# AMENDMENT TO THE RECORD OF DECISION

Little Valley Superfund Site
Little Valley, Cattaraugus County, New York



United States Environmental Protection Agency
Region II
New York, New York
September 2006

# DECLARATION FOR THE AMENDMENT TO THE RECORD OF DECISION

## SITE NAME AND LOCATION

Little Valley Superfund Site
Little Valley, Cattaraugus County, New York

Superfund Site Identification Number: NYD0001233634
Operable Unit 2

## STATEMENT OF BASIS AND PURPOSE

This Amendment to the Record of Decision (ROD Amendment) documents the U.S. Environmental Protection Agency's (EPA's) selection of a modified soil remedy for the Little Valley Superfund site (Site), which is chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9601, *et seq.*, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300. This decision document explains the factual and legal basis for selecting the modified remedy for the Site. The attached index (see Appendix III) identifies the items that comprise the Administrative Record upon which the selection of the modified soil remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the planned modified soil remedy in accordance with CERCLA Section 121(f), 42 U.S.C. §9621(f), and it concurs with the selected modified remedy (see Appendix IV).

## ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this ROD Amendment, may present an imminent and substantial endangerment to public health, welfare, or the environment.

## DESCRIPTION OF THE SELECTED MODIFIED REMEDY

A ROD signed on September 30, 1996 selected an interim remedy for the Site, referred to as Operable Unit 1. The interim remedy, which provided for the installation and maintenance of point-of-use treatment systems for private wells affected by Site contamination, was made the final remedy for Operable Unit 1 in a ROD signed on August 19, 2005 (2005 ROD). The 2005 ROD also addressed contaminated soil and groundwater, which has been designated as Operable Unit 2. The response action described in this ROD Amendment changes the soil remedy selected in the 2005 ROD. This action represents the final remedy planned for the Site.

The major components of the selected modified soil remedy include the following:

- Approximately 3,000 cubic yards of trichloroethylene (TCE)-contaminated soil exceeding the New York State Technical and Administrative Guidance Memorandum No. 94-HWR-4046 (TAGM) objective[1] of 700 micrograms per kilogram in the Cattaraugus Cutlery Area will be treated by in-situ soil vapor extraction (ISVE). Off-gases from the ISVE system may need to be treated to meet air discharge requirements.

- Soil-vapor monitoring in the treatment areas and in adjacent residential areas will be conducted. Should this monitoring indicate a problem with respect to residences, appropriate mitigation actions will be taken.

- Post-treatment confirmatory samples will be collected to ensure that the entire source area has been effectively treated to the cleanup levels.

The effectiveness of the ISVE system has been determined based upon the results of a treatability study[2]. Should operational data indicate that ISVE will not address all of the contaminated soils, then those soils would be excavated and treated/disposed off-Site as a contingency remedy.

The selected modified soil remedy will address source materials constituting principal threats by treating the contaminated soil.

## DECLARATION OF STATUTORY DETERMINATIONS

The selected modified soil remedy meets the requirements for remedial actions set forth in CERCLA Section 121, 42 U.S.C. §9621, because it: 1) is protective of human health and the environment; 2) meets a level or standard of control of the hazardous substances, pollutants and contaminants, which at least attains the legally applicable or relevant and appropriate requirements under federal and state laws; 3) is cost-effective; and 4) utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. In keeping with the statutory preference for treatment that reduces toxicity, mobility, or volume of contaminated media as a principal element, the contaminated soil will be treated.

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1 *Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels*, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, January 24, 1994.

2 The treatability study commenced on August 14, 2006.

This modified remedy will result in the reduction of hazardous substances, pollutants, or contaminants to levels that will permit unlimited use of, and unrestricted exposure to, soil in the Cattaraugus Cutlery Area in an estimated three years.

It is EPA's policy to conduct five-year reviews when remediation activities, including monitoring, will take more than five years to complete. Since the monitoring related to the groundwater remedy selected in the 2005 ROD will continue for more than five years, EPA will continue to conduct five-year reviews at least once every five years. Because EPA conducted a five-year review for the alternate water supply remedy at this Site in May 2002, the next five-year review will be conducted on or before May 2007.

## ROD DATA CERTIFICATION CHECKLIST

The ROD Amendment contains the modified soil remedy selection information noted below. More details may be found in the Administrative Record file for this Site.

- Contaminants of concern and their respective concentrations (see ROD Amendment, page 6. Tables 1 and 2, and Figure 2);
- Baseline risk represented by the contaminants of concern (see ROD Amendment, pages 7-11);
- Cleanup levels established for contaminants of concern and the basis for these levels (see ROD Amendment, Appendix II, Table 6);
- Current and reasonably-anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD Amendment (see ROD Amendment, pages 6-7);
- Manner of addressing source materials constituting principal threats (see ROD Amendment, page 20);
- Key factors used in selecting the modified soil remedy (*i.e.*, how the selected modified soil remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision)(see ROD Amendment, pages 23-25);
- Estimated capital, annual operation and maintenance, and present-worth costs; discount rate; and the number of years over which the modified soil remedy cost estimates are projected (see ROD Amendment, page 22); and

- Potential land use that will be available at the Site as a result of the selected modified soil remedy (see ROD Amendment, page 22).

**AUTHORIZING SIGNATURE**

_______________________________ 9/28/06

George Pavlou, Director
Emergency and Remedial Response Division

Date

**RECORD OF DECISION FACT SHEET**
**EPA REGION II**

## Site

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|---|---|
| Site name: | Little Valley Superfund Site |
| Site location: | Little Valley, Cattaraugus County, New York |
| HRS score: | Listed on the basis of an ATSDR Health Advisory |
| Listed on the NPL: | June 17, 1996 |

## Amendment to the Record of Decision

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| Date signed: | September 29, 2006 |
| Selected soil remedy: | In-situ vapor extraction |
| Capital cost: | $413,000 |
| Annual RA cost: | $36,000 |
| Present-worth cost: | $507,000 |

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| **Lead** | EPA |
| Primary contact: | John DiMartino, Remedial Project Manager, (212) 637-4270 |
| Secondary contact: | Joel Singerman, Chief, Central New York Remediation Section, (212) 637-4258 |

## Waste

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| Waste type: | Volatile organic compound (trichloroethylene) |
| Waste origin: | On-Site spills/discharges |
| Contaminated media: | Soil |

# AMENDMENT TO THE RECORD OF DECISION
# DECISION SUMMARY

Little Valley Superfund Site
Little Valley, Cattaraugus County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 2006

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ATTACHMENTS

## SITE NAME, LOCATION, AND DESCRIPTION

Since 1982, chemical analyses of groundwater samples collected from monitoring and private wells throughout the Little Valley Superfund site (Site)[3] have indicated the presence of trichloroethylene (TCE), a common industrial cleaning solvent. The TCE groundwater plume, which comprises the boundaries of the Site, extends approximately eight miles southeastward from the Village of Little Valley through the Town of Little Valley to the northern edge of the City of Salamanca, which is part of the Allegheny Indian Reservation. The Site is located in a rural, agricultural area, with a number of small, active and inactive industries and over 200 residential properties situated in the study area along Route 353, the main transportation route between Little Valley and the City of Salamanca.

While the industry, businesses, and residences located in the Village of Little Valley (including the area located approximately one-quarter mile south of the Village's corporate limits along New York State Highway 353) obtain water from the Public Water Supply of the Village of Little Valley, private water supply wells constitute the only source of water for the Town of Little Valley and the northern portion of the City of Salamanca.

The nearest surface water bodies associated with the Site are Little Valley Creek and its tributaries. Little Valley Creek, a perennial stream with typical stream flow ranging from 20 to 80 cubic feet per second during normal precipitation periods, flows southeast, then south through the Site for approximately eight miles before joining the Allegheny River. The Site ranges in width from 1,000 to 2,500 feet and in elevation from nearly 1,600 feet above mean sea level (msl) in the Village of Little Valley to less than 1,400 feet msl near the Salamanca city line. The Site is bordered by steeply sloping wooded hillsides which attain slopes of up to 25 percent and elevations of 2,200 feet above msl.

Figure 1 shows the Site area.

## SITE HISTORY AND ENFORCEMENT ACTIVITIES

In 1982, Cattaraugus County Health Department (CCHD) and NYSDEC, while investigating TCE contamination at the Luminite Products Corporation (Luminite) facility located in the City of Salamanca, detected TCE in nearby private wells.

In 1989, NYSDEC sampled the plant production well, process wastewater, and septic tank on the Luminite property, as well as nearby New York State Department of Transportation monitoring wells. The analytical results indicated that groundwater contamination was present both upgradient and downgradient of the Luminite facility, with the groundwater plume extending from the Village of Little Valley to the northern edge of the City of Salamanca.

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3 The Site's Superfund Site Identification Number is NYD0001233634. EPA is the lead agency; NYSDEC is the support agency. It is anticipated that Superfund monies will be utilized to implement the selected modified soil remedy.

Based on these findings, the CCHD issued health advisories to exposed residents and efforts were initiated to determine sources of TCE contamination upgradient of Luminite.

In 1992, NYSDEC installed a number of monitoring wells in the area, and conducted source reconnaissances at the other active and inactive industries and waste disposal areas to investigate possible sources of the contamination. No sources were found.

In June 1996, EPA listed the Site on the National Priorities List, and prepared a focused feasibility study (1996 FFS) to develop, screen, and evaluate alternatives for an alternate water supply system for the affected and potentially affected residences to address the most immediate concerns at the Site.

Based upon the findings of the 1996 FFS report, on September 30, 1996, EPA issued a ROD, providing for the installation of air stripper treatment units on all of the affected and potentially affected private wells, as an interim remedy, to ensure that drinking water standards were met. Air strippers were selected because, based upon the maximum TCE concentrations that were present in the private wells at that time, they would be significantly less costly to maintain than granular activated carbon treatment units.

In September 1996, EPA also commenced an RI/FS to identify sources of the groundwater contamination and to evaluate remedial alternatives for the groundwater.

Installation of the air stripper treatment units was completed in October 1997. Subsequently, granular activated carbon units were installed in addition to the air strippers as polishing units to insure the consistent removal of contaminants.

The ROD also called for an evaluation of the efficacy of the point-of-use treatment systems within five years of their installation, and a determination as to whether or not a more permanent system (such as a waterline) would be required. In an April 2002 Explanation of Significant Differences (ESD), EPA determined that it would be more appropriate to evaluate the need for a permanent alternative water supply during the selection of the final groundwater/source area remedy for the Site. EPA also determined that because of the decreasing levels of contaminant concentrations in the private wells, granular activated carbon units alone would effectively remove the contamination. Subsequently, the air stripper treatment units were removed from each well and replaced with a second granular activated carbon unit.

On May 16, 2002, five years after the initiation of the implementation of the alternate water supply remedy, EPA conducted a five-year review at the Site. This five-year review found that the point-of-use treatment units called for in the first operable unit ROD, as modified by the ESD, were functioning as designed and addressed the immediate threat to public health.

NYSDEC assumed responsibility for the operation and maintenance (O&M) of the point-of-use treatment units and annual sampling of private wells in October 2002. Routine maintenance is conducted on the point-of-use treatment systems on a quarterly basis, and repairs are performed as needed. As part of the ongoing maintenance of the treatment units, NYSDEC evaluates the effectiveness of the treatment units by sampling the groundwater passing through the individual treatment systems on an annual basis.

Based upon the results of a June 2005 RI/FS report and a July 6, 2005 public meeting, on August 19, 2005, a ROD was signed which called for the excavation and off-Site treatment/disposal of contaminated soils located on the former site of the Cattaraugus Cutlery Company (hereinafter, referred to as the "Cattaraugus Cutlery Area")[2] and monitored natural attenuation for the Site-wide groundwater. The ROD also called for an evaluation of the potential for soil vapor intrusion into structures within the study area and mitigation, if necessary.

As noted above, the 1996 ROD provided for the installation and maintenance of point-of-use treatment systems for private wells affected by Site contamination as an interim remedy. The 2005 ROD made the interim alternate water supply remedy the final remedy for the water supply.

In September and November 2005, in accordance with the selected remedy for the soil, EPA undertook pre-excavation soil sampling to define the boundaries of the soil contamination at the Cattaraugus Cutlery Area. The results from this sampling effort[3] indicated that the volume of contaminated soil is substantially greater than originally estimated in the 2005 ROD (it has increased from approximately 220 cubic yards to approximately 3,000 cubic yards).

Since EPA believed that the increased volume of contaminated soil at the Cattaraugus Cutlery Area would impact the feasibility, effectiveness, and overall cost effectiveness of the selected remedy, the remedial alternatives for the soil component of the remedy selected in the 2005 ROD were reevaluated in *Focused Feasibility Study Report, Presentation of Air Permeability Testing Results and Evaluation of Soil Remedial*

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2 The Cattaraugus Cutlery Area consists of several parcels that were used to manufacture cutlery. The W.W. Wilson Cutlery Company, which was formed in the 1890s, operated on the parcels until around 1900, when the company was sold to the Cattaraugus Cutlery Company. The Cattaraugus Cutlery Company manufactured cutlery at this location until the 1950s. Subsequent owners or operators have included Knowles-Fischer (auto parts stamping) and AVM, which owned the property between 1970 and 1977. King Windows, which manufactured stamped metal window parts, is believed to have operated on portions of the property between 1977 and 1993. At present, the property is privately owned, and has been used for storage and a variety of commercial activities since 1993. See Figure 1 for a Cattaraugus Cutlery Area site plan.

3 See *Subsurface Soil Sampling, Little Valley Superfund Site, Cattaraugus Cutlery Area, Little Valley, New York, Work Assignment 0-165 - Trip Report*, Lockheed Martin, June 2, 2006 (2006 Soil Sampling Report).

*Alternatives Related to the Cattaraugus Cutlery Area, Little Valley Superfund Site, Cattaraugus County, New York*, EPA, July 2006 (2006 FFS) report.

To evaluate the possibility of TCE vapors from the groundwater getting into the air inside homes, EPA in the Fall of 2005, tested under the foundations of approximately two dozen homes and an additional 100 homes in July 2006. Follow-up indoor air samples were collected from several of these homes in August 2006. Mitigation systems will be installed, if necessary.

## HIGHLIGHTS OF COMMUNITY PARTICIPATION

The 2006 Soil Sampling Report describes the extent of the soil contamination at the Cattaraugus Cutlery Area. The 2006 FFS report evaluates remedial alternatives to address this contamination. The Superfund Proposed Plan for Remedy Modification identifies EPA and NYSDEC's preferred modified soil remedy and the basis for that preference. These documents were made available to the public in information repositories maintained at the EPA Docket Room in the Region 2 offices at 290 Broadway in Manhattan, at the Town of Little Valley Municipal Building, 201 3rd Street, Little Valley, New York and at the Salamanca Public Library, located at 155 Wildwood Avenue, Salamanca, New York.

EPA's 1984 Indian Policy recognizes the government-to-government relationship between EPA and the Nations, as one sovereign to another. EPA has committed to communicating with Nation governments before making decisions on environmental matters affecting Nation governments and/or Nation natural resources. To this end, in August 2006, EPA discussed the preferred modified soil remedy and the basis for this preference with a Seneca Nation Environmental Protection Department representative. No concerns related to the preferred modified soil remedy were expressed by the Nation's representative at that time.

A notice of the commencement of the public comment period, the public meeting date, a summary of the preferred modified soil remedy, EPA contact information, and the availability of the above-referenced documents was published in the *Olean Times Herald* on August 6, 2006. The public comment period ran from August 6, 2006 to September 5, 2006. EPA held a public meeting on August 15, 2006 at 6:30 P.M. at the Little Valley Elementary Campus, 207 Rock City Street, Little Valley, New York, to present the findings of the RI/FS and to answer questions from the public about the Site and the remedial alternatives under consideration. Approximately 12 people, including residents, local business people, and state and local government officials, attended the public meeting. On the basis of comments received during the public comment period, the public generally supports the selected modified soil remedy. Public comments were related to the extent of soil contamination, the excavation alternative, potentially responsible parties, the Cattaraugus Cutlery Area, the Bush Industries Area, the groundwater remediation, and vapor intrusion and mitigation. Responses to the comments received at the public meeting (no written comments were received) are included in the Responsiveness Summary (see Appendix V).

The Cattaraugus Cutlery Area is currently zoned for industrial use and has been used for this, as well as commercial purposes, since the 1890s. It is anticipated that the property will continue to be used for commercial purposes, the public's views on assumptions about reasonably anticipated future land use were not solicited.

## SCOPE AND ROLE OF OPERABLE UNIT

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Section 300.5, defines an operable unit as a discrete action that comprises an incremental step toward comprehensively addressing Site problems. A discrete portion of a remedial response eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the Site.

The objective of the first operable unit was to prevent exposure of area residents to contaminated drinking water. Under the first operable unit, on September 30, 1996, EPA issued an interim ROD, providing for the installation of point-of-use treatment units on all of the affected and potentially affected private wells to ensure that drinking water standards were met. EPA completed the installation of point-of-use treatment units in October 1997. The interim remedy discussed above was deemed the final remedy for Operable Unit 1 in a ROD signed on August 19, 2005.

The 2005 ROD also addressed contaminated soil and groundwater, which has been designated as Operable Unit 2. The primary objectives of the 2005 ROD or this operable unit were to remediate an identified source of contamination at the Site, reduce and minimize the downward migration of contaminants to the groundwater, restore groundwater quality, and minimize any potential future health and environmental impacts. The response action described in this ROD Amendment changes the soil remedy selected in the 2005 ROD, but does not alter the objectives. This action represents the final remedy planned for the Site.

## SUMMARY OF CATTARAUGUS CUTLERY AREA CHARACTERISTICS

Soil borings in the Cattaraugus Cutlery Area indicate a relatively thin silt layer over a portion of the property underlain by gravel and sand with varying amounts of fines, which directly overlies till or bedrock.

The depth-to-groundwater in the in the Cattaraugus Cutlery Area is about five feet below ground surface (bgs).

Based upon the soil data collected during the RI, the Cattaraugus Cutlery Area was determined to be a current localized source of groundwater contamination at the Site. Table 1 shows the TCE concentrations in the soil at the Cattaraugus Cutlery Area based upon samples collected during the RI. Two of these samples exceeded the New York State Technical and Administrative Guidance Memorandum No. 94-HWR-4046 (TAGM) objective[4]—1,200 micrograms per kilogram (µg/kg) at 0 to 2 inches below ground surface (bgs) and 72,000 µg/kg at 1.5 to 2 feet bgs and 11,000 µg/kg at 1 to 2 feet bgs.

The soil contamination was further delineated by pre-excavation soil sampling conducted in late 2005 (See *Subsurface Soil Sampling Little Valley Superfund Site (Cattaraugus Cutlery Area), Little Valley, New York, Work Assignment 0-165 - Trip Report*, Lockheed Martin, June 2, 2006). Table 2 and Figure 2 summarize the results from this soil sampling. As can be seen by these results, forty samples exceeded the TAGM objective, the highest being 198,000 µg/kg at 0 to 2 inches bgs at LV-N28. As can be seen by the figure, soil contamination exists underneath one of the on-Site buildings. Based upon these sample results, it is estimated that 3,000 cubic yards of soil are contaminated with TCE levels exceeded the TAGM objective.

A conceptual site model[5] for the Cattaraugus Cutlery Area is depicted in Figure 3.

## CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The TCE groundwater plume, which comprises the boundaries of the Site, extends approximately eight miles southeastward from the Village of Little Valley through the Town of Little Valley to the northern edge of the City of Salamanca. The Site is located in a rural,

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4 *Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels*, NYSDEC, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, January 24, 1994.

There are currently no federal or state promulgated standards for contaminant levels in soils. There are, however, other federal or state advisories, criteria, or guidance (To-Be-Considered guidance or "TBCs"), one of which is the New York State TAGM objectives. The soil cleanup objectives identified in NYSDEC's TAGM are either a human-health protection value or a value based on protection of groundwater (calculating the concentration in soil which would theoretically produce contaminant concentrations in the groundwater which would meet groundwater standards), whichever is more stringent. The TAGM is being used as the soil cleanup levels for this site. The TAGM for TCE is 700 µg/kg, which falls within EPA's acceptable risk range (see Table 2). EPA has reviewed the TAGM model's formula and assumptions and has determined that the TAGM objective for TCE will be protective of the groundwater.

5 A conceptual site model illustrates contaminant sources, release mechanisms, exposure pathways, migration routes, and potential human and ecological receptors.

agricultural area, with a number of small, active and inactive industries and over 200 residential properties situated in the study area. It is unlikely that Site-wide land use will change in the future.

Regional groundwater is a sole source of potable water and is designated as a drinking water source by NYSDEC. While the industries, businesses, and residences located in the Village of Little Valley (including the area located approximately one-quarter mile south of the Village's corporate limits along New York State Highway 353) obtain water from the Public Water Supply of the Village of Little Valley, private water supply wells constitute the only source of water for the Town of Little Valley and the northern portion of the City of Salamanca.

As was noted above, the Cattaraugus Cutlery Area is currently zoned for industrial use and has been used for this, as well as commercial purposes, since the 1890s. It is anticipated by EPA that the property will continue to be used for commercial purposes.

## SUMMARY OF CATTARAUGUS CUTLERY AREA HUMAN HEALTH AND ECOLOGICAL RISKS

Based upon the results of the RI, a baseline human health risk assessment (HHRA)[6] was conducted to evaluate the potential for current and future impacts of Site-related contaminants on receptors using the Site. A screening-level ecological risk assessment (SLERA)[7] was also conducted.

The human-health estimates summarized below are based on current reasonable maximum exposure scenarios and were developed by taking into account various conservative estimates about the frequency and duration of an individual's exposure to TCE, as well as the toxicity of this contaminant.

### *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*, which identifies the contaminant(s) of concern at a site based on several factors such as toxicity, frequency of occurrence, and concentration; *Exposure Assessment*, which estimates the magnitude of

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6 The HHRA, which is contained in the *Remedial Investigation Report for the Little Valley Superfund Site, Little Valley, New York* (Tetra Tech FW, Inc., June 2005), is available in the Administrative Record.

7 The SLERA, which is contained in the *Remedial Investigation Report for the Little Valley Superfund Site, Little Valley, New York* (Tetra Tech FW, Inc., June 2005), is available in the Administrative Record.

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*, which determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of effect (response); and *Risk Characterization*, which summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

As part of the baseline risk assessment EPA evaluated the potential risks to human health and the environment associated with the Cattaraugus Cutlery Area in both its current state and if commercial workers were present on the property.

Under current EPA guidelines, the likelihood of carcinogenic (cancer-causing) and noncarcinogenic (systemic) effects due to exposure to Site chemicals are considered separately. Consistent with EPA guidance, it was assumed that the toxic effects of the site-related chemicals would be additive. Thus, carcinogenic and noncarcinogenic risks associated with exposure to TCE were summed to indicate the potential risks associated with mixtures.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intake and safe levels of intake (reference doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of milligrams per kilogram per day (mg/kg-day), are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (*e.g.*, the amount of a chemical incidentally ingested from contaminated soil) are compared to the RfD to derive the hazard quotient for the contaminant in the particular medium. The HI is derived by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

An HI greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur as a result of Site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. The toxicity values, including reference doses, for TCE, are presented in Table 3. For exposure to soils at the Cattaraugus Cutlery Area, noncarcinogenic HI values were within EPA's acceptable limits.

Potential carcinogenic risks were evaluated using the cancer slope factors developed by EPA for TCE. Cancer slope factors (SFs) have been developed for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the SF.

Use of this approach makes the underestimation of the risk highly unlikely. The SF used in this risk assessment for TCE is presented in Table 4.

For known or suspected carcinogens, EPA considers excess upper-bound individual lifetime cancer risks of between $10^{-4}$ to $10^{-6}$ to be acceptable. This level indicates that an individual has not greater than approximately a one in ten thousand to one in one million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at a site. Excess lifetime cancer risks estimated at this site are presented in Table 5. Based upon the results of the risk assessment, it has been concluded that TCE is a chemical of concern for commercial workers in the Cattaraugus Cutlery Area relative to potential exposures to soil; the estimated excess lifetime cancer risk is outside the acceptable risk range at $6.1 \times 10^{-4}$. Under all scenarios, the total estimated HI value is less than one. Therefore, no noncancer health effects are expected to occur.

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 sampling and 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 contaminant of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the contaminants of concern at the point of exposure. The exposure parameters and models used in these evaluations use assumptions that are likely to be conservative estimates 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 baseline human health risk assessment provides upper-bound estimates of the risks to populations at and near the sites, and it is highly unlikely to underestimate actual risks related to the sites. There is uncertainty associated with the toxicity information for TCE. The cancer slope factor is being reviewed by EPA's Integrated Risk Information System program and some studies currently being evaluated through this effort have suggested that TCE may be more potent of a carcinogen than considered in this evaluation. However, it must be noted that this evaluation for this Site, which uses a less conservative slope factor, demonstrated that exposure to TCE would result in an unacceptable level of carcinogenic risk.

Specifically, several aspects of risk estimation contribute uncertainty to the projected risks. EPA recommends that an arithmetic average concentration of the data be used for evaluating long-term exposure and that, because of the uncertainty associated with estimating the true average concentration at a site, the 95 percent upper confidence limit (UCL)[8] on the arithmetic average be used as the exposure point concentration. The 95 percent UCL provides reasonable confidence that the true average will not be underestimated. Exposure point concentrations were calculated from residential, monitoring well, surface water and sediment sample data sets to represent the reasonable maximum exposure to various current and future populations. Uncertainty associated with sample laboratory analysis and data evaluation is considered low as a result of quality assurance and data validation.

In addition to the calculation of exposure point concentrations, several Site-specific assumptions regarding future land use scenarios, intake parameters, and exposure pathways are a part of the exposure assessment stage of a baseline risk assessment. Assumptions were based on Site-specific conditions to the greatest degree possible, and default parameter values found in EPA risk assessment guidance documents were used in the absence of Site-specific data. However, there remains some uncertainty in the prediction of future use scenarios and their associated intake parameters and exposure pathways. The exposure pathways selected for current scenarios were based on the Site conceptual model and related RI data. The uncertainty associated with the selected pathways for these scenarios is low because Site conditions support the conceptual model.

Standard dose conversion factors, risk slope factors, and reference doses are used to estimate the carcinogenic risks and noncarcinogenic hazards associated with Site contaminants. The risk estimators used in this assessment are generally accepted by the scientific community as representing reasonable projections of the hazards associated with exposure to the various chemicals of potential concern.

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8 The UCL is the upper bound of a confidence interval around any calculated statistic, most typically an average. For example, the 95 percent confidence interval for an average is the range of values that will contain the true average (*i.e.*, the average of the full statistical population of all possible data) 95 percent of the time. EPA bases most risk estimates on the UCL of response data to avoid underestimating the true risk in the face of uncertainty.

### *Ecological Risk Assessment*

A benthic community survey was conducted for the Little Valley Creek at the Cattaraugus Cutlery Area. The results of the benthic survey indicated the presence of a diverse benthic community.

Surface water sampling associated with the Cattaraugus Cutlery Area revealed detections of TCE and TCE degradation products below corresponding ecoscreening benchmarks. Similarly, sediment sampling revealed low-level detections of TCE degradation products below corresponding ecoscreening values.

The Cattaraugus Cutlery Area was determined to have only limited value for terrestrial ecological receptors, since only a small amount of terrestrial/wetland habitat (consisting of small isolated fragments of deciduous woodland or open field) exists. Soil sampling revealed detections of TCE in the surface soils exceeding ecological screening values. Since most of these detections were associated with the developed portions of the area (*i.e.*, not in the portions of the area supporting the limited wildlife habitat present), the risk posed to terrestrial ecological receptors by TCE in the surface soils is low.

### *Summary of Human Health and Ecological Risks*

The risks presented in the human health risk assessment indicate that there is significant potential risk to commercial workers from direct exposure to contaminated soils in the Cattaraugus Cutlery Area. This risk estimate is based on current reasonable maximum exposure scenarios and was developed by taking into account various conservative assumptions about the frequency and duration of an individual's exposure to the soil, as well as the toxicity of TCE.

The findings of the ecological risk assessment indicate that the potential risks to ecological receptors from TCE is expected to be low.

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

### *Basis for Action*

Based upon the results of the RI and the risk assessment, EPA has determined that the response action selected in this ROD Amendment is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

## REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), TBC guidance, and site-specific risk-based levels.

The following RAOs were established for the Cattaraugus Cutlery Area:

- Minimize or eliminate TCE migration from contaminated soils to the groundwater;

- Minimize or eliminate any contaminant migration from contaminated soils to indoor air; and

- Reduce or eliminate any direct contact or inhalation threat associated with TCE-contaminated soils and any inhalation threat associated with soil vapor.

The cleanup criteria for TCE in soil at the Cattaraugus Cutlery Area is presented in Table 6. The soil cleanup objective for TCE is established in the TAGM guidelines (700 mg/kg).

## DESCRIPTION OF ALTERNATIVES FOR THE CATTARAUGUS CUTLERY AREA

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions be protective of human health and the environment, cost-effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

As was noted previously, principal threat wastes are those source materials considered to be highly toxic and which present a significant risk to human health or the environment should exposure occur, or are highly mobile such that they generally cannot be reliably contained. 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 are described below. This analysis provides a basis for making a statutory finding that the modified soil remedy employs treatment as a principal element[9].

Detailed descriptions of the remedial alternatives for addressing the soil contamination associated with the Site can be found in the 2006 FFS report. This document presents three soil remediation alternatives.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

The remedial alternatives are described below.

**Alternative S-1: No Action**

| | |
|---|---|
| Capital Cost: | $0 |
| Annual Cost: | $0 |
| Present-Worth Cost: | $0 |
| Construction Time: | 0 months |

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative for soil does not include any physical remedial measures that address the problem of soil contamination at the Site.

Because this alternative would result in contaminants remaining on-Site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat, or contain the contaminated soils.

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9 *A Guide to Principal Threat and Low Level Threat Wastes*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, 9380.3-06FS, November 1991.

**Alternative S-2: In-Situ Soil Vapor Extraction**

| | |
|---|---|
| Capital Cost: | $413,000 |
| Annual Cost[10]: | $36,000 |
| Present-Worth Cost: | $507,000 |
| Construction Time: | 1 month |

Under this alternative, approximately 3,000 cubic yards of TCE-contaminated soil in the Cattaraugus Cutlery Area would be remediated by in-situ soil vapor extraction (ISVE). ISVE involves installing a series of wells into the contaminated soil in the unsaturated zone (above the water table). A blower would be used to draw air through the wells to volatilize the TCE contaminating the soils in the unsaturated zone. The vapors would then be extracted and treated by granular activated carbon and/or another appropriate technology before being vented to the atmosphere. Based upon the results of a treatability study, it is estimated that 32 ISVE wells would be required to treat the soil at the Cattaraugus Cutlery Area.

While the actual period of operation of the ISVE system would be based upon soil sampling results which would demonstrate that the affected soils have been treated to soil TAGM objectives, it is estimated that the system would operate for a period of three years.

**Alternative S-3: Excavation and Off-Site Disposal**

| | |
|---|---|
| Capital Cost: | $876,000 |
| Annual Cost: | $0 |
| Present-Worth Cost: | $876,000 |
| Construction Time: | 3 months |

This alternative involves the excavation of approximately 3,000 cubic yards of TCE-contaminated soil to an estimated depth of five feet in the Cattaraugus Cutlery Area. The actual extent of the excavation and the volume of the excavated soil would be based on post-excavation confirmatory sampling. Shoring of the excavated areas and extraction and treatment of any water that enters the excavated area may be necessary. All excavated material would be characterized and transported for treatment and/or disposal at an off-Site Resource Conservation and Recovery Act (RCRA)-compliant disposal facility.
The excavated areas would be backfilled with clean fill.

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10 This cost is the annual cost to operate and maintain the ISVE system. It is part of the remedial action cost.

It is estimated that this effort could be completed in three months.

## COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA Section 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 OSWER Directive 9355.3-01 (*Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA: Interim Final*, EPA, October 1988). The detailed analysis consisted 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.

The following "threshold" criteria are the most important and must be satisfied by any alternative in order to be eligible for selection:

1. *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.

2. *Compliance with ARARs* 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. Other federal or state advisories, criteria, or guidance are TBCs. TBCs are not required by the NCP, but may be very useful in determining what is protective of a site or how to carry out certain actions or requirements.

The following "primary balancing" criteria are used to make comparisons and to identify the major tradeoffs between alternatives:

3. *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.

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

5. *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.

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

7. *Cost* includes estimated capital, O&M, and net present-worth costs.

The following "modifying" criteria are used in the final evaluation of the remedial alternatives after the formal comment period, and may prompt modification of the preferred remedy that was presented in the Superfund Proposed Plan for Remedy Modification:

8. *State acceptance* indicates whether, based on its review of the Soil Sampling Report, 2006 FFS report, and Superfund Proposed Plan for Remedy Modification, the State concurs with, opposes, or has no comments on the selected modified remedy.

9. *Community acceptance* refers to the public's general response to the alternatives described in the Soil Sampling Report, 2006 FFS report, and Superfund Proposed Plan for Remedy Modification.

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

*Overall Protection of Human Health and the Environment*

Alternative S-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 contamination. Alternatives S-2 and S-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 removing the source of groundwater contamination.

*Compliance with ARARs*

There are currently no federal or New York State promulgated standards for contaminant levels in soils. However, EPA is utilizing New York State soil cleanup objectives as specified in the soil TAGM (which are used as TBC criteria).

Since the contaminated soil would not be addressed under Alternative S-1, it would not comply with the soil cleanup objectives. Alternatives S-2 and S-3 would attain the soil cleanup objectives specified in the TAGM.

Alternatives S-2 and S-3 would both be subject to New York State and federal regulations related to the off-Site transportation of wastes (granular activated carbon from the ISVE treatment system and the excavated soils, respectively).

Alternative S-3 would involve the excavation of contaminated soils and would, therefore, require compliance with fugitive dust and volatile organic compound emission regulations. In addition, this alternative would be subject to state and federal regulations related to the transportation and off-Site treatment/disposal of wastes. In the case of Alternative S-2, compliance with air emission standards would be required for the ISVE system. 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.

*Long-Term Effectiveness and Permanence*

Alternative S-1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in soil and would allow the continued migration of contaminants from the soil to the groundwater. Alternatives S-2 and S-3 would both be effective in the long-term and would provide permanent remediation by either removing the contaminated soils from the Cattaraugus Cutlery Area or treating them in place.

Based upon the results of field permeability testing, it has been concluded that ISVE would likely be effective in removing TCE from the soils within the Cattaraugus Cutlery Area under Alternative 2. Treatability testing has demonstrated the effectiveness of this technology. Under Alternative S-2, the extracted vapors would be treated by granular activated carbon before being vented to the atmosphere. The granular activated carbon would have to be appropriately handled (off-Site treatment/disposal). Alternatives S-1 and S-3 would not generate such treatment residuals.

The action alternatives would maintain reliable protection of human health and the environment over time.

*Reduction of Toxicity, Mobility, or Volume Through Treatment*

Alternative S-1 would provide no reduction in toxicity, mobility or volume. Under Alternative S-2, the toxicity, mobility, and volume of contaminants would be reduced or eliminated through on-Site treatment. Under Alternative S-3, the mobility and volume of the contaminants would be eliminated by removing the contaminated soil from the property.

*Short-Term Effectiveness*

Alternative S-1 does not include any physical construction measures in any areas of contamination and, therefore, would not present any potential adverse impacts to on-property workers or the community as a result of its implementation. Alternative S-2 could result in some adverse impacts to workers at the Cattaraugus Cutlery Area through dermal contact and inhalation related to the installation of ISVE wells through contaminated soils. Alternative S-3 could present some limited adverse impacts to on-property workers through dermal contact and inhalation related to excavation activities. Noise from the treatment unit and the excavation work associated with Alternatives S-2 and S-3, respectively, could present some limited adverse impacts to on-property workers and nearby residents. In addition, interim and post-remediation soil sampling activities would pose some risk. The risks to on-property workers and nearby residents under all of the alternatives could, however, be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by utilizing proper protective equipment.

Alternative S-3 would require the off-Site transport of contaminated soil (approximately 190 truck loads), which would potentially adversely affect local traffic and may pose the potential for traffic accidents; that in turn could result in releases of hazardous substances.

For Alternative S-3, there is a potential for increased stormwater runoff and erosion during construction and excavation activities that would have to be properly managed to prevent or minimize any adverse impacts. For this alternative, appropriate measures would have to be taken during excavation activities to prevent transport of fugitive dust and exposure of workers and downgradient receptors to TCE.

Since no actions would be performed under Alternative S-1, there would be no implementation time. It is estimated that Alternative S-2 would require one month to install the ISVE system and three years to achieve the soil cleanup objectives. It is estimated that it would take three months to excavate and transport the contaminated soils to an EPA-approved treatment/disposal facility under Alternative S-3.

*Implementability*

Alternative S-1 would be the easiest soil alternative to implement, as there are no activities to undertake.

Both Alternatives S-2 and S-3 would employ technologies known to be reliable and that can be readily implemented. Based upon the results of field permeability and treatability testing, it has been concluded that ISVE is a viable technology for the Cattaraugus Cutlery Area and will likely be effective. Since the groundwater table is located less than 10 feet bgs, groundwater upwelling could potentially occur with the ISVE wells, which could fill the well screens and reduce or eliminate soil vapor flow. Equipment, services, and materials needed for Alternatives S-2 and S-3 are readily available, and the actions under these alternatives would be administratively feasible. Sufficient facilities are available for the treatment/disposal of the excavated materials under Alternative S-3.

While soil excavation under Alternative S-3 is technically feasible, there are several Site-specific complications related to this remedial approach. There is only one narrow, steep driveway into the back of the property where the contaminated soils are located. This driveway is adjacent to a deteriorated portion of a 100-year-old, brick building located on the Cattaraugus Cutlery Area. A residential property abuts the other side of the driveway. Since the building is very close to the driveway, trucks entering and leaving the area would have to proceed slowly and carefully to minimize vibration and to ensure that the structure is not damaged. As the driveway is the only means of access and there is very little turnaround space, moving dump trucks in and out of the Site would present logistical challenges. Excavation and backfilling would need to be performed incrementally because there is insufficient room to create a significant excavation stockpile. Also, post-excavation sampling and rapid turnaround analyses would need to be integrated into the process. In addition, since contaminated soil is located adjacent to the buildings, special precautions would need to be taken so as to prevent damaging them or causing them to collapse. There is also contaminated soil underneath the floor of one building that would require excavation, potentially affecting the integrity of the building. Since the excavation effort would likely take several months to complete, the commercial use of the buildings would be temporarily curtailed.

The ISVE installation under Alternative S-2 would be fairly easy to accomplish and would result in minimal physical disturbance to the Cattaraugus Cutlery Area relative to excavation. The radial influence of the ISVE wells would allow the contaminated soil underneath the floor of the building to be addressed with no impact to the building.

Monitoring the effectiveness of the ISVE system under Alternative S-2 would be easily accomplished through soil and soil-vapor sampling and analysis. Under Alternative S-3, determining whether the soil cleanup objectives were achieved could be easily accomplished through post-excavation soil sampling and analysis.

*Cost*

The estimated capital, annual, and present-worth costs for each of the alternatives are presented in the table, below.

| Alternative | Capital | Annual | Total Present-Worth |
|---|---|---|---|
| S-1 | $0 | $0 | $0 |
| S-2 | $413,000 | $36,000 | $507,000 |
| S-3 | $876,000 | $0 | $876,000 |

As can be seen by the table, there are no annual costs associated with Alternatives S-1 and S-3. The annual cost for Alternative 2 is to operate and maintain the ISVE system; it is a remedial action cost. The present-worth cost associated with Alternative S-2 was calculated using a discount rate of 7 percent and a three-year time interval.

As can be seen by the cost estimates, Alternative S-1 is the least costly soil alternative at $0. Alternative S-3 is the most costly soil alternative at $876,000.

### *State Acceptance*

NYSDEC concurs with the selected modified soil remedy; a letter of concurrence is attached (see Appendix IV).

### *Community Acceptance*

Comments received during the public comment period indicate that the public generally supports the selected modified soil remedy. These comments are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V to this document.

## 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. A 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 are described below. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

TCE is present in the soil at the Cattaraugus Cutlery Area. This compound is highly mobile, cannot be reliably contained, and would present a significant risk to human health or the environment should exposure occur. Therefore, this compound constituents a principal threat waste.

Both Alternative S-2 (in-situ soil vapor extraction) and Alternative S-3 (excavation and off-Site treatment and/or disposal) would address source materials constituting principal threats by in-situ treatment or excavation and off-Site treatment and/or disposal, respectively. Therefore, both alternatives would satisfy the preference for treatment.

## SELECTED MODIFIED SOIL REMEDY

### *Summary of the Rationale for the Selected Modified Soil Remedy*

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative S-2 (in-situ soil vapor extraction) best satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, 40 CFR §300.430(e)(9).

While Alternative S-2 required the performance of treatability studies and will take longer to achieve the soil cleanup objective than Alternative S-3, there are several significant site-specific complications associated with the excavation of soils (discussed under "Implementability," above) which would affect its implementabilty. Therefore, EPA and NYSDEC believe that Alternative S-2 would effectuate the soil cleanup while providing the best balance of tradeoffs with respect to the evaluating criteria.

The selected modified soil remedy is protective of human health and the environment, provides long-term effectiveness, will achieve the ARARs in a reasonable time frame, and is cost-effective. Therefore, the modified selected remedy will provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. EPA and NYSDEC also believe that the selected modified soil remedy will treat principal threats and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The selected modified soil remedy also will meet the statutory preference for the use of treatment as a principal element.

***Description of the Selected Modified Soil Remedy***

The major components of the selected modified soil remedy include the following:

- Approximately 3,000 cubic yards of TCE-contaminated soil exceeding the TAGM objective of 700 mg/kg in the Cattaraugus Cutlery Area will be treated by ISVE. Off-gases from the ISVE system may need to be treated to meet air discharge requirements.

- Soil-vapor monitoring in the treatment areas and in adjacent residential areas will be conducted. Should this monitoring indicate a problem with respect to residences, appropriate mitigation actions will be taken.

- Post-treatment confirmatory samples will be collected to ensure that the entire source area has been effectively treated to the cleanup levels.

The effectiveness of the ISVE system has been determined based upon the results of a treatability study[11]. Should operational data indicate that ISVE will not address all of the contaminated soils, then those soils would be excavated and treated/disposed off-Site as a contingency remedy.

[11] The treatability study commenced on August 14, 2006.

The selected modified soil remedy will address source materials constituting principal threats by treating the contaminated soil.

### *Summary of the Estimated Modified Soil Remedy Costs*

The estimated capital, annual (cost to operate and maintain the ISVE system), and present-worth costs (using a 7% discount rate for a period of three years) for the selected modified soil remedy are $413,000, $36,000, and $507,000, respectively. Table 7 provides the basis for the cost estimate for the selected modified soil remedy.

It should be noted that these cost estimates are order-of-magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual project cost. These cost estimates are based on the best available information regarding the anticipated scope of the selected modified soil remedy. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the modified soil remedy.

### *Expected Outcomes of the Selected Modified Soil Remedy*

The results of the risk assessment indicate that the Site, if left unremediated, may present an unacceptable risk to commercial workers from direct exposure to contaminated soils in the Cattaraugus Cutlery Area.

The selected modified soil remedy will allow the following potential land and groundwater use:

*Land Use*

The Cattaraugus Cutlery Area is currently zoned for industrial use and has been used for commercial and industrial purposes since the 1890s when the first building was constructed. Should the use change, cleanup levels would still be protective, since they are based on the protection of groundwater, which is more stringent than the levels developed for direct contact. Achieving the soil clean up levels will expand the area of the property available for beneficial use.

*Groundwater Use*

Under the selected modified soil remedy, the treatment of the contaminated soils located in the Cattaraugus Cutlery Area will eliminate a source of groundwater contamination. In addition, it is likely that the ISVE system will volatilize TCE from the water table. Therefore, the selected modified remedy in combination with natural attenuation of the contaminants in the groundwater called for in the 2005 ROD will result in the restoration of water quality in the aquifer.

Under the selected modified soil remedy, it is estimated that it will require three years to achieve the soil cleanup levels.

## STATUTORY DETERMINATIONS

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies 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 a site.

For the reasons discussed below, EPA has determined that the selected modified soil remedy meets these statutory requirements.

### *Protection of Human Health and the Environment*

The selected modified soil remedy will be protective of human health and the environment in that the treatment of the contaminated soils will eliminate an unacceptable potential risk to commercial workers from direct exposure to contaminated soils in the Cattaraugus Cutlery Area. In addition, the treatment of the contaminated soils in combination with monitored natural attenuation called for in the 2005 ROD will result in the restoration of water quality in the aquifer and will eliminate a potential source of the soil vapor migration to indoor air of homes and businesses.

The potential risks to ecological receptors from TCE are expected to be low.

The selected modified soil remedy will reduce exposure levels to protective levels or to within EPA's generally acceptable risk range of $10^{-4}$ to $10^{-6}$ for carcinogenic risk and below the HI of 1 for noncarcinogens. The implementation of the selected modified soil remedy will not pose unacceptable short-term risks or cross-media impacts that cannot possibly be mitigated. The selected modified soil remedy will also provide overall protection by reducing the toxicity, mobility, and volume of contamination through the treatment of the contaminated soils.

### *Compliance with ARARs and Other Environmental Criteria*

While there are currently no federal or state promulgated standards for contaminant levels in soils, there are other federal or state advisories, criteria, or guidance (TBCs), one of which is the New York State TAGM objectives. The soil cleanup objectives identified in NYSDEC's TAGM are either a human-health protection value or a value based on protection of groundwater (calculating the concentration in soil which would theoretically produce contaminant concentrations in the groundwater which would meet groundwater standards), whichever is more stringent. The TAGM is being used as the soil cleanup levels for the Site. The TAGM for TCE is 700 μg/kg, which also falls within EPA's acceptable risk range.

A summary of action-specific and location-specific ARARs (there are no chemical-specific ARARs), as well as TBCs, which will be complied with during implementation of the selected modified soil remedy, is presented below.

**Action-Specific ARARs:**

- National Ambient Air Quality Standards (40 CFR Part 50)
- National Emissions Standards for Hazardous Air Pollutants (40 CFR Parts 51, 52, and 60)
- 6 NYCRR Part 257, Air Quality Standards
- 6 NYCRR Part 200, New York State Regulations for Prevention and Control of Air Contamination and Air Pollution
- New York Land Disposal Restrictions (6 NYCRR Part 376)
- Resource Conservation and Recovery Act (42 U.S.C. Section 6901, *et seq.*)

**Location-Specific ARARs:**

- National Historic Preservation Act
- Executive order 11988, Floodplain Management
- 40 CFR Part 6 Appendix A, Statement of Procedures on Floodplains Management and Wetlands Protection

**Other Criteria, Advisories, or Guidance (TBCs):**

- New York Guidelines for Soil Erosion and Sediment Control
- New York State Air Cleanup Criteria, January 1990
- NYSDEC Technical and Operational Guidance Series 1.1.1, November 1991
- Soil cleanup levels specified in NYSDEC Technical Administrative Guidance Memorandum No. 94-HWR-4046
- NYSDEC Guidelines for the Control of Toxic Ambient Air Contaminants, DAR-1, November 12, 1997
- EPA's 1985 Statement of Policy on Floodplains/Wetlands Assessments for CERCLA Actions[12]

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[12] Since remedial activities will be taking place within a 100-year floodplain, a Statement of Findings is provided in Appendix VI.

### *Cost-Effectiveness*

A cost-effective modified soil remedy is one whose costs are proportional to its overall effectiveness (NCP §300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. Based on the comparison of overall effectiveness (discussed above) to cost, the selected modified soil remedy meets the statutory requirement that Superfund remedies be cost-effective in that it is the least-cost action alternative and will achieve the remediation goals in a reasonable time frame.

Each of the alternatives has undergone a detailed cost analysis. In that analysis, capital and annual costs have been estimated and used to develop present-worth costs. In the present-worth cost analysis, the annual cost to operate and maintain the ISVE system were calculated for the estimated life of an alternative using a 7 percent discount rate.

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

The selected modified soil remedy provides the best balance of tradeoffs among the alternatives with respect to the balancing criteria set forth in NCP §300.430(f)(1)(i)(B), such that it represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site. In addition, the selected modified soil remedy provides significant protection of human health and the environment, provides long-term effectiveness, is able to achieve the ARARs in a reasonable time frame and is cost-effective.

The modified selected soil remedy will employ treatment to reduce the toxicity, mobility, and volume of the contaminants in the soil source areas. Therefore, the selected modified soil remedy will permanently address this soil contamination.

### *Preference for Treatment as a Principal Element*

The statutory preference for remedies that employ treatment as a principal element is satisfied under the selected modified soil remedy in that all of the contaminated soil will be treated. Therefore, treatment will be used to reduce the toxicity, mobility, and volume of the contamination and achieve cleanup levels.

### *Five-Year Review Requirements*

The selected modified soil remedy in combination with the groundwater remedy selected in the 2005 ROD will result in the reduction of hazardous substances, pollutants, or contaminants to levels that will permit unlimited use of, and unrestricted exposure to, soil and groundwater in an estimated three years and ten years, respectively. It is EPA's policy to conduct five-year reviews when remediation activities, including monitoring, will take more than five years to complete. Since the monitoring related to the groundwater remedy selected in the 2005 ROD will continue for more than five years, EPA will continue to conduct five-year reviews at least once every five years. Because EPA conducted a five-year review for the alternate water supply remedy at this Site in May 2002, the next five-year review will be conducted on or before May 2007.

## DOCUMENTATION OF SIGNIFICANT CHANGES

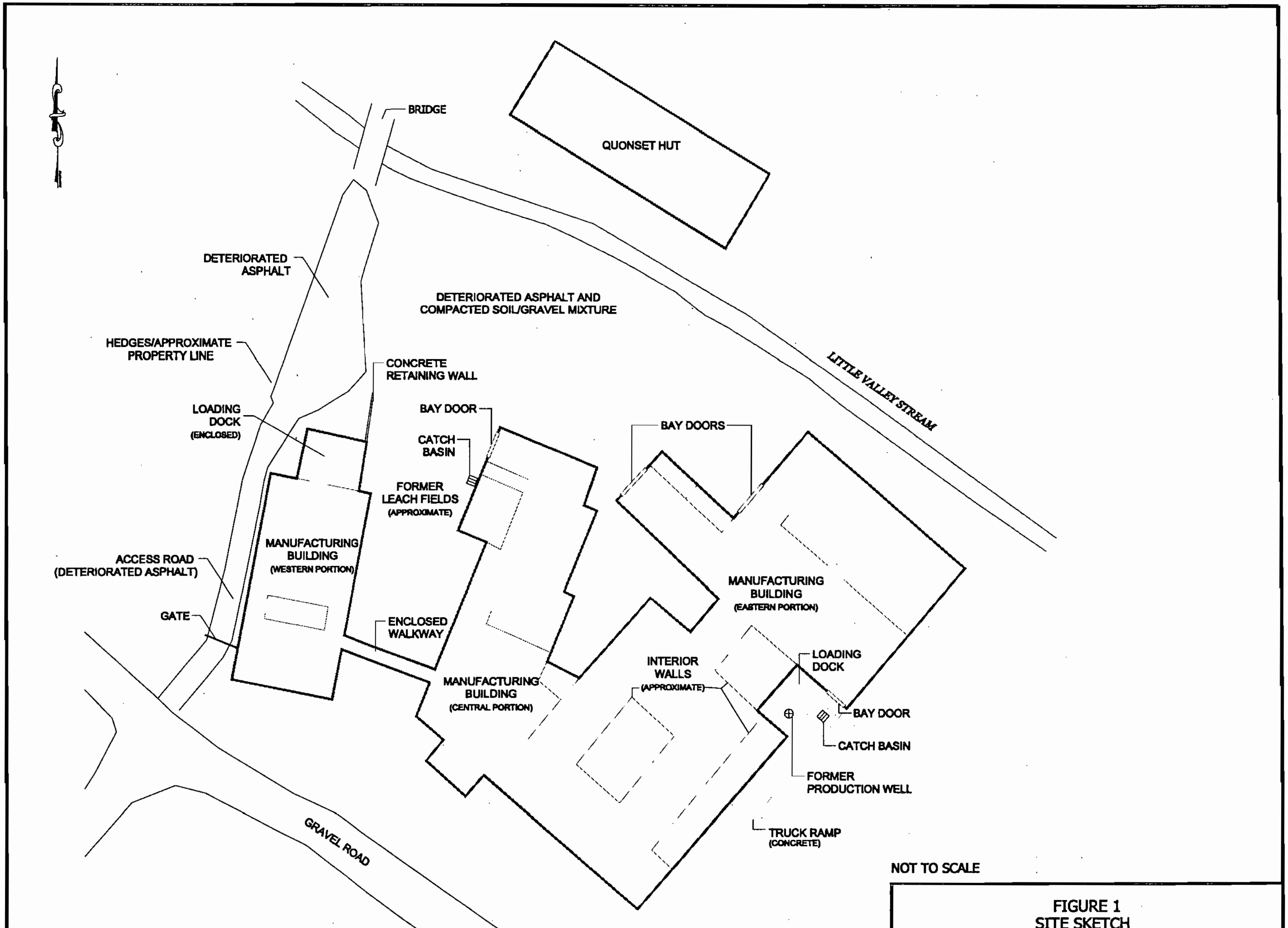
The Superfund Proposed Plan for Remedy Modification, released for public comment on August 6, 2006, identified Alternative S-2, ISVE, as the preferred modified soil remedy. Based upon EPA's review of the comments submitted during the public comment period, EPA has determined that no significant changes to the modified soil remedy, as originally identified in the Superfund Proposed Plan for Remedy Modification, were necessary or appropriate.

# LITTLE VALLEY SUPERFUND SITE
# AMENDMENT TO THE RECORD OF DECISION

## APPENDIX I

## FIGURES

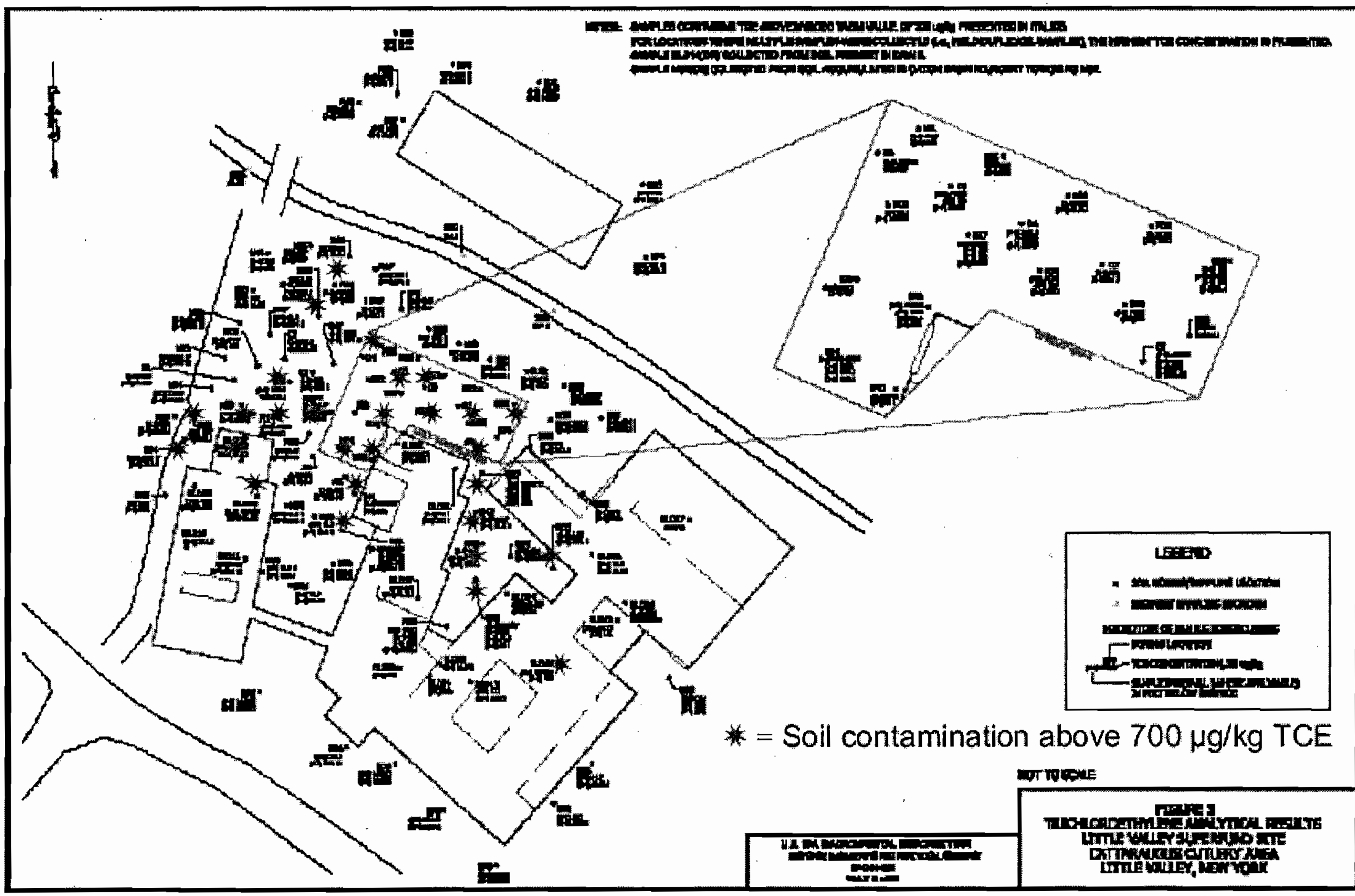
## SUMMARY OF FIGURES




U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A.# 0 - 165

FIGURE 1
SITE SKETCH
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

I:\GEO\165 LITTLE VALLEY\MAPS\FIGURE1.DWG


LEGEND
* = Soil contamination above 700 µg/kg TCE
NOT TO SCALE
FIGURE 3
TRICHLOROETHYLENE ANALYTICAL RESULTS
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

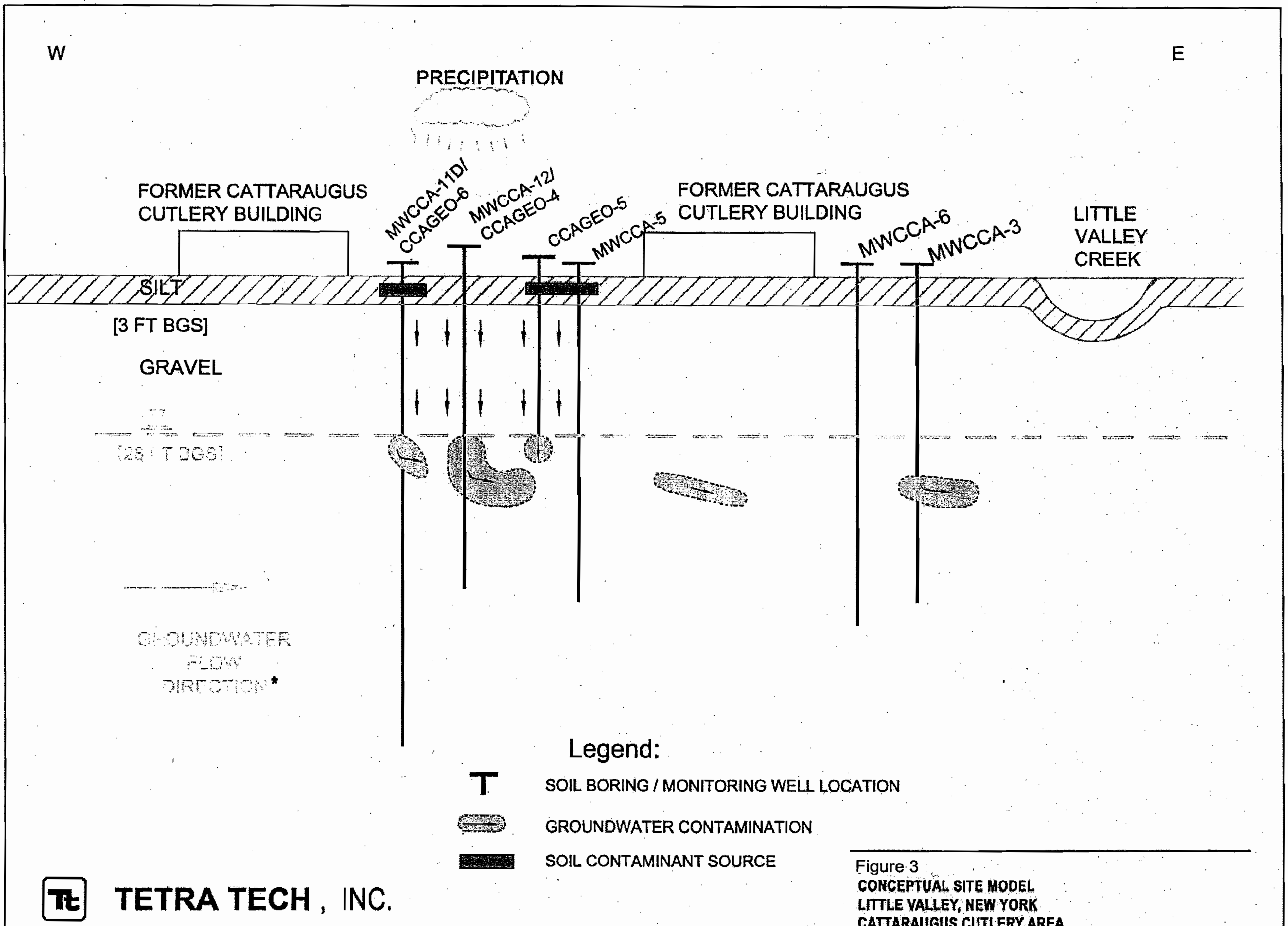



Figure 3
**CONCEPTUAL SITE MODEL**
**LITTLE VALLEY, NEW YORK**
**CATTARAUGUS CUTLERY AREA**

* An additional component of groundwater flow exists through Little Valley perpendicular to this view

# LITTLE VALLEY SUPERFUND SITE
# AMENDMENT TO THE RECORD OF DECISION

# APPENDIX II

# TABLES

# SUMMARY OF TABLES

# TABLE 1

SUMMARY OF DETECTED SOIL CONSTITUENTS FROM CATTARAUGUS CUTLERY AREA

| Location<br>Depth | SBCCA1<br>13'-15' | SBCCA1<br>28'-30' | SBCCA1<br>30'-32' | SBCCA1<br>35'-37' | SBCCA2<br>12'-14' | SBCCA2<br>14'-16' | SBCCA2<br>16'-18' | SBCCA2<br>18'-20' | SBCCA2<br>20'-22' | SBCCA3<br>0'-2' | SBCCA3<br>13'-15' | SBCCA3<br>18'-20' | SBCCA3<br>23'-25' | SBCCA3<br>28'-30' | SBCCA3<br>40'-42' | MWCCA-4<br>0"-2" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics (ug/kg)** | | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | -- |
| 1,2-Dichloroethene (total) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3 J | -- | -- | -- | -- | NA |
| Trichloroethene | -- | 3 J | 4 J | 11 J | 7 J | 10 J | -- | 7 J | 9 J | 18 | 70 | 28 | 45 | 23 | 2 J | -- |

# TABLE 1

SUMMARY OF DETECTED SOIL CONSTITUENTS FROM CATTARAUGUS CUTLERY AREA

| Location<br>Depth | MWCCA-4<br>4'-6' | MWCCA-4<br>10'-12' | MWCCA-4<br>14'-16' | MWCCA-4<br>20'-22' | MCBCCA-4<br>24'-26' | MWCCA-4<br>30'-32' | MWCCA-4<br>34'-36' | MCCCA-4<br>40'-42' | MWCCA-4<br>44'-46' | MWCCA-5<br>0"-2" | MWCCA-5<br>1.5'-2' | MWCCA-5<br>5'-7' | MWCCA-5<br>10'-12' | MWCCA-5<br>10'-12'<br>Duplicate | MWCCA-5<br>15'-17' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics (ug/kg)** | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Trichloroethene | -- | 36 | 27 | 32 | 24 | -- | -- | -- | -- | 1200 D | 72000 D | 41 | 91 | 140 | 120 |

# TABLE 1

## SUMMARY OF DETECTED SOIL CONSTITUENTS FROM CATTARAUGUS CUTLERY AREA

| Location<br>Depth | MWCCA-5<br>20'-22' | MWCCA-5<br>25'-27' | MWCCA-5<br>30'-32' | MWCCA-5<br>35'-37' | MWCCA-5<br>40'-42' | MWCCA-5<br>45'-47' | Drain Material (near CCA5) | MWCCA-6<br>0"-2" | MWCCA-6<br>5'-7' | MWCCA-6<br>10'-12' | MWCCA-6<br>15'-17' | MWCCA-6<br>20'-22' | MWCCA-6<br>25'-27' | MWCCA-6<br>30'-32' | MWCCA-6<br>30'-32' Duplicate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics (ug/kg)** | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5 J | -- | 5 J |
| 1,2-Dichloroethene (total) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Trichloroethene | 58 | 76 | 8 J | -- | -- | -- | 53 J | -- | -- | 13 J | 70 | 220 | 680 D | 93 | 220 |

# TABLE 1

## SUMMARY OF DETECTED SOIL CONSTITUENTS FROM CATTARAUGUS CUTLERY AREA

| Location<br>Depth | MWCCA-6<br>35'-37' | MWCCA-6<br>40'-42' | MWCCA-6<br>45'-47' | MWCCA-7<br>0"-2" | MWCCA-7<br>5'-7' | MWCCA-7<br>10'-12' | MWCCA-7<br>15'-17' | MWCCA-7<br>20'-22' | MWCCA-7<br>25'-27' | MWCCA-7<br>25'-27'<br>Duplicate | MWCCA-7<br>30'-32' | MWCCA-7<br>30'-32'<br>Duplicate | MWCCA-7<br>35'-37' | MWCCA-7<br>40'-42' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics (ug/kg)** | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | NA | -- | -- |
| 1,2-Dichloroethene (total) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Trichloroethene | -- | 5 J | -- | -- | 26 | 28 | 17 | 22 | 67 | 48 | 70 | NA | 4 JN | -- |

# TABLE 1

## SUMMARY OF DETECTED SOIL CONSTITUENTS FROM CATTARAUGUS CUTLERY AREA

| Location<br>Depth | MWCCA-7<br>45'-47' | CCAGEO-1<br>0'-1' | CCAGEO-1<br>6'-8' | CCAGEO-1<br>16'-18' | CCAGEO-1<br>26'-28' | CCAGEO-2<br>0'-1' | CCAGEO-2<br>6'-8' | CCAGEO-2<br>18'-20' | CCAGEO-2<br>25'-27' | CCAGEO-3<br>0'-1' | CCAGEO-3<br>8'-10' | CCAGEO-3<br>20'-22' | CCAGEO-3<br>25'-27' | CCAGEO-4<br>0'-1' | CCAGEO-4<br>8'-10' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics (ug/kg)** | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | -- | -- | -- | 3 J | 7 J | -- | -- | -- | 1 J | -- | -- | 0.7 J | 4 J | -- | 0.5 J |
| 1,2-Dichloroethene (total) | NA | | | | | | | | | | | | | | |
| Trichloroethene | -- | 3 J | 2 J | 86 | 110 | 14 | 1 J | 71 | 27 | 6 J | 9 J | 70 | 120 | 40 | 190 J |

# TABLE 1

SUMMARY OF DETECTED SOIL CONSTITUENTS FROM CATTARAUGUS CUTLERY AREA

| Location<br>Depth | CCAGEO-4<br>16'-18' | CCAGEO-4<br>22'-24' | CCAGEO-5<br>0'-1' | CCAGEO-5<br>0'-1'<br>Duplicate | CCAGEO-5<br>2'-4' | CCAGEO-5<br>6'-8' | CCAGEO-5<br>20'-22' | CCAGEO-6<br>0'-1' | CCAGEO-6<br>1'-2' | CCAGEO-6<br>12'-14' | CCAGEO-6<br>22'-24' |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics (ug/kg)** | | | | | | | | | | | |
| cis-1,2-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | 830 J | -- | -- |
| 1,2-Dichloroethene (total) | | | | | | | | | | | |
| Trichloroethene | 72 | 150 | 110 D | 96 J | 550 D | 84 | 87 D | 73 | 11000 D | 170 D | 26 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-BLD1(0-2) | 0-0165-0302 | 587 | J | 36.2 |
| LV-BLD1(2-4) | 0-0165-0303 | 9.01 | J | 30.9 |
| LV-BLD2(0-2) | 0-0165-0304 | 67.5 | J | 31.6 |
| LV-BLD2(0-2)D | 0-0165-0305 | 104 | J | 32.9 |
| LV-BLD2(2-4) | 0-0165-0306 | 25.7 | J | 30.5 |
| LV-BLDG3(3-4) | 0-0165-0637 | 62.5 | | 34.7 |
| LV-BLDG3(4-5) | 0-0165-0638 | 28.4 | U | 28.4 |
| LV-BLDG4(0-2) | 0-0165-0639 | 25.9 | J | 36.8 |
| LV-BLDG4(3-5) | 0-0165-0640 | 394 | | 37.3 |
| LV-BLDG5(1-3) | 0-0165-0641 | **1560** | E | 32.1 |
| LV-BLDG5(3-5) | 0-0165-0642 | 103 | | 35.7 |
| LV-BLDG6(1-3) | 0-0165-0643 | 55.2 | | 36.8 |
| LV-BLDG6(3-5) | 0-0165-0644 | 29.8 | U | 29.8 |
| LV-BLDG6(3-5)D | 0-0165-0645 | 30.1 | U | 30.1 |
| LV-BLDG7(0-2) | 0-0165-0646 | 40 | | 30.1 |
| LV-BLDG8(0-2) | 0-0165-0647 | **1730** | E | 29.1 |
| LV-BLDG8(2-4) | 0-0165-0648 | 13.2 | J | 32.9 |
| LV-BLDG9(0-2) | 0-0165-0649 | 40.9 | | 34.7 |
| LV-BLDG9(2-4) | 0-0165-0650 | 30.1 | U | 30.1 |
| LV-BLDG9(2-4)D | 0-0165-0651 | 30.1 | U | 30.1 |
| LV-BLDG10(1-3) | 0-0165-0652 | 28.1 | U | 28.1 |
| LV-BLDG11(0-2) | 0-0165-0653 | 220 | | 33.3 |
| LV-BLDG11(2-4) | 0-0165-0654 | 31.3 | U | 31.3 |
| LV-BLDG11(2-4)D | 0-0165-0655 | 30.9 | U | 30.9 |
| LV-BLDG12(0-2) | 0-0165-0656 | **1560** | E | 31.3 |
| LV-BLDG12(2-4) | 0-0165-0657 | 21.9 | J | 31.6 |
| LV-BLDG13(0-2) | 0-0165-0658 | 17.2 | J | 33.3 |
| LV-BLDG13(2-4) | 0-0165-0659 | 131 | | 33.3 |
| LV-BLDG14(DR) | 0-0165-0660 | 62.6 | | 31.6 |
| LV-BLDG15(0-2) | 0-0165-0661 | 177 | | 33.8 |
| LV-BLDG15(2-4) | 0-0165-0662 | 9.41 | J | 31.6 |
| LV-BLDG16(0-2) | 0-0165-0663 | 125 | | 29.75 |
| LV-BLDG17(0-2) | 0-0165-0664 | 144 | | 31.3 |
| LV-BLDG17(2-4) | 0-0165-0665 | 31.3 | U | 31.3 |
| LV-BLDG17(2-4)D | 0-0165-0666 | 31.3 | U | 31.3 |
| LV-BLDG18(2-4) | 0-0165-0667 | 32.5 | U | 32.5 |
| LV-A4(1-2) | 0-0165-0094 | 56.6 | | 6.1 |
| LV-A4(1-2)D | 0-0165-0095 | 388 | | 27.5 |
| LV-A4(3-4) | 0-0165-0096 | 30.5 | UJ | 30.5 |
| LV-A4(3-4)D | 0-0165-0097 | 19.9 | J | 31.3 |
| LV-A5(1-2) | 0-0165-0091 | 86.4 | | 5.95 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-A5(1-2)D | 0-0165-0092 | 766 | | 30.1 |
| LV-A5(3-4) | 0-0165-0093 | 33.5 | J | 31.3 |
| LV-B1(1-2) | 0-0165-0034 | 35.1 | | 5.88 |
| LV-B1(3-4) | 0-0165-0035 | 31.3 | U | 31.3 |
| LV-C2(1-2) | 0-0165-0036 | 76.2 | | 5.62 |
| LV-C2(2-3) | 0-0165-0037 | 17.6 | J | 33.3 |
| LV-C3(1-2) | 0-0165-0038 | 346 | | 29.4 |
| LV-C3(2-3) | 0-0165-0039 | 22.3 | J | 32.5 |
| LV-C8(1-2) | 0-0165-0076 | 134000 | | 5560 |
| LV-C8(3-4) | 0-0165-0077 | 42.5 | | 30.5 |
| LV-C8(4-5) | 0-0165-0078 | 13.2 | | 5.81 |
| LV-C8(6-7) | 0-0165-0079 | 31.9 | J | 29.4 |
| LV-D4(1-2) | 0-0165-0043 | 175000 | | 11200 |
| LV-D4(2-3) | 0-0165-0044 | 386 | | 30.5 |
| LV-D5(0-2) | 0-0165-0045 | 6480 | E | 112 |
| LV-D5(4-5) | 0-0165-0046 | 270 | | 30.1 |
| LV-D5(6-7) | 0-0165-0047 | 29.1 | UJ | 29.1 |
| LV-D6(3-4) | 0-0165-0048 | 1560 | E | 31.3 |
| LV-D6(4-5) | 0-0165-0049 | 105 | | 7.35 |
| LV-D6(6-7) | 0-0165-0050 | 28.7 | U | 28.7 |
| LV-D7(1-2) | 0-0165-0066 | 208 | | 6.67 |
| LV-D7(1-2)D | 0-0165-0067 | 586 | | 34.2 |
| LV-D7(3-4) | 0-0165-0068 | 129 | J | 30.5 |
| LV-N01(0-2) | 0-0165-0605 | 120 | | 32.1 |
| LV-N01(2-4) | 0-0165-0606 | 16.6 | J | 36.2 |
| LV-N02(0-2) | 0-0165-0210 | 38.5 | U | 38.5 |
| LV-N02(2-4) | 0-0166-0211 | 28.1 | U | 28.1 |
| LV-N03(0-2) | 0-0165-0212 | 30.9 | U | 30.9 |
| LV-N03(2-4) | 0-0165-0213 | 29.4 | U | 29.4 |
| LV-N03(2-4) D | 0-0165-0214 | 28.7 | U | 28.7 |
| LV-N04(0-2) | 0-0165-0215 | 316 | U | 316 |
| LV-N04(2-4) | 0-0165-0216 | 27.5 | U | 27.5 |
| LV-N05(0-2) | 0-0165-0217 | 914 | | 35.7 |
| LV-N05(2-4) | 0-0165-0218 | 22.6 | J | 30.5 |
| LV-N07(0-2) | 0-0165-0219 | 81.3 | | 37.3 |
| LV-N07(2-4) | 0-0165-0220 | 29.4 | U | 29.4 |
| LV-N08(0-2) | 0-0165-0032 | 1700 | | 59.5 |
| LV-N08(2-3) | 0-0165-0033 | 427 | | 36.8 |
| LV-N09(0-2) | 0-0165-0029 | 24100 | E | 294 |
| LV-N09(0-2)D | 0-0165-0030 | 20000 | E | 298 |
| LV-N09(3-4) | 0-0165-0031 | 11.4 | J | 29.4 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-N11(0-2) | 0-0165-0221 | 187 | | 28.1 |
| LV-N11(2-4) | 0-0165-0222 | **1830** | **E** | 32.9 |
| LV-N11(4-6) | 0-0165-0223 | 18.3 | J | 31.6 |
| LV-N11(6-8) | 0-0165-0224 | 28.1 | U | 28.1 |
| LV-N13(1-2) | 0-0165-0024 | **34400** | | 1140 |
| LV-N13(2-3) | 0-0165-0025 | 75.3 | | 32.5 |
| LV-N14(1-2) | 0-0165-0026 | **39000** | | 1200 |
| LV-N14(1-2)D | 0-0165-0027 | **33000** | | 1300 |
| LV-N14(3-4) | 0-0165-0028 | 32.1 | | 5.56 |
| LV-N17(1-2) | 0-0165-0040 | 58.7 | | 5.49 |
| LV-N17(1-2)D | 0-0165-0041 | 546 | J | 27.5 |
| LV-N17(2-3) | 0-0165-0042 | 29.4 | UJ | 29.4 |
| LV-N18(0-1) | 0-0165-0021 | 81.7 | | 5.75 |
| LV-N18(1-2) | 0-0165-0022 | **10600** | | 309 |
| LV-N18(3-4) | 0-0165-0023 | 166 | | 30.5 |
| LV-N19(0-2) | 0-0165-0019 | 146 | | 6.1 |
| LV-N19(3-4) | 0-0165-0020 | 64.5 | | 6.67 |
| LV-N21(0-2) | 0-0165-0059 | 142 | | 5.75 |
| LV-N21(0-2)D | 0-0165-0060 | **1100** | | 28.1 |
| LV-N21(2-4) | 0-0165-0061 | 56.9 | | 34.2 |
| LV-N22(0-2) | 0-0165-0007 | 611 | | 32.9 |
| LV-N22(2-4) | 0-0165-0008 | 27.8 | UJ | 27.8 |
| LV-N23(0-2) | 0-0165-0005 | 7.82 | J | 5.62 |
| LV-N23(2-4) | 0-0165-0006 | 487 | | 35.7 |
| LV-N24(0-2) | 0-0165-0013 | **64600** | **E** | 1180 |
| LV-N24(2-4) | 0-0165-0014 | **1490** | | 135 |
| LV-N24(6-7) | 0-0165-0015 | 10.1 | J | 28.7 |
| LV-N24(7-8) | 0-0165-0016 | 18.2 | J | 28.1 |
| LV-N26(2-3) | 0-0165-0062 | 62.8 | | 5.75 |
| LV-N26(3-4) | 0-0165-0063 | 22.7 | | 6.41 |
| LV-N27(2-3) | 0-0165-0009 | **25400** | | 167 |
| LV-N27(3-4) | 0-0165-0010 | 196 | | 5.75 |
| LV-N27(4-6) | 0-0165-0011 | 550 | | 29.4 |
| LV-N27(6-8) | 0-0165-0012 | 15.8 | J | 29.1 |
| LV-N28(0-2) | 0-165-0001 | **198000** | | 6020 |
| LV-N28(2-4) | 0-0165-0002 | **3590** | | 340 |
| LV-N28(4-6) | 0-0165-0003 | 56.4 | | 27.2 |
| LV-N28(6-8) | 0-0165-0004 | 57.8 | | 28.4 |
| LV-N29(1-2) | 0-0165-0064 | 52.1 | | 5.95 |
| LV-N29(3-4) | 0-0165-0065 | 32.5 | U | 32.5 |
| LV-N30(2-3) | 0-0165-0069 | **36700** | | 1220 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-N30(3-4) | 0-0165-0070 | 28.7 | | 5.81 |
| LV-N30(4-5) | 0-0165-0071 | 342 | J | 29.8 |
| LV-N32(1-2) | 0-0165-0072 | 108 | | 6.41 |
| LV-N32(3-4) | 0-0165-0073 | 128 | J | 31.3 |
| LV-N33(1-2) | 0-0165-0074 | 44600 | | 1190 |
| LV-N33(2-3) | 0-0165-0075 | 271 | | 35.2 |
| LV-N35(0-2) | 0-0165-0201 | 178 | | 33.3 |
| LV-N35(3-4) | 0-0165-0202 | 1690 | E | 34.7 |
| LV-N35(3-4)D | 0-0165-0203 | 3340 | E | 34.7 |
| LV-N35(4-5) | 0-0165-0204 | 505 | | 31.3 |
| LV-N35(7-8) | 0-0165-0205 | 29.4 | | 29.1 |
| LV-N36(1-2) | 0-0165-0080 | 65 | | 6.02 |
| LV-N36(2-3) | 0-0165-0081 | 29 | J | 32.9 |
| LV-N37(1-2) | 0-0165-0082 | 39000 | | 1190 |
| LV-N37(1-2)D | 0-0165-0083 | 54300 | E | 595 |
| LV-N37(3-4) | 0-0165-0084 | 280 | | 29.8 |
| LV-N37(4-5) | 0-0165-0085 | 477 | | 30.5 |
| LV-N37(6-7) | 0-0165-0086 | 46.6 | | 5.81 |
| LV-N38(0-2) | 0-0165-0206 | 73.2 | J | 29.4 |
| LV-N38(2-4) | 0-0165-0207 | 30.5 | U | 30.5 |
| LV-N39(0-2) | 0-0165-0208 | 649 | | 33.3 |
| LV-N39(2-4) | 0-0165-0209 | 29.1 | U | 29.1 |
| LV-N40(0-2) | 0-0165-0017 | 4040 | | 305 |
| LV-N40(2-4) | 0-0165-0018 | 33 | J | 33.3 |
| LV-N41(0-2) | 0-0165-0248 | 29200 | E | 34.7 |
| LV-N41(2-4) | 0-0165-0249 | 234 | | 31.6 |
| LV-N42(1-2) | 0-0165-0087 | 1150 | | 30.1 |
| LV-N42(3-4) | 0-0165-0088 | 31.3 | U | 31.3 |
| LV-N43(1-2) | 0-0165-0089 | 187 | | 5.88 |
| LV-N43(3-4) | 0-0165-0090 | 1190 | J | 31.3 |
| LV-N43(4-6) | 0-0165-0268 | 7.05 | J | 28.1 |
| LV-N44(0-2) | 0-0165-0607 | 103 | | 31.3 |
| LV-N44(0-2)D | 0-0165-0608 | 132 | | 30.5 |
| LV-N44(2-4) | 0-0165-0609 | 523 | | 32.1 |
| LV-N46(0-2) | 0-0165-0225 | 3070 | E | 28.1 |
| LV-N46(2-4) | 0-0165-0226 | 239 | | 32.5 |
| LV-N46(2-4)D | 0-0165-0227 | 308 | | 32.5 |
| LV-N47(0-2) | 0-0165-0228 | 435 | | 30.9 |
| LV-N47(2-4) | 0-0165-0229 | 20.3 | J | 31.3 |
| LV-N48(0-2) | 0-0165-0230 | 69.5 | | 29.4 |
| LV-N48(2-4) | 0-0165-0231 | 44.4 | | 32.1 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-N49(0-2) | 0-0165-0234 | 34.7 | U | 34.7 |
| LV-N49(2-4) | 0-0165-0235 | 36 | | 33.8 |
| LV-N50(0-2) | 0-0165-0238 | 25 | J | 34.2 |
| LV-N50(2-4) | 0-0165-0239 | 76.2 | | 33.3 |
| LV-N50(2-4)D | 0-0165-0240 | 87.5 | | 33.8 |
| LV-N51(0-2) | 0-0165-0243 | 25.5 | J | 33.8 |
| LV-N51(2-4) | 0-0165-0244 | 25.1 | J | 32.9 |
| LV-N51(2-4)D | 0-0165-0245 | 21.2 | J | 32.5 |
| LV-N52(0-2) | 0-0165-0614 | 59.3 | | 41 |
| LV-N52(0-2)D | 0-0165-0615 | 69.7 | | 41.7 |
| LV-N52(2-4) | 0-0165-0616 | 19 | J | 33.8 |
| LV-N52(2-4)D | 0-0165-0617 | 16.2 | J | 34.2 |
| LV-N54(0-2) | 0-0165-0255 | 31.3 | U | 31.3 |
| LV-N54(2-4) | 0-0165-0256 | 30.9 | U | 30.9 |
| LV-N55(0-2) | 0-0165-0250 | 37.5 | | 30.1 |
| LV-N55(2-4) | 0-0165-0251 | 31.6 | U | 31.6 |
| LV-N56(0-2) | 0-0165-0252 | **27200** | E | 35.2 |
| LV-N56(2-4) | 0-0165-0253 | 43.8 | | 32.5 |
| LV-N56(2-4)D | 0-0165-0254 | 56.2 | | 32.9 |
| LV-N56(4-6) | 0-0165-0631 | 153 | | 28.1 |
| LV-N56(8-10) | 0-0165-0632 | 28.4 | U | 28.4 |
| LV-N59(0-2) | 0-0165-0257 | 29.4 | U | 29.4 |
| LV-N59(2-4) | 0-0165-0258 | 30.5 | U | 30.5 |
| LV-N60(0-2) | 0-0165-0264 | 31.3 | U | 31.3 |
| LV-N60(2-4) | 0-0165-0265 | 28.6 | J | 30.5 |
| LV-N61(0-2) | 0-0165-0259 | 79.7 | | 32.1 |
| LV-N61(2-4) | 0-0165-0260 | 37.9 | U | 37.9 |
| LV-N63(0-2) | 0-0165-0270 | **1770** | E | 32.9 |
| LV-N63(2-4) | 0-0165-0271 | **786** | | 37.3 |
| LV-N63(4-6) | 0-0165-0272 | 26.7 | J | 28.4 |
| LV-N63(6-8) | 0-0165-0273 | 11.6 | J | 28.4 |
| LV-N63(6-8)D | 0-0165-0274 | 22 | J | 28.1 |
| LV-N64(0-2) | 0-0165-0275 | 321 | | 32.1 |
| LV-N64(2-4) | 0-0165-0276 | 18.6 | J | 30.5 |
| LV-N65(0-2) | 0-0165-0279 | **1130** | | 30.9 |
| LV-N65(2-4) | 0-0165-0280 | 22.3 | J | 29.4 |
| LV-N66(0-2) | 0-0165-0283 | 19 | J | 29.8 |
| LV-N66(2-4) | 0-0165-0284 | 37.6 | | 34.7 |
| LV-N67(0-2) | 0-0165-0285 | 319 | J | 29.1 |
| LV-N67(2-4) | 0-0165-0286 | 30.1 | U | 30.1 |
| LV-N68(0-2) | 0-0165-0287 | 151 | J | 29.1 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-N68(2-4) | 0-0165-0288 | 28.4 | U | 28.4 |
| LV-N68(2-4)D | 0-0165-0289 | 28.1 | U | 28.1 |
| LV-N69(0-2) | 0-0165-0290 | 8.94 | J | 27.8 |
| LV-N69(2-4) | 0-0165-0291 | 30.1 | U | 30.1 |
| LV-N70(0-2) | 0-0165-0292 | 26.9 | U | 26.9 |
| LV-N70(2-4) | 0-0165-0293 | 30.5 | U | 30.5 |
| LV-N71(0-2) | 0-0165-0294 | 30.5 | U | 30.5 |
| LV-N71(2-4) | 0-0165-0295 | 29.1 | U | 29.1 |
| LV-N72(0-2) | 0-0165-0296 | 29.8 | U | 29.8 |
| LV-N72(2-4) | 0-0165-0297 | 30.9 | U | 30.9 |
| LV-N73(0-2) | 0-0165-0298 | 84.3 | | 33.3 |
| LV-N73(2-4) | 0-0165-0299 | 22.2 | J | 32.9 |
| LV-N74(0-2) | 0-0165-0300 | 26.9 | U | 26.9 |
| LV-N74(2-4) | 0-0165-0301 | 49.9 | J | 32.1 |
| LV-N75(0-2) | 0-0165-0307 | 30.1 | UJ | 30.1 |
| LV-N75(0-2)D | 0-0165-0308 | 29.4 | UJ | 29.4 |
| LV-N75(2-4) | 0-0165-0309 | 27.5 | UJ | 27.5 |
| LV-N76(0-2) | 0-0165-0312 | 108 | J | 34.2 |
| LV-N76(2-4) | 0-0165-0313 | 29.8 | UJ | 29.8 |
| LV-N77(0-2) | 0-0165-0314 | 34.2 | UJ | 34.2 |
| LV-N77(2-4) | 0-0165-0315 | 31.6 | UJ | 31.6 |
| LV-N78(0-2) | 0-0165-0316 | 33.8 | U | 33.8 |
| LV-N78(2-4) | 0-0165-0317 | 32.1 | U | 32.1 |
| LV-N78(2-4)D | 0-0165-0318 | 31.6 | U | 31.6 |
| LV-N79(0-2) | 0-0165-0319 | 29.4 | U | 29.4 |
| LV-N79(2-4) | 0-0165-0320 | 32.5 | U | 32.5 |
| LV-N79(2-4)D | 0-0165-0321 | 33.3 | U | 33.3 |
| LV-N80(0-2) | 0-0165-0322 | 27 | J | 28.7 |
| LV-N80(2-4) | 0-0165-0323 | 29.4 | U | 29.4 |
| LV-N81(0-2) | 0-0165-0324 | 94.7 | | 30.5 |
| LV-N81(2-4) | 0-0165-0325 | 30.5 | U | 30.5 |
| LV-N82(CB) | 0-0165-0331 | 51 | U | 51 |
| LV-N82(0-2) | 0-0165-0326 | 59.6 | | 30.9 |
| LV-N82(2-4) | 0-0165-0327 | 38.8 | | 28.1 |
| LV-N82(2-4)D | 0-0165-0328 | 28.1 | U | 28.1 |
| LV-N83(0-2) | 0-0165-0610 | 387 | | 34.2 |
| LV-N83(2-4) | 0-0165-0611 | 65.7 | | 31.3 |
| LV-N84(0-2) | 0-0165-0601 | **1590** | E | 31.6 |
| LV-N84(2-4) | 0-0165-0602 | 17.3 | J | 34.2 |
| LV-N85(0-2) | 0-0165-0603 | 384 | | 32.1 |
| LV-N85(2-4) | 0-0165-0604 | 30.5 | U | 30.5 |

TABLE 2
ANALYTICAL RESULTS OF TRICHLOROETHYLENE IN SOIL
LITTLE VALLEY SUPERFUND SITE
CATTARAUGUS CUTLERY AREA
LITTLE VALLEY, NEW YORK

| SAMPLE LOCATION | REAC SAMPLE NO. | RESULT | QF | RL |
|---|---|---|---|---|
| LV-N86(0-2) | 0-0165-0612 | 94.5 | | 34.2 |
| LV-N86(2-4) | 0-0165-0613 | 11.2 | J | 32.9 |
| LV-N87(0-2) | 0-0165-0618 | 23.6 | J | 32.9 |
| LV-N87(2-4) | 0-0165-0619 | 33.8 | U | 33.8 |
| LV-N88(0-2) | 0-0165-0620 | 10.5 | J | 32.9 |
| LV-N88(2-4) | 0-0165-0621 | 36.9 | J | 38.5 |
| LV-N89(0-2) | 0-0165-0622 | 18.4 | J | 35.2 |
| LV-N89(2-4) | 0-0165-0623 | 8.71 | J | 32.9 |
| LV-N90(0-2) | 0-0165-0624 | 9.4 | J | 35.7 |
| LV-N90(2-4) | 0-0165-0625 | 29.9 | J | 33.3 |
| LV-N90(2-4)D | 0-0165-0626 | 132 | | 33.3 |
| LV-N90(4-6) | 0-0165-0627 | 68.1 | | 29.8 |
| LV-N90(8-10) | 0-0165-0628 | 28.4 | U | 28.4 |
| LV-N91(0-2) | 0-0165-0629 | 323 | | 29.1 |
| LV-N91(2-4) | 0-0165-0630 | 34.2 | | 33.8 |
| LV-SD1 | 0-0165-0501 | 30.1 | U | 30.1 |
| LV-SD2 | 0-0165-0502 | 32.1 | U | 32.1 |
| LV-SD2D | 0-0165-0503 | 35.7 | U | 35.7 |
| LV-SD3 | 0-0165-0504 | 42.4 | U | 42.4 |

Notes: All results in micrograms per kilogram (ug/kg).
Shaded results indicate locations where the concentration of TCE exceeded the NYSDEC TAGM value of 700 ug/kg.
Sample LV-BLDG14(DR) collected from soil in interior drain.
Sample LV-N82(CB) collected from soil in catch basin adjacent to boring N82.

NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
TCE = Trichloroethylene
QF = Data qualifying code
RL = Laboratory reporting limit
U = Compound not detected above RL
J = Compound is present above RL; value is estimated due to limitations identified during data validation review
UJ = Compound is not present above RL; value is estimated due to limitations identified during data validation review
E = Compound is present at a concentration above the highest linear standard; value is estimated

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | SITE | WA | LOE | TOTAL | |
| 4 | WA | NAME | TYPE | LIMIT | HOURS | DELTA |
| 5 | 205-RALR-04PN | Davis Park Road | LTRA | 80 | 77.60 | (2.4) |
| 6 | 211-RXBF-0863 | Burlington Northern Railroad | RA O | 80 | 0.00 | (80.0) |
| 7 | 213-RSBD-0916 | Aerojet Gencorp | RI/FS O | 80 | 271.20 | 191.2 |
| 8 | 214-RICO-A4S4 | Ward Transformer | RI/FS | 80 | 1,435.40 | 1,355.4 |
| 9 | 216-RARA-049E | ABC One-Hour Cleaners | RA | 80 | 69.90 | (10.1) |
| 10 | 217-ROBE-0280 | Solvent Savers | RD O | 80 | 49.70 | (30.3) |
| 11 | 218-ROBE-0916 | Aerojet | RD O | 80 | 259.20 | 179.2 |
| 12 | 220-ROBE-025V | Tri-Cities Barrel | RD O | 80 | 26.70 | (53.3) |
| 13 | 225RALR-049E | ABC One-Hour Cleaners Soil | LTRA | 80 | 111.80 | 31.8 |
| 14 | 240-RXBF-0916 | Aerojet GenCorps | RA O | 80 | 295.40 | 215.4 |
| 15 | 244-ROBE-02T3 | Liberty Industrial Finishing | RD O | 80 | 80.30 | 0.3 |

**TABLE 3**
**Non-Cancer Toxicity Data Summary**

**-Ingestion**

| Chemical of Concern | Chronic/ Subchronic | Oral RfD Value | Oral RfD Units | Adjusted RfD (for Dermal) | Adjusted Dermal RfD Units | Primary Target Organ | Uncer-tainty /Modify Factors | Sources of RfD: Target Organ | Dates of RfD: |
|---|---|---|---|---|---|---|---|---|---|
| Trichloroethylene | Chronic | 3E-04 | mg/kg-day | 3E-04 | mg/kg-day | Liver | - | NCEA | 2001 |

**-Inhalation**

| Chemical of Concern | Chronic/ Subchronic | Inhal. RfC | Inhal. RfC Units | Inhalation RfD | Inhalation RfD Units | Primary Target Organ | Uncer-tainty /Modify Factors | Sources of RfD: Target Organ | Dates of RfD: |
|---|---|---|---|---|---|---|---|---|---|
| Trichloroethylene | Chronic | 3.5E-02 | mg/cu. m | 1.0E-02 | mg/kg-day | Liver, CNS | - | NCEA | 2001 |

**Key**
NA: No information available
CNS: Central Nervous System Effects
NCEA: National Center for Environmental Assessment, U.S. EPA

**Summary of Toxicity Assessment**

This table provides non-carcinogenic risk information which is relevant to Trichloroethylene, the contaminant of concern in both groundwater and surface soil in the Cattaraugus Cutlery Area.

## TABLE 4
## CANCER TOXICITY DATA SUMMARY

**Ingestion, Dermal Contact**

| Chemical of Concern | Oral Cancer Slope Factor | Units | Adjusted Cancer Slope Factor (for Dermal) | Slope Factor Units | Weight of Evidence/ Cancer Guideline Description | Source | Date |
|---|---|---|---|---|---|---|---|
| Trichloroethylene | 4E-01 | $(mg/kg\text{-}day)^{-1}$ | 4E-01 | $(mg/kg\text{-}day)^{-1}$ | B2-C | NCEA | 2001 |

**Inhalation**

| Chemical of Concern | Oral Cancer Slope Factor | Units | Adjusted Cancer Slope Factor (for Dermal) | Slope Factor Units | Weight of Evidence/ Cancer Guideline Description | Source | Date |
|---|---|---|---|---|---|---|---|
| Trichloroethylene | 1.1E-01 | $(mg/cu.\ m)^{-1}$ | 4.0E-01 | $(mg/kg\text{-}day)^{-1}$ | B2-C | NCEA | 2001 |

**Key**

NCEA : National Center for Environmental Assessment
A - Human carcinogen
B1 - Probable Human Carcinogen - Indicates that limited human data are available
B2 - Probable Human Carcinogen - Indicates sufficient evidence in animals associated with the site and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

**Summary of Toxicity Assessment**

This table provides carcinogenic risk information which is relevant to Trichloroethylene, the contaminant of concern in both groundwater and surface soil in the Cattaraugus Cutlery Area.

## TABLE 5
## RISK CHARACTERIZATION SUMMARY - CARCINOGENS

**Scenario Timeframe:** Future
**Receptor Population:** Commercial Worker
**Receptor Age:** Adult

| Medium | Exposure Medium | Exposure Point | Chemical of Concern | Carcinogenic Risk | | | |
|---|---|---|---|---|---|---|---|
| | | | | Ingestion | Inhalation | Dermal | Exposure Routes Total |
| Soil | Soil | CCA Surface Soil | Trichloroethylene | 3.7E-06 | 6.1E-04 | - | 6.1E-04 |
| | | | | | | Total Risk = | 6.1E-04 |

**Summary of Risk Characterization for Carcinogens**

The cancer risk estimates presented represent both the cancer risk associated with exposure to the contaminant of concern, Trichlorotheylene, as well as the total cancer risk from exposure to all site-related contaminants detected. As shown in the table, the most significant contribution to the total cancer risk is from TCE; no other contaminant contributed significantly to the total cancer risk.

**TABLE 6**
**COMPARISON CRITERIA FOR DETECTED CONSTITUENTS IN SOIL**

| BASIS FOR CRITERIA | HUMAN HEALTH | | | ECOLOGICAL | | STATE | |
|---|---|---|---|---|---|---|---|
| Constituents | EPA Generic Soil Screening Levels (Direct Ingestion) | EPA Generic Soil Screening Levels (Inhalation) | EPA Generic Migration to Groundwater (20 DAF) | EPA Ecological Soil Screening Levels | PRGs for Ecological Endpoints | NYSDEC Recommended Soil Clean-up Objectives | CLEAN-UP CRITERIA USED |
| **Volatile Organics (ug/kg)** | | | | | | | |
| 1,2-Dichloroethene (total)(2) | 780,000 | NC | 400 | NC | NC | 300 | 300 |
| cis-1,2,Dichloroethene | 780,000 | NC | 400 | NC | NC | NC | 400 |
| Trichloroethene | 2,000 | 70 | 60 | NC | NC | 700 | 700 |

**NOTES:**

1) As stated in the NYSDEC guidance document, if the provided clean-up criterion is below the background concentration, the background level shall be used as the clean-up objective value.
2) Abbreviations: DAF indicates Dilution Attenuation Factor; NC indicates no criteria available; SB indicates site background value; NA indicates not applicable; ND indicates not detected.

**REFERENCES:**


EPA Soil Screening Levels from Exhibit A-1, Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

EPA Ecological Soil Screening Levels from Ecological Soil Screening Level Guidance, Draft. 10 July 2000; and Ecological Soil Screening Levels for Antimony, Barium, Beryllium, Cadmium, Cobalt, Lead, and Dieldrin, Interim Final. November 2003.

NYSDEC Levels from Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, 24 January 1994; and Internal Memorandum: Determination of Soil Cleanup Levels, 20 December 2000.

PRGs for Ecological Endpoints from Efroymson, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. Preliminary Remediation Goals for Ecological Endpoints. ES/ER/TM-162/R2. Oak Ridge National Laboratory, U.S. Department of Energy. August 1997.

# LITTLE VALLEY SUPERFUND SITE
# AMENDMENT TO THE RECORD OF DECISION

## APPENDIX III

## ADMINISTRATIVE RECORD INDEX

**LITTLE VALLEY SUPERFUND SITE**
**RECORD OF DECISION**

## APPENDIX III

## ADMINISTRATIVE RECORD INDEX

Data are summarized in several of the documents that comprise the Administrative Record. The actual data, quality assurance/quality control, chain of custody, etc. are compiled at various EPA offices and can be made available at the record repository upon request. Bibliographies in the documents and in the references cited in this Record of Decision Amendment are incorporated by reference in the Administrative Record. Many of the documents referenced in the bibliographies and cited in this Record of Decision Amendment are publically available and readily accessible. Most of the referenced guidance documents are available on the EPA website (www.epa.gov). If copies of the documents cannot be located, contact the EPA Project Manager John DiMartino at (212) 637-4270. Copies of the Administrative Record documents that are not available in the Administrative Record repository file at the Town of Little Valley Municipal Building and the Salamanca Public Library can be made available at this location upon request.

LITTLE VALLEY SITE
OPERABLE UNIT TWO
ADMINISTRATIVE RECORD UPDATE #8
INDEX OF DOCUMENTS

**5.0 RECORD OF DECISION**

**5.2 Amendment to the Record of Decision**

P. 500262 - 500451 Memorandum to Mr. Jeff Catanzarita, U.S. EPA/ERT Work Assignment Manager, from Mr. Christopher Sklaney, REAC Task Leader, Lockheed Martin Technology Services, re: Subsurface Soil Sampling, Little Valley Superfund Site (Cattaraugus Cutlery Area), Little Valley, New York, Work Assignment 0-165 - Trip Report, June 2, 2006.

P. 500452 - 500495 Memorandum to Mr. Jeff Catanzarita, U.S. EPA/ERT Work Assignment Manager, from Mr. Christopher Sklaney, REAC Task Leader, Lockheed Martin Technology Services, re: Subsurface Soil Sampling, Little Valley Superfund Site (Former Cattaraugus Department of Public Works Parcel), Little Valley, New York, Work Assignment 0-165 - Trip Report, June 9, 2006.

P. 500496 - 500559 Report: Focused Feasibility Study Report, Presentation of Air Permeability Testing Results and Evaluation of Soil Remedial Alternatives Related to the Cattaraugus Cutlery Area, Little Valley Superfund Site, Cattaraugus County, New York, prepared by U.S. EPA, July 2006.

P. 500560 - 500570 Superfund Proposed Plan for Remedy Modification, Little Valley Superfund Site, Cattaraugus County, New York, prepared by U.S. EPA, Region 2, August 2006.

# LITTLE VALLEY SUPERFUND SITE
# AMENDMENT TO THE RECORD OF DECISION

## APPENDIX IV

## STATE LETTER OF CONCURRENCE

**New York State Department of Environmental Conservation**
**Division of Environmental Remediation, 12th Floor**
625 Broadway, Albany, New York 12233-7011
**Phone:** (518) 402-9706 • **FAX:** (518) 402-9020
**Website:** www.dec.state.ny.us

Denise M. Sheehan
Commissioner

SEP 28 2006

Mr. George Pavlou
Director
Emergency and Remedial Response Division
U. S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Re: ROD Amendment – September 2006
Little Valley Site No. 905026
Little Valley, Cattaraugus County

Dear Mr. Pavlou:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed the September 2006 Amendment to the Record of Decision (ROD) for the Little Valley site. The ROD is acceptable to NYSDEC and we concur with the remedy described in the ROD.

If you have any questions or concerns, please contact Martin Doster at (716) 851-7220.

Sincerely,

Dale A. Desnoyers
Director
Division of Environmental Remediation

c: C. O'Connor, NYSDOH
R. Fedigan, NYSDOH
E. Wohlers, CCHD

# LITTLE VALLEY SUPERFUND SITE
# AMENDMENT TO THE RECORD OF DECISION

## APPENDIX V

## RESPONSIVENESS SUMMARY

**RESPONSIVENESS SUMMARY**
**FOR THE**
**AMENDMENT TO THE RECORD OF DECISION**
**LITTLE VALLEY SUPERFUND SITE**
**LITTLE VALLEY, CATTARAUGUS COUNTY, NEW YORK**

## INTRODUCTION

This Responsiveness Summary provides a summary of citizens' comments and concerns received during the public comment period related to the *Superfund Proposed Plan for Remedy Modification* (Proposed Plan) for the contaminated soils located on the former site of the Cattaraugus Cutlery Company (hereinafter, referred to as the "Cattaraugus Cutlery Area"), a part of the Little Valley Superfund Site (Site). This document also provides the U.S. Environmental Protection Agency's (EPA's) responses to those comments and concerns. All comments summarized in this document have been considered in EPA's final decision in the selection of a modified soil remedy for the Cattaraugus Cutlery Area.

## SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The Proposed Plan describes the remedial alternatives considered for the larger volume of contaminated soil at the Site and identifies the preferred modified remedy with the rationale for this preference. The extent of the soil contamination at the source area is summarized in *Subsurface Soil Sampling Little Valley Superfund Site (Cattaraugus Cutlery Area), Little Valley, New York, Work Assignment 0-165 - Trip Report*, Lockheed Martin, June 2, 2006 (Soil Sampling Report) and the alternatives summarized in the Proposed Plan are described in a June 2006 *Focused Feasibility Study* (2006 FFS) report.

These documents were made available to the public in the information repositories maintained at the EPA Docket Room in the Region 2 offices at 290 Broadway in Manhattan, at the Town of Little Valley Municipal Building, 201 3rd Street, Little Valley, New York and at the Salamanca Public Library, 155 Wildwood Avenue, Salamanca, New York.

A notice of the commencement of the public comment period, the public meeting date, the preferred modified soil remedy, contact information, and the availability of the above-referenced documents was published in the *Olean Times Herald* on August 6, 2006. The public comment period ran from August 6, 2006 to September 5, 2006. EPA held a public meeting on August 15, 2006 at 6:30 P.M. at the Little Valley Elementary Campus, 207 Rock City Street, Little Valley, New York, to present the findings of the RI/FS and to answer questions from the public about the Site and the remedial alternatives under consideration. Approximately 12 people, including residents, local business people, and state and local government officials, attended the public meeting. On the basis of comments received during the public comment period, EPA concluded that the public generally supports the selected modified soil remedy.

EPA's 1984 Indian Policy recognizes the government-to-government relationship between EPA and the Nations, as one sovereign to another. EPA has committed to communicating with Nation governments before making decisions on environmental matters affecting Nation governments and/or Nation natural resources. To this end, in August 2006, EPA discussed the preferred modified soil remedy and the basis for this preference with a Seneca Nation Environmental Protection Department representative. No concerns related to the preferred modified soil remedy were expressed by the Nation's representative at that time.

## SUMMARY OF COMMENTS AND RESPONSES

A summary of the comments provided at the public meeting, as well as EPA's responses to them, are provided below. No written comments were received. The comments and responses have been organized into the following topics:

- Extent of Soil Contamination
- Excavation Alternative
- Potentially Responsible Parties
- Cattaraugus Cutlery Area
- Bush Industries Area
- Groundwater Remediation
- Vapor Intrusion and Mitigation

### Extent of Soil Contamination

**Comment #1:** A commentor asked about the depth of soil contamination in the Cattaraugus Cutlery Area.

**Response #1:** The depth-to-groundwater in the Cattaraugus Cutlery Area is approximately five feet below the ground surface. The highest levels of contamination is present in the soils above the water table. Lower concentrations of contamination were found in the water table to a maximum depth of 32 feet below ground surface.

### Excavation Alternative

**Comment #2:** A commentor asked how many truckloads of soil would need to be removed under the excavation and off-Site disposal alternative (Alternative S-3).

**Response #2:** Approximately 3,000 cubic yards of trichloroethylene (TCE)-contaminated soil needs to be addressed. To transport this volume of contaminated soil off-Site would require approximately 190 truckloads.

**Comment #3:** A commentor asked where the contaminated soil would likely be transported to under the excavation and off-Site disposal alternative.

**Response #3:** Since the distance traveled influences the cost of this remedy, the closest facility that can accept hazardous wastes would likely be selected. The closest facility is located in Model City, New York.

**Comment #4:** A commentor expressed concern about the generation of dust during soil excavation work at the Site under the excavation and off-Site disposal alternative.

**Response #4:** During soil excavation activities, measures would be taken, as necessary, to minimize the generation of dust (such as wetting the soil). Continuous air and dust monitoring would be performed in and around the excavation area, as well as at the perimeter of the Site. If elevated levels were detected, the operation would be shut down until the problem was rectified.

**Comment #5:** A commentor asked whether there were additional concerns associated with excavating the contaminated soil from the Cattaraugus Cutlery Area.

**Response #5:** While soil excavation is technically feasible, in addition to the need to monitor for TCE and dust during the excavation, especially since there are nearby homes, there are a number of Site-specific complications related to this remedial approach. There is only one narrow, steep driveway into the back of the property where the contaminated soils are located. This driveway is adjacent to a deteriorated portion of a 100-year-old, brick building located on the Cattaraugus Cutlery Area. A residential property abuts the other side of the driveway. Since the building is very close to the driveway, trucks entering and leaving the area would have to proceed slowly and carefully to minimize vibration and to ensure that the structure is not damaged. As the driveway is the only means of access and there is very little turnaround space, moving dump trucks in and out of the Site would present logistical challenges. Excavation and backfilling would need to be performed incrementally because there is insufficient room to create a significant excavation stockpile. Also, post-excavation sampling and rapid turnaround analyses would need to be integrated into the process. In addition, since contaminated soil is located adjacent to the buildings, special precautions would need to be taken so as to prevent damaging them or causing them to collapse. There is also contaminated soil underneath the floor of one building that would require excavation, potentially affecting the integrity of the building. Since the excavation effort would likely take several months to complete, the commercial use of the buildings would be temporarily curtailed.

### Potentially Responsible Parties

**Comment #6:** A commentor asked whether any potentially responsible parties have been identified for the Cattaraugus Cutlery Area.

**Response #6:** EPA is continuing its investigation for potentially responsible parties for the Cattaraugus Cutlery Area and other areas of the Site; none have been identified.

### Cattaraugus Cutlery Area

**Comment #7:** A commentor asked how the soil vapor extraction system works. The commentor also asked how the groundwater at the Cattaraugus Cutlery Area will be addressed.

**Response #7:** Soil vapor extraction involves installing a series of wells into the contaminated soil area. A blower is used to draw air through the wells to volatilize the TCE contaminating the soils above the water table. The vapors are then extracted and treated by granular activated carbon and/or another appropriate technology before being vented to the atmosphere. Based upon the results of a pilot-scale treatability study, it is estimated that 32 ISVE wells will be required to treat the soil at the Cattaraugus Cutlery Area.

The remedy selected for the groundwater in 2005 at the Cattaraugus Cutlery Area is monitored natural attenuation (MNA). Natural attenuation involves a variety of *in-situ* processes, such as dispersion, dilution, and degradation, which act to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in groundwater. Samples will be collected on a routine basis to monitor the levels of contamination and the natural attenuation process. The removal of the source of the groundwater contamination (*i.e.*, the contaminated soil) will expedite the cleanup of the groundwater in this area.

ISVE will likely enhance the natural attenuation process in the groundwater underlying the Cattaraugus Cutlery Area by causing TCE to volatilize from the water table.

### Bush Industries Area

**Comment #8:** A commentor asked about the status of the Bush Industries Area.

**Response #8:** As discussed in the RI/FS Report and the 2005 ROD, TCE was detected in both the soil and groundwater at the Bush Industries Area. While EPA's investigations led it to conclude that the Bush facility may be a current localized source of groundwater contamination, the TCE levels appear to be decreasing due to natural attenuation. As a result, in 2005, EPA selected MNA for the groundwater underlying the Bush Industries Area. EPA is currently in discussions with Bush Industries for it to monitor the groundwater at the Bush facility.

## Groundwater Remediation

**Comment #9:** A commentor asked how long it will take for the Site-wide groundwater to reach state and federal groundwater standards.

**Response #9:** EPA estimates that it will take ten years for the groundwater to achieve state and federal groundwater standards.

## Vapor Intrusion and Mitigation

**Comment #10:** A commentor asked whether the vapor mitigation systems are noisy.

**Response #10**: A vapor mitigation system draws vapors out of the soil from below the foundation and vents them outside. Only the blower component of the mitigation system (the blower is typically located inside the piping outside the home) produces noise. The noise is similar to a standard household fan, which is minimal.

**Comment #11:** A commentor asked if state and federal groundwater standards are reached, could any residential vapor intrusion mitigation systems that are installed be removed at that time.

**Response #11:** As the concentration of contaminants in the groundwater diminish, the vapors below the residential foundations will also decrease. Therefore, at some point in the future, the mitigation systems would no longer be needed.

**Comment #12:** A commentor asked about a homeowner's liability relative to vapor intrusion and selling one's home.

**Response #12:** EPA cannot provide advice concerning private legal rights and obligations. Nevertheless, a vapor mitigation system that is properly installed and maintained prevents vapors from accumulating in the home.

**Comment #13:** A commentor asked about the cost of installing a vapor intrusion mitigation system.

**Response #13:** Vapor intrusion mitigation systems typically cost several thousand dollars to install. If a system needs to be installed in a home affected by the Site, it would be installed by EPA at no cost to the homeowner. The only cost to the homeowner would be the electricity to run the blower, which uses minimal electricity. In addition, the vapor intrusion mitigation system would not affect heating or cooling efficiency.

# RESPONSIVENESS SUMMARY

## APPENDIX V-a

## AUGUST 2006 PROPOSED PLAN

# Little Valley Superfund Site

## Cattaraugus County, New York

EPA

Region 2

August 2006

### PURPOSE OF PROPOSED PLAN FOR REMEDY MODIFICATION

The remedy selected in August 2005 for the Little Valley Superfund site (Site) included excavation and off-site treatment/disposal of contaminated soils located at a source area and monitored natural attenuation for the site-wide groundwater. In accordance with the selected remedy for the soil, the United States Environmental Protection Agency (EPA) collected pre-excavation soil samples to define the boundaries of the contamination at the source area. The results of this sampling effort indicated that the volume of contaminated soil is substantially greater than originally estimated. As a result, the remedial alternatives for the soil component of the remedy were reevaluated.

In accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9617(a), and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan, if after the selection of a remedy in a Record of Decision (ROD), a component is fundamentally altered, EPA must propose an amendment to the ROD. EPA's proposed changes to the ROD must be made available for public comment in a Proposed Plan.

This Superfund Proposed Plan for Remedy Modification (Proposed Plan) describes the remedial alternatives considered for the larger volume of contaminated soil at the Site and identifies the preferred modified remedy with the rationale for this preference. This Proposed Plan was developed by EPA in consultation with the New York State Department of Environmental Conservation (NYSDEC). The extent of the soil contamination at the source area is summarized in *Subsurface Soil Sampling Little Valley Superfund Site (Cattaraugus Cutlery Area), Little Valley, New York, Work Assignment 0-165 - Trip Report*, Lockheed Martin, June 2, 2006 (Soil Sampling Report) and the alternatives summarized in this Proposed Plan are described in a June 2006 Focused Feasibility Study (2006 FFS) report. EPA and NYSDEC encourage the public to review the 2006 FFS report to gain a more comprehensive understanding of the Site.

This Proposed Plan is being provided to inform the public of EPA and NYSDEC's preferred modified soil remedy and to solicit public comments pertaining to the remedial alternatives evaluated. EPA's preferred modified remedy consists of in-situ soil vapor extraction (ISVE)[1] at the source area. Should the findings of a pilot-scale treatability study indicate that ISVE would not be sufficiently effective in addressing the contaminated soils, then those soils would be excavated and treated/disposed off-Site. The groundwater remedy and the other components of the 2005 remedy decision are not being modified.

The remedy described in this Proposed Plan is the preferred modified soil remedy for the Site. Changes to the preferred modified soil remedy, or a change from the preferred modified remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments. EPA is soliciting public comment on all of the alternatives considered in this Proposed Plan and in the detailed analysis section of the 2006 FFS report because EPA may select a remedy other than the preferred modified remedy.

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1 ISVE involves drawing air through a series of wells to volatilize solvents from soils. The extracted vapors are treated in an activated carbon unit and monitored before being vented to the atmosphere.

**MARK YOUR CALENDAR**

***August 6, 2006 - September 5, 2006:*** Public comment period on the Superfund Proposed Plan for Remedy Modification.

***August 15, 2006 at 6:30 P.M.:*** Public meeting at the Little Valley Elementary Campus, 207 Rock City Street, Little Valley, NY.

### COMMUNITY ROLE IN SELECTION PROCESS

EPA and NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the Soil Sampling Report, 2006 FFS report, and this Proposed Plan have been made available to the public for a public comment period which begins on August 6, 2006 and concludes on September 5, 2006.

A public meeting will be held during the public comment period at the Little Valley Elementary Campus on August 15, 2006 at 6:30 P.M. to discuss the proposed changes to the soil remedy and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of an amended ROD.

### INFORMATION REPOSITORIES

Copies of the Superfund Proposed Plan for Remedy Modification and supporting documentation are available at the following information repositories:

**Town of Little Valley Municipal Building**
**201 3rd Street**
**Little Valley, NY 14755**

*Hours*: Monday - Friday, 8:15 A.M. - 4:00 P.M.

**Salamanca Public Library**
**155 Wildwood Avenue**
**Salamanca, New York 14779**

*Hours:* Monday & Friday, 9:00 AM - 5:30 PM
Tuesday & Thursday, 9:00 AM - 9:00 PM
Wednesday & Saturday, 9:00 AM - 1:00 PM

**USEPA-Region II**
**Superfund Records Center**
**290 Broadway, 18th Floor**
**New York, New York 10007-1866**
**(212) 637-4308**

*Hours*: Monday - Friday, 9:00 A.M. - 5:00 P.M.

Written comments on this Superfund Proposed Plan for Remedy Modification should be addressed to:

John DiMartino
Remedial Project Manager
Central New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Telefax: (212) 637-4270
Internet: dimartino.john@epa.gov

## *SCOPE AND ROLE OF ACTION*

In order to remediate Superfund sites, work is often divided into operable units. The objective of the first operable unit was to prevent exposure of area residents to contaminated drinking water. The actions described in the August 2005 ROD and this Proposed Plan represent the second and final operable unit for the Site. The primary objectives of the second operable unit are to remediate an identified source of contamination at the Site, reduce and minimize the downward migration of contaminants to the groundwater, restore groundwater quality, and minimize any potential future health and environmental impacts.

## *SITE BACKGROUND*

### Site Description

Since 1982, chemical analyses of groundwater samples collected from monitoring and private wells throughout the Site have indicated the presence of trichloroethylene (TCE), a common industrial cleaning solvent. The TCE plume, which comprises the Site, extends approximately eight miles from the Village of Little Valley to the northern edge of the City of Salamanca, which is part of the Allegheny Indian Reservation. The Site is located in a rural, agricultural area, with a number of small, active and inactive industries and more than 200 residential properties situated in the study area along Route 353, the main transportation route between Little Valley and Salamanca. Private water supply wells constitute the only source of drinking water for these properties.

The nearest surface water bodies associated with the Site are Little Valley Creek and its tributaries. Little Valley Creek, a perennial stream with typical stream flow ranging from 20 to 80 cubic feet per second during normal precipitation periods, flows southeast, then south through the Site for approximately eight miles before joining the Allegheny River. The Site ranges in width from 1,000 to 2,500 feet and in elevation from nearly 1,600 feet above mean sea level (msl) in the Village of Little Valley to less than 1,400 feet msl near the Salamanca city line. The Site is bordered by steeply sloping wooded hillsides which attain slopes of up to 25 percent and elevations of 2,200 feet above msl.

### Site History

In 1982, Cattaraugus County Health Department (CCHD) and NYSDEC, while investigating TCE contamination at the Luminite Products Corporation (Luminite), a small lithographic device manufacturing facility located along Route 353, detected TCE in nearby private wells.

In 1989, NYSDEC sampled the plant production well, process wastewater, and septic tank on the Luminite property, as well as nearby New York State Department of Transportation monitoring wells. The analytical results indicated that groundwater contamination was present both upgradient and downgradient of the Luminite facility, with the plume extending from the Village of Little Valley to the northern edge of the City of Salamanca.

Based on these findings, the CCHD issued health advisories to exposed residents and efforts were initiated to determine sources of TCE contamination upgradient of Luminite.

In 1992, NYSDEC installed a number of monitoring wells in the area, and conducted source reconnaissances at the other active and inactive industries and waste disposal areas to investigate possible sources of the contamination. No sources were found.

In June 1996, EPA listed the Site on the National Priorities List, and prepared an FFS to develop, screen, and evaluate alternatives for an alternate water supply system for the affected and potentially affected residences to address the most immediate concerns at the Site.

Based upon the findings of the FFS, on September 30, 1996 EPA issued an interim ROD, providing for the installation of air stripper treatment units on all of the affected and potentially affected private wells to ensure that drinking water standards were met. Air strippers were selected because, based upon the maximum TCE concentrations that were present in the private wells at that time, they would be significantly less costly to maintain than granular activated carbon treatment units.

In September 1996, EPA also commenced an RI/FS to identify sources of the groundwater contamination and to evaluate remedial alternatives.

Installation of the air stripper treatment units was completed in October 1997. Subsequently, granular activated carbon units were installed in addition to the air strippers as polishing units to insure the consistent removal of contaminants.

The ROD also called for an evaluation of the efficacy of the point-of-use treatment systems within five years of their installation, and a determination as to whether or not a more permanent system (such as a water line) would be required. In an April 2002 Explanation of Significant Differences, EPA determined that it would be more appropriate to evaluate the need for a permanent alternative water supply during the selection of the final groundwater/source area remedy for the Site. EPA also determined that because of the decreasing levels of contaminant concentrations in the private wells, granular activated carbon units alone would effectively remove the contamination. Subsequently, the air stripper treatment units were removed from each well and replaced with a second granular activated carbon unit.

NYSDEC assumed responsibility for the operation and maintenance of the point-of-use treatment units and annual sampling of private wells in October 2002. Routine maintenance is conducted on the treatment units on a quarterly basis, and repairs are performed as needed. As part of the ongoing maintenance of the treatment units, NYSDEC evaluates the effectiveness of the treatment units by sampling the groundwater passing through the individual treatment systems on an annual basis.

Based upon the results of a June 2005 RI/FS and a July 6, 2005 public meeting, on August 19, 2005, a ROD was signed which called for the excavation and off-Site treatment/disposal of contaminated soils located on the former site of the Cattaraugus Cutlery Company (hereinafter, referred to as the "Cattaraugus Cutlery Area")[2] and monitored natural attenuation for the Site-wide groundwater. The ROD also called for an evaluation of the potential for soil vapor intrusion into structures within the study area and mitigation, if necessary.

As noted above, the 1996 ROD provided for the installation and maintenance of point-of-use treatment systems for private wells affected by Site contamination as an interim remedy. The 2005 ROD made the interim alternate water supply remedy the final alternate water supply remedy.

In September and November 2005, in accordance with the selected remedy for the soil, EPA undertook pre-excavation soil sampling to define the boundaries of the soil contamination at the Cattaraugus Cutlery Area. The results from this sampling effort (see Soil Sampling Report), indicated that the volume of contaminated soil is substantially greater than originally estimated in the ROD (it has increased from approximately 220 cubic yards to approximately 3,000 cubic yards).

Since the increased volume of contaminated soil at the Cattaraugus Cutlery Area might impact the feasibility, effectiveness, and overall cost effectiveness of the selected remedy, the remedial alternatives for the soil component of the remedy selected in the ROD were reevaluated in the 2006 FFS report.

Concerns about the possibility of vapors from the groundwater getting into the air inside homes prompted EPA in the Fall of 2005 to test under the foundations of approximately 20 homes. Based upon these results, EPA decided to collect samples from beneath the foundations of an estimated 100 additional homes. This effort is currently underway.

***Cattaraugus Cutlery Area Geology/Hydrogeology***

Soil borings in the Cattaraugus Cutlery Area indicate a relatively thin silt layer over a portion of the property

2 The Cattaraugus Cutlery Area consists of several parcels that were used to manufacture cutlery. The W.W. Wilson Cutlery Company, which was formed in the 1890s, operated on the parcels until around 1900, when the company was sold to the Cattaraugus Cutlery Company. The Cattaraugus Cutlery Company manufactured cutlery at this location until the 1950s. Subsequent owners or operators have included Knowles-Fischer (auto parts stamping) and AVM, which owned the property between 1970 and 1977. King Windows, which manufactured stamped metal window parts, is believed to have operated on portions of the property between 1977 and 1993. At present, the property is privately owned, and has been used for storage and a variety of commercial activities since 1993. See Figure 1 for a Cattaraugus Cutlery Area site plan.

underlain by gravel and sand with varying amounts of fines, which directly overlies till or bedrock.

The depth-to-groundwater in the in the Cattaraugus Cutlery Area ranges from approximately five to 10 feet below ground surface (bgs).

### *CATTARAUGUS CUTLERY AREA SOIL SAMPLING RESULTS*

Based upon the soil data collected during the RI, the Cattaraugus Cutlery Area was determined to be a current localized source of groundwater contamination at the Site. The soil contamination was further delineated by pre-excavation soil sampling conducted in Fall 2005.

Based upon the RI and pre-excavation soil sampling results, over 40 samples contained TCE concentrations exceeding the New York State Technical and Administrative Guidance

**WHAT IS RISK AND HOW IS IT CALCULATED?**

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

*Hazard Identification:* In this step, the chemicals of concern at the site are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

*Exposure Assessment:* In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil. Factors relating to the exposure assessment include, but are not limited to, the concentrations that people might be exposed to and the potential frequency and duration of exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

*Toxicity Assessment:* In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other non-cancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health effects.

*Risk Characterization:* This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a $10^{-4}$ cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of $10^{-4}$ to $10^{-6}$ (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk) with $10^{-6}$ being the point of departure. For non-cancer health effects, a "hazard index" (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding reference doses. The key concept for a non-cancer HI is that a "threshold level" (measured as an HI of less than 1) exists below which non-cancer health effects are not expected to occur.

Memorandum No. 94-HWR-4046 (TAGM)[3]; the maximum TCE concentration is 198,000 µg/kg (at 0 to 2 inches bgs). Based upon these sample results, it is estimated that 3,000 cubic yards of soil are contaminated with TCE levels exceeding the TAGM objective.

### *CATTARAUGUS CUTLERY AREA HUMAN HEALTH AND ECOLOGICAL RISKS*

The Cattaraugus Cutlery Area is currently zoned for industrial use and has been used for this, as well as commercial purposes, since the 1890s. It is anticipated by EPA that the property will continue to be used for commercial purposes.

Based upon the results of the RI, a baseline human health risk assessment was conducted to estimate the risks associated with current and future property conditions.

The human-health estimates summarized below are based on current reasonable maximum exposure scenarios and were developed by taking into account various conservative estimates about the frequency and duration of an individual's exposure to TCE, as well as the toxicity of this contaminant.

A screening level ecological risk assessment was also conducted to assess the risk posed to ecological receptors due to Site-related contamination.

#### ***Human Health Risk Assessment***

Based upon the results of the risk assessment, it has been concluded that TCE is a chemical of concern for commercial workers in the Cattaraugus Cutlery Area relative to potential exposures to soil; the estimated excess lifetime cancer risk is $7.6 \times 10^{-4}$.

Under all scenarios, the total estimated HI value is less than one. Therefore, no noncancer health effects are expected to occur.

#### ***Ecological Risk Assessment***

Based upon the results of the ecological risk assessment, it has been concluded that the TCE present in the surface soils at the Cattaraugus Cutlery Area poses a low risk to terrestrial ecological receptors.

The Cattaraugus Cutlery Area was found to have only limited value for ecological receptors, since only a small amount of terrestrial/wetland habitat (consisting of small isolated fragments of deciduous woodland or open field) exist for both.

A field-based qualitative benthic macroinvertebrate survey for both Little Valley Creek and an unnamed tributary to Little Valley Creek revealed the presence of a diverse benthic community in both water bodies. These communities did not display significant alterations in community structure in either area.

Based upon the results of the RI and the risk assessments, EPA has determined that actual or threatened releases of hazardous substances from the source areas, if not addressed by the preferred modified remedy or one of the other active measures considered, may present a current or potential threat to human health and the environment.

### *REMEDIAL ACTION OBJECTIVES*

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), TBC guidance, and site-specific risk-based levels. The following RAOs were established for the Cattaraugus Cutlery Area:

- Minimize or eliminate TCE migration from contaminated soils to the groundwater;
- Minimize or eliminate any contaminant migration from contaminated soils to indoor air; and
- Reduce or eliminate any direct contact or inhalation threat associated with TCE-contaminated soils and any inhalation threat associated with soil vapor.

Soil cleanup objectives will be those established in the TAGM guidelines.

3 *Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels*, NYSDEC, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, January 24, 1994.

There are currently no federal or state promulgated standards for contaminant levels in soils. There are, however, other federal or state advisories, criteria, or guidance (To-Be-Considered guidance or "TBCs"), one of which is the New York State TAGM objectives. The soil cleanup objectives identified in NYSDEC's TAGM are either a human-health protection value or a value based on protection of groundwater (calculating the concentration in soil which would theoretically produce contaminant concentrations in the groundwater which would meet groundwater standards), whichever is more stringent. The TAGM is being used as the soil cleanup levels for this site. The TAGM for TCE is 700 µg/kg, which falls within EPA's acceptable risk range.

## *SUMMARY OF REMEDIAL ALTERNATIVES FOR THE CATTARAUGUS CUTLERY AREA*

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARS, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Detailed descriptions of the remedial alternatives for addressing the soil contamination associated with the Site can be found in the 2006 FFS report. This document presents three soil remediation alternatives.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

The remedial alternatives are described below.

**Alternative S-1: No Action**

| | |
|---|---|
| Capital Cost: | $0 |
| Annual Operation and Maintenance Cost: | $0 |
| Present-Worth Cost: | $0 |
| Construction Time: | 0 months |

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative for soil does not include any physical remedial measures that address the problem of soil contamination at the Site.

Because this alternative would result in contaminants remaining on-Site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat, or contain the contaminated soils.

**Alternative S-2: In-Situ Soil Vapor Extraction**

| | |
|---|---|
| Capital Cost: | $413,000 |
| Annual Operation and Maintenance Cost: | $36,000 |
| Present-Worth Cost: | $507,000 |
| Construction Time: | 2 months |

Under this alternative, approximately 3,000 cubic yards of TCE-contaminated soil in the Cattaraugus Cutlery Area would be remediated by in-situ soil vapor extraction (ISVE). Under this treatment process, air would be forced through a series of wells to volatilize the TCE contaminating the soils in the unsaturated zone (above the water table). The extracted vapors would be treated by granular activated carbon and/or other appropriate technologies before being vented to the atmosphere. The exact configuration and number of vacuum extraction wells would be determined based on the results of a pilot-scale treatability study.

While the actual period of operation of the ISVE system would be based upon soil sampling results which demonstrate that the affected soils have been treated to soil TAGM objectives, it is estimated that the system would operate for a period of three years.

**Alternative S-3: Excavation and Off-Site Disposal**

| | |
|---|---|
| Capital Cost: | $876,000 |
| Annual Operation and Maintenance Cost: | $0 |
| Present-Worth Cost: | $876,000 |
| Construction Time: | 3 months |

This alternative involves the excavation of approximately 3,000 cubic yards of TCE-contaminated soil to an estimated depth of five feet in the Cattaraugus Cutlery Area. The actual extent of the excavation and the volume of the excavated soil would be based on post-excavation confirmatory sampling. Shoring of the excavated areas and extraction and treatment of any water that enters the excavated area may be necessary. All excavated material would be characterized and transported for treatment and/or disposal at an off-Site Resource Conservation and Recovery Act (RCRA)-compliant disposal facility.

It is estimated that this effort could be completed in three months.

## *COMPARATIVE ANALYSIS OF ALTERNATIVES*

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, overall protection of human health and the environment, compliance with applicable or relevant and appropriate requirements, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost, and state and community acceptance.

The evaluation criteria are described below.

- 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 ARARs 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 requirements 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, 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 if, based on its review of the Soil Sampling Report, 2006 FFS report, and Superfund Proposed Plan for Remedy Modification, the State concurs with the preferred modified remedy at the present time.

- Community acceptance will be assessed in the amended ROD and refers to the public's general response to the alternatives described in the Superfund Proposed Plan for Remedy Modification and the 2006 FFS report.

Overall Protection of Human Health and the Environment

Alternative S-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 contamination. Alternatives S-2 and S-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 removing the source of groundwater contamination.

Compliance with ARARs

There are currently no federal or state promulgated standards for contaminant levels in soils. However, EPA is utilizing New York State soil cleanup objectives as specified in the soil TAGM (which are used as TBC criteria).

Since the contaminated soils would not be addressed under Alternative S-1, it would not comply with the soil cleanup objectives. Alternatives S-2 and S-3 would attain the soil cleanup objectives specified in the TAGM.

Alternative S-3 would involve the excavation of contaminated soils and would, therefore, require compliance with fugitive dust and volatile organic compound emission regulations. In addition, this alternative would be subject to New York State and federal regulations related to the transportation and off-Site treatment/disposal of wastes. In the case of Alternative S-2, compliance with air emission standards would be required for the ISVE system. 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.

Long-Term Effectiveness and Permanence

Alternative S-1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in soil and would allow the continued migration of contaminants from the soil to the groundwater. Alternatives S-2 and S-3 would both be effective in the long term and would provide permanent remediation by either removing the contaminated soils from the Cattaraugus Cutlery Area or treating them in place.

Based upon the results of field permeability testing, it has been concluded that ISVE would likely be effective in removing TCE from the soils within the Cattaraugus Cutlery

Area under Alternative 2. Pilot-scale treatability testing would be required for the purpose of identifying the configuration and number of vacuum extraction wells and evaluating and characterizing the extracted soil vapors and determining the radius of influence and other performance parameters. These data would be used in the system design evaluation, and the system performance would be monitored with extracted vapor measurements and soil borings. Under Alternative S-2, the extracted vapors would be treated by granular activated carbon before being vented to the atmosphere. The granular activated carbon would have to be appropriately handled (off-Site treatment/disposal). Alternatives S-1 and S-3 would not generate such treatment residuals.

The action alternatives would maintain reliable protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative S-1 would provide no reduction in toxicity, mobility or volume. Under Alternative S-2, the toxicity, mobility, and volume of contaminants would be reduced or eliminated through on-Site treatment. Under Alternative S-3, the toxicity, mobility, and volume of the contaminants would be eliminated by removing the contaminated soil from the property.

Short-Term Effectiveness

Alternatives S-1 does not include any physical construction measures in any areas of contamination and, therefore, would not present any potential adverse impacts to on-property workers or the community as a result of its implementation. Alternative S-2 could result in some adverse impacts to workers at the Cattaraugus Cutlery Area through dermal contact and inhalation related to the installation of ISVE wells through contaminated soils. Alternative S-3 could present some limited adverse impacts to on-property workers through dermal contact and inhalation related to excavation activities. Noise from the treatment unit and the excavation work associated with Alternatives S-2 and S-3, respectively, could present some limited adverse impacts to on-property workers and nearby residents. In addition, interim and post-remediation soil sampling activities would pose some risk. The risks to on-property workers and nearby residents under all of the alternatives could, however, be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by utilizing proper protective equipment.

Alternative S-3 would require the off-Site transport of contaminated soil (approximately 190 truck loads), which would potentially adversely affect local traffic and may pose the potential for traffic accidents, which in turn could result in releases of hazardous substances.

For Alternative S-3, there is a potential for increased stormwater runoff and erosion during construction and excavation activities that would have to be properly managed to prevent or minimize any adverse impacts. For this alternative, appropriate measures would have to be taken during excavation activities to prevent transport of fugitive dust and exposure of workers and downgradient receptors to TCE.

Since no actions would be performed under Alternative S-1, there would be no implementation time. It is estimated that Alternative S-2 would require three months to install the ISVE system and three years to achieve the soil cleanup objectives. It is estimated that it would take three months to excavate and transport the contaminated soils to an EPA-approved treatment/disposal facility under Alternative S-3.

Implementability

Alternative S-1 would be the easiest soil alternative to implement, as there are no activities to undertake.

Both Alternatives S-2 and S-3 would employ technologies known to be reliable and that can be readily implemented. Based upon the results of field permeability testing, it has been concluded that ISVE is a viable technology for the Cattaraugus Cutlery Area. Since the groundwater table is located less than 10 feet bgs, groundwater upwelling could potentially occur with the ISVE wells, which could fill the well screens and reduce or eliminate soil vapor flow. This potential problem will be assessed during the pilot-scale treatability study. Equipment, services, and materials needed for Alternatives S-2 and S-3 are readily available, and the actions under these alternatives would be administratively feasible. Sufficient facilities are available for the treatment/disposal of the excavated materials under Alternative S-3.

While soil excavation under Alternative S-3 is technically feasible, there are several site-specific complications related to this remedial approach. There is only one narrow, steep driveway into the back of the property where the contaminated soils are located. This driveway passes very close to a severely deteriorated portion of a 100-year old, brick building located on the Cattaraugus Cutlery Area. A residence is located on the other side of the driveway. Since the building is very close to the driveway, trucks moving into and out of the Cattaraugus Cutlery Area would have to proceed slowly and carefully to minimize vibration and to ensure that the structure is not hit. Since there is only one means of both entry and egress and there is very little turnaround space, moving dump trucks in and out of the site would present logistical challenges. Since there would be insufficient room on the Cattaraugus Cutlery Area to create a significant excavation stockpile, it is likely that the excavation and backfilling would need to be performed incrementally. At the same time, post-excavation sampling and rapid turnaround analyses would need to be integrated into the process. Since contaminated soil is located adjacent to the buildings, special precautions would need to be taken so as to prevent damaging them or causing them to collapse. This would be of particular concern when excavating the contaminated soil located in the courtyard area between the two buildings, where there is very little clearance. There would be a need to monitor for TCE and dust during the excavation, especially since there are nearby homes. There is also contaminated soil underneath the floor of one building that would require excavation, potentially affecting the integrity of the building. Since the excavation effort would likely take several months to complete, the ongoing commercial use of the buildings would likely be significantly curtailed.

The ISVE installation under Alternative S-2 would be fairly easy to accomplish and would result in minimal physical disturbance to the Cattaraugus Cutlery Area relative to excavation. The radial influence of the ISVE wells would allow the contaminated soil underneath the floor of the building to be addressed with no impact to the building.

Monitoring the effectiveness of the ISVE system under Alternative S-2 would be easily accomplished through soil and soil-vapor sampling and analysis. Under Alternative S-3, determining the achievement of the soil cleanup objectives could be easily accomplished through post-excavation soil sampling and analysis.

Cost

The estimated capital, operation, maintenance, and monitoring (OM&M), and present-worth costs for each of the alternatives are presented in the table, below.

| Alternative | Capital | Annual OM&M | Total Present-Worth |
|---|---|---|---|
| S-1 | $0 | $0 | $0 |
| S-2 | $413,000 | $36,000 | $507,000 |
| S-3 | $876,000 | $0 | $876,000 |

As can be seen by the table, there are no annual OM&M costs associated with the Alternatives S-1 and S-3. The present-worth cost associated with Alternative S-2 was calculated using a discount rate of seven percent and a three-year time interval.

As can be seen by the cost estimates, Alternative S-1 is the least costly soil alternative at $0. Alternative S-3 is the most costly soil alternative at $876,000.

State Acceptance

NYSDEC concurs with the preferred modified soil remedy.

Community Acceptance

Community acceptance of the preferred alternative will be assessed in the amended ROD, following review of the public comments received on the Superfund Proposed Plan for Remedy Modification.

***PROPOSED MODIFIED SOIL REMEDY***

Based upon an evaluation of the various alternatives, EPA, in consultation with NYSDEC, recommends Alternative S-2, In-Situ Soil Vapor Extraction, as the preferred modified remedy to address the contaminated soil at the Cattaraugus Cutlery Area.

The effectiveness of ISVE (and, if appropriate, the configuration and number of ISVE wells) would be determined based upon the results of a pilot-scale treatability study. Should the findings of this treatability study or operational data indicate that ISVE would not be sufficiently effective in addressing any portion of the contaminated soils, then those soils would be excavated and treated/disposed off-Site (Alternative S-3).

The preferred modified remedy would involve the treatment of the unsaturated (above the water table) soils which exceed NYSDEC's soil TAGM objective for TCE using ISVE. Post-treatment confirmatory samples would be collected to ensure that the entire source area has been effectively treated to the cleanup levels. Off-gases from the ISVE system may need to be treated to meet air-discharge requirements. Soil-vapor monitoring in the treatment areas and in adjacent residential areas would also be conducted, as necessary. Should this monitoring indicate a problem with respect to residences, appropriate actions would be taken.

Upon completion of the soil remediation, no hazardous substances would remain above levels that would prevent unlimited use or unrestricted exposure.

**Basis for the Remedy Preference**

While Alternative S-2 would require the performance of pilot-scale treatability studies and would take longer to achieve the soil cleanup objective than Alternative S-3, there are several significant site-specific complications associated with the excavation of soils (discussed under "Implementability," above) which would affect its implementabilty. Therefore, EPA and NYSDEC believe that Alternative S-2 would effectuate the soil cleanup while providing the best balance of tradeoffs with respect to the evaluating criteria.

The preferred modified remedy is protective of human health and the environment, provides long-term effectiveness, will achieve the ARARs in a reasonable time frame, and is cost-effective. Therefore, the preferred modified remedy will provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. EPA and NYSDEC also believe that the preferred modified remedy will treat principal threats and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred modified remedy also will meet the statutory preference for the use of treatment as a principal element.

**RESPONSIVENESS SUMMARY**

**APPENDIX V-b**

**PUBLIC NOTICE PUBLISHED IN THE**
***OLEAN TIMES HERALD ON AUGUST 6, 2006***

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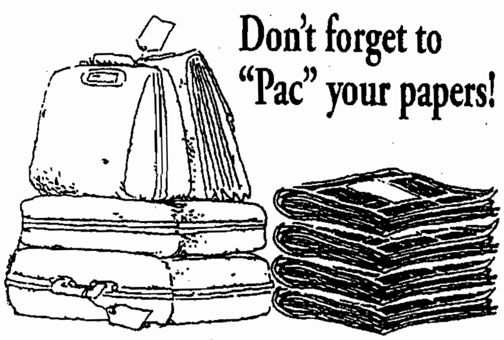

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THE TIMES HERALD

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE PROPOSED MODIFIED REMEDY FOR THE LITTLE VALLEY SUPERFUND SITE**

The U.S. Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation ( NYSDEC) will hold a public meeting on August 15, 2006 at 6:30 PM, in the Little Valley Central School Auditorium, 207 Rock City Street, Little Valley, New York to discuss the findings of its soil investigation, its Focused Feasibility Study (FFS) which reevlauted remedial alternatives for the soil, and its Proposed Plan for the Little Valley Superfund site.

The remedy selected by the Environmental Protection Agency (EPA) in August 2005 for the Little Valley Superfund site included excavation and off-site treatment/disposal of contaminated soils located at a source area and monitored natural attenuation for the site-wide groundwater. EPA collected pre-excavation soil samples to define the boundaries of the contamination at the source area. The results of this sampling effort indicated that the volume of contaminated soil is substantially greater than originally estimated. As a result, the remedial alternatives for the soil component of the remedy were reevaluated.

EPA is issuing the Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, and Section 300.430(f) of the National Oil and Hazardous Substances Pollution Contingency Plan.

The primary objectives of this action are to remediate an identified source of contamination at the site, reduce and minimize the downward migration of contaminants to the groundwater, and minimize any potential future health and environmental impacts. The main features of the preferred modified remedy include in-situ soil vapor extraction to address the contaminated soil at the source area. In-situ soil vapor extraction involves drawing air through a series of wells to volatilize solvents from soils. The extracted vapors are treated in an activated carbon unit and monitored before being vented to the atmosphere.

The modified remedy described in the Proposed Plan is the preferred modified remedy for the site. Changes to the preferred modified remedy or a change from the preferred modified remedy to another remedy may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected modified remedy will be made after EPA has taken into consideration all public comments. EPA is soliciting public comment on all of the alternatives considered in the detailed analysis of the FFS report because EPA and NYSDEC may select a remedy other than the preferred remedy.

The administrative record file, which contains the information upon which the selection of the response action will be based, is available at the following locations:

| | | |
|---|---|---|
| U.S. Environmental Protection Agency<br>Public Information Office<br>16 Exchange Street<br>Buffalo, NY 14204 | Salamanca Public Library<br>155 Wildwood Avenue<br>Salamanca, NY 14779 | Town of Little Valley<br>Municipal Building<br>201 3rd Street<br>Little Valley, NY 14755 |

Responses to the comments received at the public meeting and in writing during the public comment period, which runs from August 6, 2006 to September 5, 2006, will be documented in the Responsiveness Summary section of the Record of Decision, the document which formalizes the selection of the remedy. All written comments should be addressed to:

John DiMartino
Remedial Project Manager
Central New York Remediation Section
United States Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866
Telefax: (212) 637-4270
E-mail: dimartino.john@epa.gov

In addition, if you have any other questions pertaining to this site please contact:

Mike Basile
Community Involvement Coordinator
Public Affairs Division
United States Environmental Protection Agency
186 Exchange Street
Buffalo, NY 14204
(716) 551-4410
E-mail: basile.michael@epa.gov

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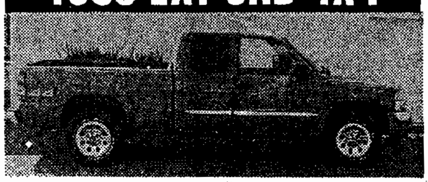

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**RESPONSIVENESS SUMMARY**

**APPENDIX V-c**

**AUGUST 15, 2006 PUBLIC MEETING SIGN-IN SHEET**

# Little Valley Superfund Site – Public Meeting
## Little Valley Elementary Campus
## 207 Rock City Street, Little Valley, New York
## August 15, 2006

**PLEASE PRINT**

| NAME | ADDRESS | PHONE # |
|---|---|---|
| Linda Ross | NYSDEC | 716-851-7220 |
| Henry H. | BUFFALO | — |
| Bob [illegible] | 5035 Rt 353 14779 Salamanca, N.Y | 716-938-6894 |
| Jane G. Sibley | 5343 Winship Circle | 716-938-6592 |
| Carol Stancin | 304 Rock City St. | 938-9899 |
| Gene Stancin | " | " |
| Sylvia Patterson | Seneca Nation Env. Protection | 532-2546 |
| Eric Wohlers | Cattaraugus Co. Health Dept. | 716-373-8050 |
| Norman Marsh | 121 1st St. L.V. | |
| Hannie Hurd | 9430 Rte 242 L.V. | 938-6934 |
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**RESPONSIVENESS SUMMARY**

**APPENDIX V-d**

**AUGUST 15, 2006 PUBLIC MEETING TRANSCRIPT**

BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
* * * * * * * * *
IN RE: LITTLE VALLEY SUPERFUND SITE
LITTLE VALLEY, NY

ORIGINAL

PUBLIC MEETING
* * * * * * * * *

BEFORE: MICHAEL J. BASILE
Community Involvement
Coordinator, EPA
HEARING: Tuesday, August 15, 2006
6:30 p.m.
LOCATION: Little Valley Elementary
Campus
207 Rock City Street
Little Valley, NY
WITNESSES: Joel Singerman, John
DiMartino

Reporter: SHANNON F. FORTSCH

# INDEX

E X H I B I T S

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P R O C E E D I N G S

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MR. BASILE:

My name is Mike Basile. I'm the Community Involvement Coordinator for the United States Environmental Protection Agency. And I would like to welcome you to a public meeting tonight on the Little Valley Superfund Site.

I just have a few announcements before we make our presentation. Hopefully, you've had an opportunity to sign in and also get a copy of the agenda, which is at the back of the auditorium. And we'll be following the agenda this evening. We actually have two speakers from our regional office to participate who work for EPA out of a field office in Buffalo, New York and cover 32 superfund sites in the western section of New York, one of which is the Little Valley Superfund Site here in Little Valley.

Now, the purpose of the meeting this evening is basically to explain our agency's remedy modifications to the proposed plan that we basically had sent out about two weeks ago to the residents that are on our mailing list. And of course, to explain to you that not only we have come up with a preferred remedy but we are in concurrence with the New York State Department of Environmental Conservation as well.

We are currently in a 30-day public comment period. The public comment period began on August the 6th and will end on September the 5th. We really value your input, the public. And if you have questions this evening, we ask that you wait until the question and answer portion of our agenda when our two speakers finish. And then the only thing I would ask, because we do have a stenographer, Shannon is here tonight to capture all of the comments that you have for our record. I would just ask that during the question-and--answer period to stand, and if you need a microphone, we do have a microphone, state your name and your address, and then spell your name for Shannon.

We understand there are two repositories that are in your community, one at the Town of Little Valley Municipal Building at 201 Third Street, and the Salamanca Public Library at 155 Wildwood Avenue.

We do have an individual from another agency that won't be participating as a speaker, but I'd like to introduce her at this time, Linda Ross, from the New York State Department of Environmental Conservation, Region Nine out of Buffalo.

And at this time, I'd like to introduce to you, Joel Singerman. Joel is the Central New York Remediation Section Chief. And

Joel will, using our PowerPoint presentation, discuss with you a summary of the remedy selection in 2005. Joel?

MR. SINGERMAN:

You probably recognize this area. This is Little Valley. And just very briefly, we've investigated a number of sites and potential sites. They're located primarily on here. And a year ago, we identified the fact that we had soil contamination over here. And we had groundwater contamination over here.

And just to backtrack a little bit. Over the years, we have been here a number of times. In the 1970s, we installed water treatment systems in a number of wells located all around this area here.

The remedy we selected last year, we did a summary at that time. First of all, regarding the soil excavation and off-site treatment/disposal of contaminated soil located on private property. Monitored natural attenuation for the site groundwater. Basically that means that we've been sampling the groundwater there for a number of years. And we see that the levels of contamination have been dropping significantly over time. So by removing the source area, the Cattaraugus Cutlery area, we believe over time that groundwater will eventually reach drinking-water standards in a very short period of time, approximately ten years.

In addition, the remedy also included evaluations of potential to solve vapor intrusion into structures within the study area, and mitigation if necessary.

I'm going to conclude with that since, you know, John's going to talk about vapor intrusion right now.

MR. DIMARTINO:

Ok. Hi. How's

everybody doing tonight? My name is John DiMartino. I am the project manager for the site. I have been working with Joel, obviously he's my boss. And I have been primarily focusing on the third item he mentioned, which is the soil vapor intrusion into the homes in the area.

And I'm kind of playing catchup from taking over for the other project manager who is out. So I am going to go along and talk for a minute or two on just an update on what we've been doing.

We had a public availability session in June, where we tried to reach out to a bunch of folks to let them know what we were doing. So this is just a little update. I'm going to ask Michael Sivak to also help me out if I leave anything out.

So basically, we know we have site-wide groundwater plume here in Little Valley and Salamanca, so that leaves us to be concerned about the potential for the contaminants in the groundwater to vaporize, devolatilize, leave the groundwater. They could work their way up through the soil and potentially they could be sitting underneath the slab of your home. Your home can develop cracks over the years and that provides a pathway. And now they could be impacting the air that you're breathing inside your homes.

Based on that, we did kind of a phased approach. The previous project manager was up here in September of '05, did a subset of homes. Then she came back in January of '06, did some more homes. We mapped them out. And to be honest, we couldn't identify a pattern. We had some hits spread out. So we thought a prudent course of action was to open up this indoor air sampling to a lot of folks in the area.

We targeted homes that were adjacent and down gradient groundwater-wise from the Cattaraugus Cutlery and from Bush, because Bush and Cattaraugus we know are source areas and we also know the way groundwater flows. So we worked from Bush to Cattaraugus. And we basically sent out a couple of different mailings to folks. And I also spent some time in early June and canvassed some homes that I thought would be canvassed for this indoor air sampling. And in all, I think we sent out about 300 or so packets of information. From that we got about a hundred folks onboard.

We were up here late July, early August, two, three weeks ago. We started the sampling event. We started it, again, in the phased approach. We first looked at what's going on underneath the home, what we call subslab, collect that data, look at it with the risk assessor and our air folks.

And from that set of

people, determine a subset where we would like to then go further to step two, which is looking inside the home. There was an action level for TCE. That's a chemical of concern here, TCE. We had an action level for subslab. Those folks that were above the action level, we then recommended to them that, hey, we'd like to come back out and look inside your home.

And that's kind of what we're doing this week. We have identified some folks and we're coming back out this week, and we're looking inside some homes. And that's basically what we've been doing.

MR. BASILE:

John, could you explain when you say looking inside the homes to the public, what you mean by that?

MR. DIMARTINO:

Sure.

MR. BASILE:

Thank you.

MR. DIMARTINO:

We sampled inside the homes. We had a sampling bus. It's called a TAGA bus, T-A-G-A. And this bus has a sophisticated air sampler on it and a computer with a long hose. And basically, we come into the home with the hose, sniff around, make sure that there are no what we call lifestyle issues because a lot of household products contain TCE. So we do a sweep of the house with the TAGA bus. We get the all clear. Once that gives us the all clear, then we leave our sampling canisters in place. We sample in basements and in the first floor living area. And we get that data back.

So, again, the idea is, we want to make real sure that when we start sampling inside people's homes, what we're sampling is due to the Superfund site is these vapors that I talked about working their way up through the ground and --- as opposed to pulling in TCE vapors from your cans of shoe polish in the corner of the house. So we do that, we sweep the house, we remove any items that we find that contain TCE and then we go ahead and sample with our sampling canisters. And that's what we're doing this week. You might see this weird looking bus driving around town and that's our sampling crews.

MR. BASILE:

Thank you.

MR. DIMARTINO:

And the third step. I mentioned we work in steps. The first step is this subslab data that we collect from underneath the house. If we find something above the action level, we go to step two, which is sample inside the house. And if we find something inside the house above our action level, we consult with a risk assessor and our air folks again. And if we feel that there is reason for mitigation, remediation of the indoor air in the person's home, we go ahead and install this vapor mitigation system, which is similar to what people do if they have a radon problem. Basically, we drill a hole through the concrete slab in the basement creating a pathway for these vapors, a conduit for these vapors to enter into. And the pipeline works its way outside with a fan, basically creating a draw. Now the vapors have a way to go and they're not coming into your home. So that's basically what we do if we find vapors inside your home that are above our action level that we feel warrants this mitigation system.

And even though we're still in the data collection stage, like I said, we have about a hundred folks on board. And this week, we are going to some homes to do some further looks.

Okay. So my two minutes took a little bit longer, but that's just my little update on the soil vapor intrusion.

MR. SINGERMAN:

The second component,
which I mentioned earlier, is groundwater. The groundwater remedy selected in 2005 is the monitored natural attenuation, that's a plan for evaluating groundwater that we've prepared. We anticipate the first sampling of that will be performed in October. The sampling this week, will be --- we've been sampling the wells in the area basically every October. And we've sampled the groundwater. And as I said earlier, we expect that the groundwater will achieve those levels in about ten years through natural processes.

And then the third item,
which I discussed earlier, is regarding the soil. Now, I mentioned earlier that the Cattaraugus Cutlery, and this is basically --- it's not too clear, the writing, but basically ---. And we have some ---. We sampled a

number of locations here. And Joel will discuss what we found here. But any way, regarding the remedy expected for that area, as part of the process, we go out and take additional samples. And because of having the examination, we know exactly the area that has to be excavated.

So the results from the second excavation was sufficiently greater than we originally estimated. And we've increased it approximately 220 cubic yards to approximately 3,000 cubic yards. So because of the fact that --- the efficiency effect --- cost effectiveness of the remedy, we decided to evaluate other remedies.

So this is the summary of the groundwater contamination for the soil site, soil contamination problem at the site. Basically, these are --- all these dots. It's not very clear, but they're all sampling locations. This is gold and that's ---. And all the indications that are in purple are the areas that the soil is contaminated. So basically, we have contamination in this area here and also there's some contamination in the building, along the buildings, this building here. So basically I said this earlier that now that we have --- based upon the test results, we believe that approximately 3,000 cubic yards of soil needs to be addressed.

So we are in the process of basically looking at the alternatives we considered previously. The first alternative, which --- there is no action. This is always based on a comparison to get more action, a comparison of what would happen if we do nothing. So we looked at no action. We looked at in-situ vapor extraction. Basically in-situ vapor extraction is we install wells in the ground and we draw air off those wells. And it basically causes organics on the soil to devolatilize.

And that's again --- it changes the soil that way. And then, that --- the vapors that are removed are then treated for release into the air. That's the second alternative.

And then the third alternative, this is the alternative that was selected last year, was the excavation of contaminated soil and off-site disposal. So we dig it up, take it off site and then we bring in fill to fill it. The previous alternative with soil intrusion --- or soil vapor extraction is basically instituted which involved soil excavation.

So we evaluate all the alternatives, Region Nine criteria. Basically, I'm not going to go into detail, but just primarily point out the fact that, you know, one of them as being accepted ---. As I said earlier, that the reason we're here is to see what the community's concerns are. And that's one of the criteria we considered, this cost. And it includes protection, toxicity, effectiveness, compliance with remediation. So all these things are considered in the process of evaluating the alternatives.

And this is a summary of the costs involved. That was one of the criteria. S-1 is no action. S-2 is soil vapor --- in-situ soil vapor extraction. And S-3 is the excavation and taking it offsite.

We had $36,000 for operation and maintenance costs, suggesting an annual cost of operating the system. There is no annual cost for doing excavation because of the fact that it wasn't moved and there's no greater cost. So basically the calculation, it takes the capital costs and it takes the operation costs for a number of years. In this case we have three years. And from that we get a present worth cost of basically --- what we have to address now to have that money available to be able to work three years into the future. But it's just a way that we calculate the costs to put it on a level playing field.

So based upon the analysis, we decided that the program would be in-situ vapor extraction, which is addressed as including extracting levels --- draw out the vapors and treat the vapors. And we have a tendency that if this process doesn't work in certain areas of the site that we would excavate that soil and take that soil offsite.

And we expect this to be effective. We've done some pilot testing on the site. And it seemed to be that it would work and we will continue the operation of the system. And hopefully in approximately three years that the soil would replenish as cleanup levels.

So the preferred alternative then, just to identify it

as the preferred alternative ---.
We're not going to make a selection until we have the time period amended and we've received public comment either at this meeting or at subsequent meetings.

The proposed plan in our packet identifies John's address and his e-mail address, you know, you can locate ---. It's also identified in the handout which has all the documents related to the site. Of course that's just a summary of all documents in there. You'll want to look at all of the documents, if possible.

So at this point, if you have any questions, I'd be happy to address them. Again, we want to remind you that we've got a stenographer here, so please identify yourself so that the stenographer will know who to give your comment to.

MR. BASILE:

John, before we get into

the question period, there are two people that I think we need to introduce that don't have a speaking part but are here this evening. We have from our agency, Michael Sivak, who's a risk assessor with the EPA standing --- seated right there.

And we also have Eric Wohlers from the Cattaraugus County Health Department. And I'm sure some of you maybe have met Eric over the years. And of course, Eric's been very heavily involved in the activities at the site.

So once again, our public comment period, we're in it right now. It closes on September the 5th. As Joel indicated, we solicit your comments or questions that you have this evening. If you leave here this evening and you thought about something, you can take that handout with the agenda, and of course write to John DiMartino with your comments before September the 5th.

So at this time, I'd
like to open up the floor for
questions. And if you wouldn't mind,
again, just raise your hand, identify
yourself, state your name and spell
your name for Shannon, our court
stenographer. Questions from anyone?
Yes, Sylvia?

MS. PATTERSON:

Sylvia Patterson, that's
S-Y-L-V-I-A, Patterson, from the
Seneca Nation of Environmental
Protection. Of the 100 returned
surveys, were there any from the
northern Salamanca portion?

MR. DIMARTINO:

I'm sorry. Could you
repeat that?

MS. PATTERSON:

Out of the 100 surveys
that were returned, were any of them
from the northern Salamanca area?

MR. DIMARTINO:

We are --- okay. We are
sampling the folks --- the Superfund

site stops at the City of Salamanca; correct?

UNIDENTIFIED SPEAKER:
Yes.

MR. DIMARTINO:
But we are doing some folks in --- I guess that would be the Town of Salamanca. Is that what you're asking?

MS. PATTERSON:
Yes.

MR. DIMARTINO:
Yeah, we are doing some homes in the Town of Salamanca.

MS. PATTERSON:
Okay.

MR. DIMARTINO:
Okay. I'm sorry, I come from New York City. I don't know the difference between a town, a village and --- you know.

MR. BASILE:
Any other questions? Yes?

MS. SIBLEY:

I read through the
documents ---.
MR. BASILE:
Would you please state
your name and ---.
MS. SIBLEY:
I'm sorry.
MR. BASILE:
That's all right. Sorry
about that.
MS. SIBLEY:
Jane Sibley,
S-I-B-L-E-Y, and I'm at 5343 Winship,
W-I-N-S-H-I-P, Circle, here in
Salamanca. First of all, I wondered
how much is 3,000 cubic yards? Is
that a football field size?
MR. DIMARTINO:
That's a good question.
MS. SIBLEY:
You said 190 truckloads.
MR. DIMARTINO:
It is considered a lot
of dirt. That's why as far as having
to treat it at the site and replenish

it as opposed to having to tear up so many truckloads of dirt ---.

MS. SIBLEY:

Like how far down would you have to dig to get to where it would be good?

MR. SINGERMAN:

Probably maybe three to five feet. That's basically workable. Through the processes we're doing right now, we're hoping the vapor product will draw a vapor, so the ---.

MS. SIBLEY:

That's a long ways to go then, depending on where the water table is.

MR. SINGERMAN:

Yeah. But I think the water table is fairly shallow.

MR. DIMARTINO:

I think the wells go up to seven feet maybe in some spots.

MR. SINGERMAN:

Yeah. And we also have the advantage of a loss ---

accelerated to clean up the groundwater. It would also draw vapors off the groundwater.

MS. SIBLEY:
You said something about ten years, and I was probably not paying enough attention. What was the ten years?

MR. SINGERMAN:
The groundwater remnants are not changing. This is after about a year ago, the natural --- the natural process ---. Removing the source area from the property, the whole plume, the whole seven-mile plume, will reach groundwater standards in approximately ten years. So based on --- over the years, I'll just take an example, when we first started this project, sometime in the mid '80s, the average --- the highest concentration was at 50. And now it's down to 22. And the majority of contamination is really just marginally above clear air standards.

So the clean air standard is five parts per million. And the average calculation is like six. So we're well below that. It's significant --- and we see that it's a trend that it's setting it will be about ten years.

MS. SIBLEY:

So you're talking about the water then?

MR. SINGERMAN:

Yeah.

MS. SIBLEY:

It will be better in ten years, if we wait ten years. What will that do for the air portion of the TCE?

MR. SINGERMAN:

Well, the air --- presumably the reduction that we found in the level of contamination of groundwater will ---. Initially we did a number of --- we did approximately 22 homes, initially, just at sort of random areas. And we really didn't find an area of homes that had very low levels of groundwater. We had seen less low levels than those of high levels ---.

MR. DIMARTINO:

Yeah. You would think that ---. I think I know where you're going, the groundwater is cleaning itself in ten years. And the groundwater, you know, is contaminated and contaminates are volatile organic compounds, devolatilizes in groundwater and can affect your air. So the link is that your air is going to get better.

MS. SIBLEY:

Yes.

MR. DIMARTINO:

And, Michael, can you --- have we been able to link that?

MR. SIVAK:

Certainly, you'll have concentration in your groundwater decreased. The likelihood of having vapors in a subslab that are a concern is going to decrease as well. We have

done a lot of soil --- soil vapor investigations around the region in New York as well as New Jersey. And I work on a lot of the sites and my group works on all of the sites. We provide technical support in projects like John.
So pretty much every extrusion site in the region my group deals with. And I'm not aware of any site in the region where we have vapor intrusion problems when the groundwater concentration levels are below the drinking water standards.
Does that answer your question?
MS. SIBLEY:
Yes. Yes, but in relationship that should get better too then?
MR. SIVAK:
Absolutely
MS. SIBLEY:
As a result, maybe your sampling doesn't really as neatly as ---.

MR. SIVAK:
Yeah.
MS. SIBLEY:
Does that make sense?
If you took the soil off site, where is your offsite? How far do you have to go with the soil?
MR. SINGERMAN:
Well, most likely, we'll probably have to have it disposed in the Town of Porter and some up in Niagara Falls.
MR. DIMARTINO:
Niagara Falls?
MR. BASILE:
Some of it, in the Town of Porter, north of Niagara Falls, near Lake Ontario. That's a trek.
MS. SIBLEY:
Lucky them.
MR. DIMARTINO:
But they are currently --- they are currently the landfills they have to use. You can't take it anywhere. You need a permit, they

have to regulate it, treat the soil properly. So it's a process that we have identified.

MS. SIBLEY:

But that could cause harm if you're stirring up all that dust that was created by digging it up and --- for the area that ---.

MR. DIMARTINO:

They will do that, too, when they do excavating ---.

MR. SINGERMAN:

Well, yeah. If you excavate dirt, you need to make sure that it's watered down ---. We don't want ---.

MR. DIMARTINO:

They air monitor and they do dust suppression ---.

MS. SIBLEY:

And water ---.

MR. DIMARTINO:

They water it down. And we also --- you know, they set up a perimeter of air monitors while the work is going on, yes. That's a very good point.

MR. SINGERMAN:

But we considered that.

Basically, the digging up and taking it away is not the big problem. The problem is that when we have contaminates underneath some of the buildings, we have contamination right near the buildings. The buildings are on properties that are quite old. So the concern is that every time you go in there and start digging, it may cause collapse of the buildings, which is something we don't want to do.

Also, there's no way to

get to the uncontaminated subslabs. And you really can't remove it --- removing it can cause the building to collapse. So while excavation is technically the most anticipated value, the best way to go, it depends where it's situated. Out in the middle of a field, no harm, you get to ---. See the vapor --- the seal vapor extraction system, when you put it next to a building, it draws contamination from the building without having to have to plan the water ---. So this way it will protect the integrity of the building and won't generate dust and ---. And the only thing that you'll get will be the vapors from the treatment ---. But regardless, if we did excavation, the ground around it would be protected.

MS. SIBLEY:

When I was first reading it, I thought, gee, that seems the logical thing, even though it's more expensive to dig it up and get it out of here. But then when I read all the other things about how they have a narrow space to work with there and the dust and the whole thing. And I thought well, maybe your plan two would be a better way to go.

MR. SINGERMAN:

As John mentioned, I

have my criteria to look at, as well as the community. And those are the kinds of things that we consider.

MS. SIBLEY:

Uh-huh (yes).

MR. SINGERMAN:

Dust is one of the things to address. That's an easy thing to do.

MS. SIBLEY:

When you did the mitigation system for the air for TCE, the fan was put in next to the top of the stack that is vented outside; is that correct?

MR. SINGERMAN:

You're talking about the homes?

MR. DIMARTINO:

Yeah, I --- I think we talked a little bit ---.

MS. SIBLEY:

There's a picture there.

MR. DIMARTINO:

Yeah, we talked a little

before. I don't know the answer to
actually where the fan is. I'd have
to find that out for you.
MS. SIBLEY:
I was just wondering how
noisy the fan is.
MR. DIMARTINO:
Yeah. That's --- yeah,
I could look into that for you, the
technology that's involved.
MS. SIBLEY:
Maybe I can get that off
the internet.
MR. SINGERMAN:
Yes, the internet --- we
can get that documentation.
MR. DIMARTINO:
Yeah.
MS. SIBLEY:
If we need it, we need
it. I was just wondering. And I
wondered about the accountability to
the places that you state that you
have discovered at the sites of damage
or whatever. Do you go back and try

to do anything with ---?

MR. SINGERMAN:

You mean Cattaraugus Cutlery?

MS. SIBLEY:

Yes.

MR. SINGERMAN:

Well, the situation at Cattaraugus Cutlery, we believe the current owners are not responsible for the water problem. The current owner is not using it as a cutlery and never operated as cutlery. So we don't consider them responsible.

Burns (phonetic) Industry's problem, they have groundwater contamination. Again, just briefly, that's also the source of one, like the owner of the cutlery operations. Although they are --- there is a willingness to participate in confining the contamination if possible. As far as doing that ---. But as far as, you know, addressing it, we really haven't had an inquiry of parties to indicate the source of these things.

MS. SIBLEY:

Your other areas that you deal with all over the country, do they ever go back on those people and cause lawsuits and whatever?

MR. SINGERMAN:

Well, normally what we do. We have various parties go to them first. And we're looking at them first. And we're looking to do the work. This project is fully funded. And we consider them ---. But the majority of the sites that I work with, the responsible parties have agreed to do work.

So this is one of the exceptions. Most of the sites, at least that I deal with, have parties that agree to do the work. And we work with them to do the work.

MS. SIBLEY:

I was just curious. That answered my questions. Thank you.

MR. BASILE:

Any questions? Yes, sir?

MR. MARSH:

Norman Marsh, Mayor of the Village of Little Valley, Marsh, M-A-R-S-H. Are you considering doing anything with the Bush property or are you mainly concentrated on just the Cattaraugus Cutlery?

MR. SINGERMAN:

Well, we investigated the Bush property, and we did not find any soil contamination above unit level. The only problem we found was groundwater contamination. And the remedy of acceptance for the level on that property wasn't an issue. And so the only really accurate measure is basically monitoring the groundwater and making sure that no one's actually using the groundwater for anything but toilet purposes.

MR. MARSH:

And I see here you say
--- well, first of all, how many wells do you plan on putting down there on the Cutlery property to get rid of all these vapors and stuff? Do you have any idea?

MR. SINGERMAN:
I'm not exactly sure of that number, but it's probably somewhere maybe two dozen wells.

MR. MARSH:
Okay. And will you be putting wells all the way down the line from where the contamination goes or will it be just at the Cattaraugus Cutlery?

MR. SINGERMAN:
You're talking about the groundwater plume?

MR. MARSH:
Uh-huh (yes).

MR. SINGERMAN:
The purpose of the soil vapor tracking system is to clean up the soil. So we'll be putting ---

when you put a well in, it draws basically all along basically 360 degrees in every direction. So the wells would be overlapped such that we would have --- if you peered into them, overlap, so that we draw from the entire area of the soil that's contaminated as well as ---.

But we're not addressing the groundwater that --- the system will have the advantage of the groundwater that's underlying the site that the --- that the area that this area draws on, that it will draw, tend to draw some TCE off of the surface of the groundwater. So that makes --- facilitates and expedites the natural accumulation process they had on the subject property. But as far as the plume goes, to the extent of groundwater contamination, we're not going take any action with that until we determine that through dispersion, valuation and some limited aggregation of the natural processes that it's at drinking level as of ten years.

MR. MARSH:

So say in three years if you cut the contamination by a quarter here, six miles down the line, it may not have did anything yet.

MR. SINGERMAN:

Well, the thing is we don't necessarily believe that the Bush Industry's property and Cattaraugus Cutlery property are the only sources. I mean, this problem has been around for a long time. There are dozens of sites identified --- listed in there. Many of those sites may have been sources and they're all along ---. When we checked, investigated, we couldn't find any soil contamination or water contamination. So we don't believe that the Cattaraugus Cutlery property and Bush Industries are the sole source for contamination of the seven-mile plume, but they are a source. So by addressing those two areas, by addressing the subjects properties, we eliminate a current source.

But really at the same time, there's really only two current groundwater sources. All the rest of the sources are former sources. And so what we do up at the top of the plume, you know, really will not have an impact on really what happens on the full plume. But over time, the culmination, the continuation, of the whole project will gradually reach drinking waters standards along the whole length of the plume.

MR. MARSH:

And I see here that you figure that they'll operate over a period of three years. Is that reasonable, do you feel, or do you feel it's going to take longer than ---?

MR. SINGERMAN:

Well, the guys that are doing the work I think are probably the best. But we estimate three years. That's time to do some field testing. And it seems to be very --- they have to draw sufficient air out of the ground. And it's also based upon when they will be able to achieve that limited testing. That's just a ballpark estimate. It could take them a little longer, it could take less time.

MR. MARSH:
Thank you.

MR. BASILE:
Does anyone else have a question?

MS. SIBLEY:
I have another one.
Jane Sibley. With the air mitigation system, would they be in our homes for those three years do you think then? Perhaps you can give me an answer ---.

MR. SINGERMAN:
Well, with the three years, that's the soil ---?

MS. SIBLEY:

Right.

MR. SINGERMAN:

The rest it's going to take ten years to achieve the groundwater standards along --- throughout the plume. Based on what I said earlier, that you don't typically see unacceptable levels when you have groundwater cleanup. So it's probably more like --- probably more reasonable to say perhaps ten years not three years. It could be three years, but that's based on the soil, not the --- the groundwater at the Cattaraugus property, it still may take approximately ten years. But we estimate that based upon the presumption that we've eliminated the source with the soil vapor extraction system.

MS. SIBLEY:

Thank you.

MR. BASILE:

Are there any further questions? Yes?

MR. REED:
Don Reed, R-E-E-D. I'm the owner of the property 210 Bell Street. Sorry I got here late. I thought it started at 7:00. I'm hoping I'm not covering previous questions.
One question I had was once these tests are made in the homes --- do you know how many homes were tested, first of all? And were they in Little Valley? And once these tests are done, how does that affect the liability as far as sale of property goes?
MR. DIMARTINO:
Yeah, I mentioned earlier, we are sampling in approximately 100 homes, and that includes Little Valley and Salamanca. Now, for the liability, I don't know the answer to that.
MR. SINGERMAN:
Well, if --- there's two scenarios. Let's take one scenario

that we sample a home and find
nothing, no harm. If we sample a home
and find something and we need a
mitigation system in, and it is
properly removing contamination,
there's actually no threat, there's no
liability there.
And I think the only
potential situation like we have is
the problem --- the problem at a home,
we recommend a mitigation system be
installed, the owner says no, and he
sells the house and tells them there's
nothing wrong with the house, there's
a potential for liability there.
MR. REED:
What's the approximate
cost of putting the mitigation system
in?
MR. DIMARTINO:
The EPA installs the
mitigation system at no cost to the
homeowner. The only cost we pass
along to the homeowner is the running
--- the electricity that runs the fan,

which I'm told is minimal, a dollar or two a month. The sampling is also paid for by the EPA.

MR. REED:

Okay. Thank you.

MR. BASILE:

Are there any questions?

Joel, I have one question from a resident's standpoint. Once we complete this public comment period and we have public acceptance of the proposed remedy and the modification, when do they actually start to see people out at the Cutlery beginning the fieldwork, this year, this fall, next year?

MR. SINGERMAN:

Well, actually this week we're actually commencing the process. We're actually going --- there's actually work commencing this week.

MR. BASILE:

Okay.

MR. SINGERMAN:

And as far as the

overall process goes, after the public comment period ends, as Mike said on September 5th, after that time, we will take comments and then ultimately sign another record decision, which is a document which documents the decision process. We hope to do that probably by the end of September. It really is just an administrative process. There were some changes in the remedy from last year from excavation, disposal of the soil. They're primarily the issues.

MR. BASILE:

Thank you. I don't have any further questions. On behalf of the Environmental Protection Agency and the other agencies present, I'd like to thank you for taking the time to come up to the public meeting this evening.

Once again, just a reminder that the public comment period is still open until September 5th. If you choose, feel free to comment on the proposed plan between now and September 5th. I just ask you to mail your comments to the attention John DiMartino. And we'll end the meeting.

If you have any further questions, you can feel free to contact any of us as long as we're in the auditorium this evening. I thank you for your time. And have a good evening.

* * * * * * * *

MEETING CONCLUDED AT 7:20 P.M.

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C E R T I F I C A T E

I HEREBY CERTIFY THAT THE FOREGOING PROCEEDINGS WERE REPORTED STENOGRAPHICALLY BY ME AND THEREAFTER REDUCED TO TYPEWRITING AND THAT THIS TRANSCRIPT IS A TRUE AND ACCURATE RECORD THEREOF.

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COURT REPORTER

# LITTLE VALLEY SUPERFUND SITE
# AMENDMENT TO THE RECORD OF DECISION

## APPENDIX VI

## STATEMENT OF FINDINGS: FLOODPLAINS

**APPENDIX VI**
**RECORD OF DECISION**
**LITTLE VALLEY SUPERFUND SITE**
**STATEMENT OF FINDINGS: FLOODPLAINS**

**Need to Affect Floodplains**

The Cattaraugus Cutlery Area portion of the Little Valley Superfund site is located in the 100-year floodplain. Trichloroethylene (TCE)-contaminated soils on the Cattaraugus Cutlery Area have been determined to be a source of groundwater contamination and pose an unacceptable potential risk to commercial workers. Accordingly, remedial action alternatives were developed in a 2006 Focused Feasibility Study (FFS) to remediate the contaminated soil. The selected remedial alternative, Alternative S-2, calls for in-situ soil vapor extraction (ISVE) of the contaminated soils (approximately 3,000 cubic yards).

In addition to the selected remedy, the FFS also considered a no-action alternative, which does not entail any remediation of the contaminated soils. Under the no-action alternative, the contaminated soils would remain in place, continuing to contaminate the groundwater and continuing to pose a human health risk. Thus, the no-action alternative would not be protective of public health or the environment. The implementation of either of the action alternatives developed in FFS would be more protective of human health and the environment than the no-action alternative, since they would meet the remedial action objectives and cleanup objectives for the site and would result in residual risks less than the no-action alternative.

The Environmental Protection Agency and the New York State Department of Environmental Conservation have determined that there is no practicable alternative that is sufficiently protective of human health and the environment which would not result in the remediation of the contaminated soils at the Cattaraugus Cutlery Area. Consequently, since a remedial action is necessary to address the soil contamination at the Cattaraugus Cutlery Area, any soil remedial action that might be taken would affect floodplains.

**Effects of the Proposed Action on the Natural and Beneficial Values of Floodplain**

The Cattaraugus Cutlery Area was determined to have only limited value for ecological receptors, since only a small amount of habitat, consisting of small isolated fragments of deciduous woodland or open field, exists.

The installation of ISVE wells, associated piping, and treatment system will result in minimal disturbance to the floodplain. It is estimated that the ISVE system would require one month to install and three years to achieve the soil cleanup objectives. The area affected by the ISVE system includes approximately 16,000 square feet.

It is not anticipated that implementation of the selected remedy will result in any significant alteration of the existing site hydrology.

The principal benefit of EPA's selected remedy will be the removal of contaminated soils, a potential source of surface water contamination in the event of a flood. In this context, the selected remedy will have a positive impact on both the natural and beneficial values of the floodplain.

**Compliance with Applicable State or Local Floodplain Protection Standards**

All remedial work will need to comply with the substantive requirements of Executive Order 11990, 40 CFR Part 6 Appendix A, "Statement of Procedures on Floodplains Management & Wetlands Protection."

**Measures to Mitigate Potential Harm to the Floodplains**

It is not believed that a flooding event will result in the disabling of the ISVE system's infrastructure or spread contaminants. This is because the ISVE system (blower, etc.) is located in a sealed, metal cargo container and the granular activated carbon that is used to treat the extracted vapors is situated in two 2,000-pound steel vessels.

Any floodplain resources that are affected by the selected remedial action will be restored.