status of MNA. A second round of samples was collected in August 2003.

Institutional Controls Implementation

The ROD called for institutional controls to restrict the installation and use of groundwater wells at and downgradient of the site, to restrict excavation or other activities which could affect the integrity of the cap/site-wide surface cover, and to restrict residential use of the property in order to reduce potential exposure to site-related contaminants. Through a prospective purchaser agreement, deed restrictions which prevent disturbing the cap over the former cooling pond, prevent disturbing or digging beneath the site-wide geotextile layer without EPA's prior authorization, prevent the installation of groundwater wells without EPA's prior authorization, and prohibit residential use of the property were recorded on the deed for the property when the City took title to the site on March 21, 2003.

Additionally, the Cortland County Sanitary Code (Article XII, §§ 1 and 2) restricts the installation of groundwater wells without a permit. Since the County is aware of the presence of groundwater contamination at and downgradient of the site, it is unlikely that a permit to install a well would be approved.

System Operations/Operation and Maintenance

The Operation and Maintenance (O&M) Manual for the site contains the procedures for inspecting and evaluating the cap and cover, maintaining the groundwater monitoring-well network, and long-term monitoring of groundwater. Repairs are to be made to the cap, drainage systems, and monitoring network, as necessary, to control the effects of settling, subsidence, erosion, vectors, or other events that might interfere with the performance of the remedy. Groundwater monitoring is being used to monitor the effectiveness of the MNA.

The site is inspected annually as follows:

- the Part 360 landfill cap is inspected for signs of erosion, excessive settlement, surface water ponding, seedling growth, and stressed vegetation;
- the surface water drainage system is inspected for signs of erosion and/or siltation, seedling growth, *etc.*, in the swales and ditches;
- the landfill gas venting system is inspected for any damage to the vents;
- the site is inspected for vectors;
- groundwater monitoring wells are inspected for ease of locating, operation of locks, damage/vandalism, and the condition of the surface seals;
- the site access gates and fence are inspected for operational locks, vandalism, and damage;
- the access roads are inspected for ruts, puddles, and driveability; and
- the site is inspected for debris, litter, and/or waste.

The initial estimated annual inspection, maintenance, sampling, and monitoring costs are $40,000; these costs are broken down in Table 2 (attached).

V. Progress Since Last Five-Year Review

The first five-year review, which was conducted in September 2003, noted that although the concentrations of contaminants in the groundwater had decreased over time, the vapor intrusion pathway should be reevaluated in the near-term using the new guidance to ensure that this exposure pathway is not contributing to unacceptable risks or hazards at the site. To that end, in March 2007 and February 2008, EPA sampled both the subslab and indoor air at a downgradient two-building commercial property. While elevated subslab concentrations were detected, the indoor air was found to be acceptable.

In addition, since the last five-year review, the City took title to the site. This made effective the institutional controls which restrict the installation and use of groundwater wells, restrict excavation or other activities which could affect the integrity of the cap/site-wide surface cover, and restrict residential use of the property.

VI. Five-Year Review Process

Administrative Components

The five-year review team consisted of Mark Granger (Remedial Project Manager [RPM]), Robert Alvey (hydrogeologist), and Chuck Nace and Lora Smith (human health and ecological risk assessors).

Community Involvement

The EPA Community Involvement Coordinator (CIC) for the Rosen Brothers Scrap Yard/Dump site, Michael Basile, published a notice in the *Cortland Standard,* a local newspaper, on April 12, 2008, notifying the community of the initiation of the five-year review process. The notice indicated that EPA would be conducting a five-year review of the remedy for the site to ensure that the implemented remedy remains protective of public health and the environment and is functioning as designed. It was also indicated that once the five-year review is completed, the results will be made available in the local site repository. In addition, the notice included the RPM and CIC's addresses and telephone numbers for questions related to the five-year review process for the Rosen Brothers Scrap Yard/Dump site.

Document Review

The documents, data, and information which were reviewed in completing the five-year review are summarized in Table 2 (attached).

Data Review

The groundwater remedy called for in the ROD required the reduction of VOC concentrations in the groundwater to groundwater standards by source removal in combination with MNA. Quarterly groundwater sampling was initiated in May 2003 as part of the assessment of the status of MNA. This monitoring was done quarterly for the first year after construction completion (2003), semiannually for the second year (2004), and has been conducted annually thereafter. In contrast with previous analytical results, the nine rounds of data consistently indicate the presence of extremely low residual groundwater contaminants. Total VOC values attributed to these sampling events ranged from not detected to 35 micrograms per liter (μg/l). This stands in contrast with the seven previous rounds collected from 1991 to 1996 where total VOC values for a single event were as high as 5,400 μg/l. Of the eleven wells included in the long-term monitoring program array, eight had historically low concentrations of total VOCs in the last two rounds of sampling (see Table 3, attached).

The current and historic data set suggest that the remedial action has resulted in significant improvements in groundwater quality with respect to total site-related VOC concentrations. Although geochemical data suggests that significant anaerobic biodegradation of the chlorinated VOCs is not occurring, it is likely that the reductions in VOC concentrations are the result of effective source removal in combination with natural attenuation via dilution and dispersion.

Site Inspection

On April 9, 2008 a five-year review-related site inspection was conducted by EPA RPM Mark Granger along with technical team members Robert Alvey and Chuck Nace.

Interviews

No interviews were conducted during the review period.

Institutional Controls Verification

The deed restrictions, which are on file at the Cortland County Clerk's office, remain in force.

Other Comments on Operation, Maintenance, and Institutional Controls

Table 4 (attached) summarizes several observations and offers suggestions to resolve these observations.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The ROD called for the excavation of TCA- and PCB-contaminated soils in two hot spot areas with concentrations above the TAGM soil cleanup objective of 1 mg/kg and 10 mg/kg, respectively. All TCA-contaminated soils and PCB-contaminated soils above 50 mg/kg were sent off-site to a Toxic Substances Control Act-compliant facility. Soils with PCBs between 1 and 50 mg/kg were moved to the former cooling pond area, graded, and capped. A site-wide surface soil cover was constructed on the remainder of the site property, eliminating the direct contact pathway to residual soil contamination. Post-excavation soil samples indicated that residual PCB and VOC (including TCA) concentrations in soils are well below cleanup goals. Since contaminated soils have been removed from the property or capped, remaining soils are below established cleanup goals, and a site-wide soil cover has been properly installed, the remedy is functioning and protective under current uses. During the site visit, there was evidence of runoff through grass on the soil cap side walls, yet soil appeared to be intact and the cap functioning as intended.

In addition, institutional controls in the form of deed restrictions and site fencing restrict excavation or other activities that may compromise the integrity of the cap or the site-wide surface cover. Maintaining industrial/commercial usage helps ensure that the soil remedy remains protective.

The source removal has minimized the migration of soil contaminants to the groundwater. Additionally, the ROD called for MNA to screen for VOC groundwater contamination. Recent

groundwater sampling data indicated total VOC concentrations between not detected and 35 µg/l, which is a considerable decline as compared to initial VOC concentrations up to 5,400 µg/l.

In addition, all residences and businesses within the immediate vicinity of the site receive drinking water from the City of Cortland's municipal water supply well, located approximately two miles upgradient of the site. As a result, exposure pathways are incomplete and the remedy is functioning as intended in the ROD.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

There have been no physical changes to the site that would affect the protectiveness of the remedy. Land use assumptions, exposure assumptions and pathways, cleanup levels, and remedial action objectives considered in the ROD remain valid. Although specific parameters may have changed since the time the risk assessment was completed, the process that was used remains valid.

It is worth noting that the City infrequently utilizes the property for fireworks displays and firework remnants were found on the site. Although there is no exposure to contaminated soils for professionals lighting the fireworks, the casings could result in non-site related soil and/or groundwater contamination. EPA recommends that the City of Cortland use best management practices for using fireworks and ensure that pyrotechnic-related debris is cleared from the site after each fireworks display.

Groundwater exposure pathways identified in the ROD included: ingestion, dermal contact, and inhalation of volatiles. Several monitoring wells have VOCs slightly above the New York State drinking water standard of 5 µg/l for TCA. Although there are compounds in the groundwater exceeding cleanup goals, there is currently no exposure since residents receive drinking water from a municipal well upgradient of site contamination; thus, the remedy is protective. However, the results indicate that further groundwater monitoring for natural attenuation should be continued to ensure concentrations are decreasing to meet federal and state drinking water standards.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

Soil vapor intrusion (SVI) is evaluated when soils and/or groundwater are known or suspected to contain VOCs. The SVI pathway was originally assessed in 1996 using the 1992 Air/Superfund National Technical Guidance Study Series document titled *Assessing Potential Indoor Air Impacts for Superfund Sites*. The results of the evaluation at that time indicated that SVI was not contributing to unacceptable risks or hazards in homes that were off-site. While current and historic data have shown significant improvements in groundwater quality with respect to VOCs at the site, since the 2002 EPA *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* document replaced the 1992 AIR/Superfund National Technical Guidance Study Series document, SVI was re-evaluated as a potential exposure

pathway. Although concentrations of contaminants in the groundwater are extremely low and have shown a decreasing trend over time, receptors at nearby properties must be protected from unacceptable risks. To that end, in March 2007, EPA sampled both the subslab and indoor air at a downgradient two-building commercial property. Site-related contaminants of concern (*e.g.*, TCA, 1,1-dichloroethene, and 1,1-dichloroethane) were not detected above screening criteria (Region 3 risk-based concentrations); however, PCE and TCE were detected above screening criteria and the most protective values (cancer risk: 1×10^{-6}) identified in the draft *Evaluating the Vapor Intrusion into Indoor Air* guidance document. Concurrent subslab/indoor air samples were collected again in February 2008. The data from both sampling rounds indicate that the exposure pathway is incomplete (*i.e.*, the indoor values were all below screening criteria). SVI sampling should be performed at a downgradient school and residences.

Technical Assessment Summary

Based upon the results of the five-year review, it has been concluded that:

- site soils in the two PCB and two TCA soil hot spots have been excavated and disposed of and remaining soils are well below protective levels;
- the Part 360 cap and site-wide cover are intact and in good condition with strong vegetation;
- the fence around the site and across the northern perimeter of the Part 360 cap is intact;
- the groundwater monitoring wells are all functional;
- there is no evidence of trespassing or vandalism to any other site-related facility;
- there are no drinking water wells within the plume of contamination and none are expected to be drilled because of existing local and state requirements;
- the landfill gas system is operating properly;
- the storm water management system is in good repair; and
- no additional measures are needed to protect public health.

Based on the five-year review inspection and on the annual O&M inspection, some minor repairs will be required as part of routine maintenance of site-related facilities. Table 4 includes suggestions for addressing these items.

VIII. Recommendations and Follow-Up Actions

Table 5 (attached) contains recommendations and follow-up actions which should ensure long-term protectiveness.

IX. Protectiveness Statement

The implemented remedial actions protect human health and the environment in the short-term. Currently, there are no exposure pathways that could result in unacceptable risks and none are expected, as long as the site use does not change and the implemented engineering, access and institutional controls are properly maintained. In order for the site to be protective in the long-term, a vapor intrusion survey should be conducted at a school and residential properties located downgradient of the site.

X. Next Review

Since hazardous substances, pollutants or contaminants remain at the site which do not allow for unlimited use or unrestricted exposure, in accordance with 40 CFR 300.430 (f) (4) (ii), the remedial action for the site shall be reviewed no less often than every five years. EPA will conduct another five-year review by September 2013.

Approved:

John S. Frisco — 9/24/08

for George Pavlou, Acting Director — Date
Emergency and Remedial Response Division

Table 1: Chronology of Site Events	
Event	**Date(s)**
Land developed as an industrial facility for the manufacture of wire, wire products, insect screens, poultry netting, and nails	1800's
Property sold to Keystone Consolidated Industries, Inc.	1968
Rosen Brothers scrap metal facility begins operation on the property	1970's
NYSDEC investigation of site detects contamination	1986
EPA fences the site, samples, excavates visibly-contaminated soil, and secures and temporarily stages drums, tanks, cylinders, transformers, and the excavated soil	1987
EPA issues an Administrative Order to PRPs requiring them to remove the materials previously staged by EPA.	1988 and 1989
Site was added to the Superfund National Priorities List	1989
PRPs complete removal work	1990
EPA issues Administrative Orders to PRPs for the performance of a remedial investigation and feasibility study	1990
PRPs voluntarily demolish and remove structurally unsound buildings and smoke stack, remove and recycle 200 tons of scrap materials, empty and dispose of contents of abandoned underground storage tank, and remove small concrete oil pit	1992-4
EPA removes and recycles more than 500 tons of scrap metal and more than 20 tons of tires	1997
EPA signs Record of Decision	1998
EPA issues a Unilateral Administrative Order to PRPs to undertake several components of the selected remedy (the excavation of the two PCB hot-spot areas, installation of five acres of site-wide surface cover, and removal of the previously-emptied underground storage tank in order to facilitate the redevelopment of this portion of the property; the work is performed	1998
EPA enters into a Prospective Purchaser Agreement with the City of Cortland for the purchase, lease, and redevelopment of the five-acre portion of the site	1998
EPA enters into a Consent Decree with PRPs to design and implement the remaining portions of the remedy selected in the ROD	1998
Consent Decree entered by the Court	1999
Remedial design performed	2001-2
Preliminary Site Close-Out Report.	2003
First Five-Year Review	2003
Initiate routine groundwater monitoring and annual inspections	2003

Table 2: Annual Monitoring Costs	
Estimated Costs for Contract Performance	**Cost per Year**
Sampling and analysis	$20,000
Site inspection/maintenance	$20,000
Total estimated cost	$40,000

Table 3: Documents, Data, and Information Reviewed in Completing the Five-Year Review
• Record of Decision, EPA, March 1998
• Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, EPA, November 2002
• Groundwater Data Reports, Buck Environmental Labs, May 2003 through May 2008
• Remedial Action Report, Barton & LoGiudice, P.C., September 2003
• Preliminary Site Close-Out Report, EPA, September 2003
• First Five-Year Review Report, EPA, September 2003
• EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new Applicable or Relevant and Appropriate Requirements relating to the protectiveness of the remedy have been developed since EPA issued the ROD

Table 4: Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls	
Comment	**Suggestion**
Woody growth has been noted in swales.	Remove woody growth. Include woody-growth elimination as part of future inspection and maintenance activities.
Firework remnants were found on the site.	The City of Cortland should use best management practices for using fireworks and ensure that pyrotechnic-related debris is cleared from the site after each fireworks display.
While perimeter security has not been compromised, downed trees and branches have caused minor damage to discrete areas of fencing.	Remove downed trees and branches and repair the fencing.
Off-property vegetation is growing on fencing located along the northern and western sides of the property. The vegetation (such as tree branches growing through the fence) could impact the integrity of the fence if left unaddressed.	Trim back off-property vegetation from the fencing.
An in-stream fence-protection structure (bollards) to prevent debris from accumulating along the fence located in the southwestern corner of the site and damaging it, has caused the southern drainage to reroute along the western fence line. The fence is beginning to be undermined in places along the western property line.	Address fence-protection structure problem and repair base of western fence line before it becomes problematic.
While no damage was observed, the presence/evidence of vectors was noted on and around the Part 360 cap.	Ensure that potential vector-related problems are addressed promptly.
It was observed that some monitoring wells were modified from stick-up to flush-mount as part of cap/cover construction.	Identify affected wells and resurvey to ensure accurate potentiometric data and measurement, as required.
Nonhazardous investigation-derived waste (tubing, filters, etc.) was observed near some wells.	General housekeeping is recommended in terms of removing nonhazardous investigation-derived waste.
Soil vapor intrusion samples were collected under the subslab and inside the commercial buildings. The data indicate that the exposure pathway is incomplete.	While there is no reason to believe that the integrity of the subslab would change such that soil vapor intrusion would be a problem in the commercial buildings in the future, at least one more round of confirmational soil vapor intrusion sampling should be performed.

Table 5: Issues, Recommendations, and Follow-Up Actions						
Issue	**Recommendations and Follow-Up Actions**	**Party Responsible**	**Over-sight Agency**	**Mile-stone Date**	**Affects Protectiveness (Y/N)**	
					Current	**Future**
Elevated soil vapors are present under the subslab of a commercial building that is located over the groundwater plume. Since a school and several residences also overlie the plume, it is possible that there could be a downgradient vapor intrusion problem.	Vapor intrusion sampling should be conducted at the downgradient school and residences.	EPA	EPA	03/10	N	Y

Table 6: Acronyms Used in this Document	
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIC	Community Involvement Coordinator
EPA	United States Environmental Protection Agency
FS	Feasibility Study
MCLs	Maximum Contaminant Levels
µg/l	Micrograms per Liter
MNA	Monitored natural attenuation
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Protection
O&M	Operation & Maintenance
PCBs	polychlorinated biphenyls
PRP	Potentially Responsible Party
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
SVI	Soil-vapor intrusion
TCA	1,1,1-trichloroethane
TAGM	Technical and Administrative Guidance Memorandum
VOCs	Volatile organic compounds