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 7:00 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 7:00 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:

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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

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 7.6×10^{-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.

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[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.

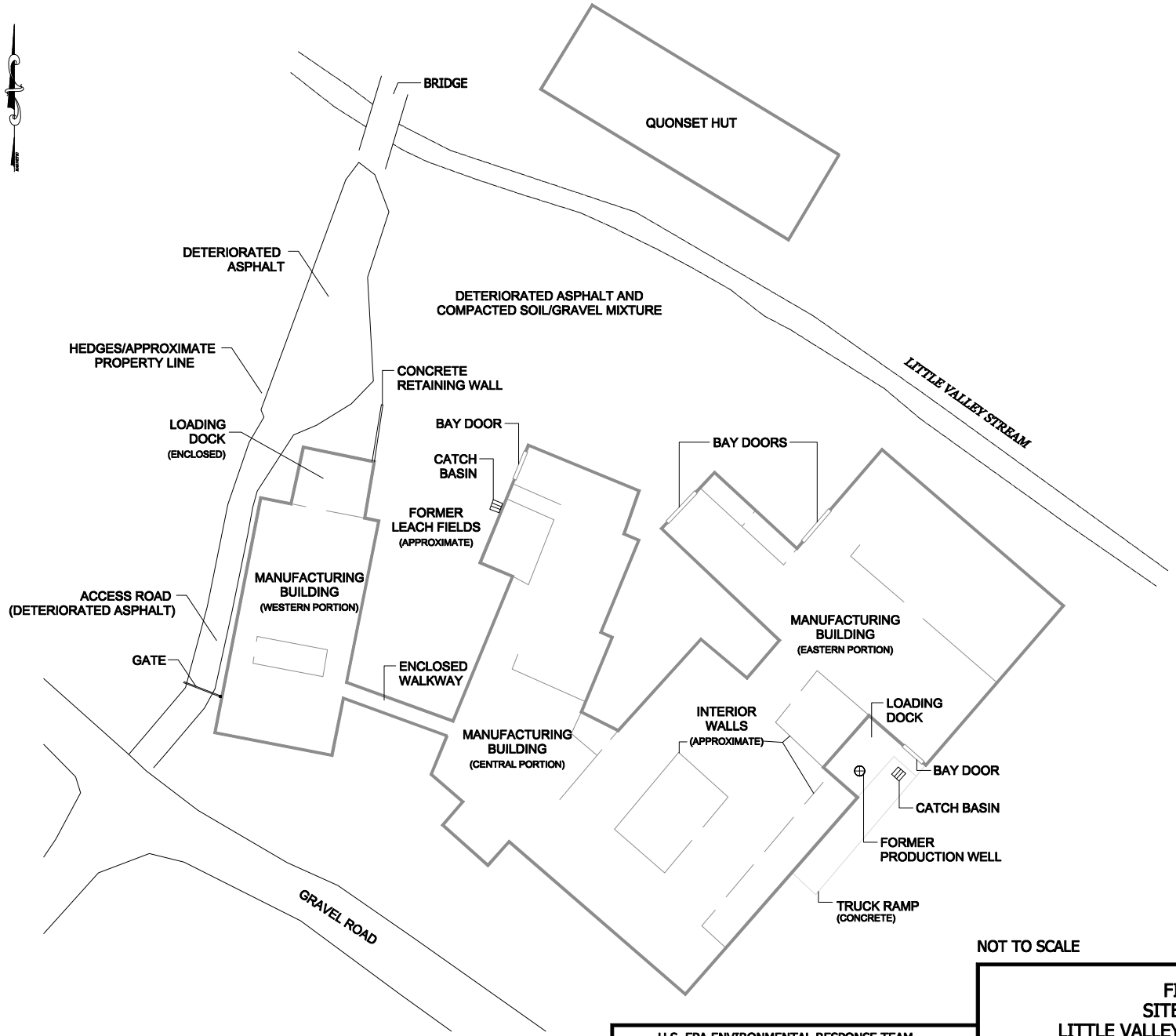
Upon completion of the soil remediation, no hazardous substances would remain above levels that would prevent unlimited use or unrestricted exposure.

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.



NOT TO SCALE

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