

**Five-Year Review Report
Little Valley Superfund Site
Little Valley
Cattaraugus County, New York**

Prepared by:

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

May 2002

Five-Year Review Summary Form

SITE IDENTIFICATION

Site Name (from WasteLAN): Little Valley

EPA ID (from WasteLAN): NY0001233634

Region: 2

State: NY

City/County: Little Valley/Cattaraugus

SITE STATUS

NPL status: Final Deleted Other (specify) _____

Remediation status (choose all that apply): Under Construction Operating Complete

Multiple OUs? YES NO

Construction completion date: _____

Has site been put into reuse? YES NO N/A (site involves groundwater plume and not real property)

REVIEW STATUS

Lead agency: EPA State Tribe Other Federal Agency _____

Author name: Patricia Simmons Pierre

Author title: Remedial Project Manager

Author affiliation: EPA

Review period:** 05/14/1997 to 05/14/2002

Date(s) of site inspection: 04/22/2002

Type of review:

- Post-SARA Pre-SARA NPL-Removal only
 Non-NPL Remedial Action Site NPL State/Tribe-lead
 Regional Discretion Statutory

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

Triggering action:

- Actual RA Onsite Construction at OU#____ Actual RA Start at OU#_1_
 Construction Completion Previous Five-Year Review Report
 Other (specify) _____

Triggering action date (from WasteLAN): 05/14/1997

Due date (five years after triggering action date): 05/14/2002

Does the report include recommendations(s) and follow-up actions(s)? yes no

Is human exposure under control? yes no

Is contaminated groundwater under control? yes no not yet determined

Is the remedy protective of the environment? yes no not yet determined

I. Introduction

This first five-year review for the Little Valley site, located in Little Valley, Cattaraugus County, New York, was conducted by United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM), Patricia Simmons Pierre. The five-year review was conducted pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(F)(4)(ii) and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of five-year reviews is to ensure that sites remain protective of public health and the environment and site remedies function as designed. This document will become part of the site file.

The site is being addressed in two phases—an interim groundwater remedy consisting of individual treatment units (Operable Unit One) and control of the source(s) of groundwater contamination, as well as the final groundwater remedy (Operable Unit Two). Under Operable Unit One (OU1), individual treatment units were installed on private wells. Under Operable Unit Two (OU2), EPA is currently conducting a remedial investigation and feasibility study (RI/FS) to locate the source(s) of groundwater contamination and to identify and evaluate measures to control or mitigate the source area(s) and the groundwater contamination. It is anticipated that a source control and groundwater remedy will be selected by December 2003. Since the RI has not been completed for OU2, this five-year review focuses on OU1.

In accordance with the Section 1.5.3 of the five-year review guidance, a statutory five-year review is triggered by an interim remedy. The trigger for the five-year review was the start of the installation of the individual treatment units on May 14, 1997.

This five-year review found that the individual treatment units called for in the OU1 Record of Decision (ROD), as modified by an Explanation of Significant Differences (ESD), are functioning as designed and have addressed the immediate threat to public health.

II. Site Chronology

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

III. Background

Physical Characteristics

The site area includes a plume of trichloroethylene (TCE)-contaminated groundwater, which extends approximately eight miles along Route 353 between the Village of Little Valley and the northern edge of the City of Salamanca (see Figure 1). The plume 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 above msl near the northern edge of the City of Salamanca. The plume area

is bordered by steeply sloping wooded hillsides, which attain slopes of up to 25 percent and elevations of 2,200 feet above msl.

The nearest surface water bodies associated with the site are the Little Valley Creek and its tributaries. Little Valley Creek flows southeast, then south through the Little Valley site for approximately eight miles before joining the Allegheny River. Little Valley Creek is a perennial stream with typical stream flow ranging from 20 to 80 cubic feet per second (cfs) during normal precipitation periods and one to ten cfs during severe drought conditions.

Site Geology/Hydrogeology

The site geology consists of a U-shaped glacial valley filled with glacially-derived outwash deposits that are frequently overlain by more recent alluvial deposits. The glacial-derived deposits of Little Valley are predominately coarse sand and gravel with isolated lenses of silt and clay. Typically, there are five to thirty feet of alluvial silt and fine sand over the gravel. In some areas, the sand and gravel aquifer is overlain by glaciolacustrine silty clay or clay. These thin lenses are not laterally or vertically extensive.

The water table in the valley ranges from near the surface to 50 feet below the ground surface. In general, the water table is deepest in the upper (northern) portion of the valley and gets closer to the ground surface as one moves down the valley toward the Allegheny River. The overall groundwater flow direction is from north to south, following the slope of the valley topography.

Land and Resource Use

While the site is located in a rural, agricultural area, a number of active and inactive small industrial facilities are located in the area. There are more than two hundred residential properties situated along Route 353. Private water supply wells constitute the only source of drinking water for these properties.

History of Contamination

In 1982, the Cattaraugus County Health Department (CCHD) and the New York State Department of Environmental Conservation (NYSDEC), while investigating TCE contamination in the vicinity of a small manufacturing facility on Route 353, detected TCE in nearby private wells. In 1989, CCHD and New York State Department of Health (NYSDOH) determined that the TCE contamination plume extended from the Village of Little Valley to the northern edge of the City of Salamanca. NYSDEC installed a number of monitoring wells in the area to investigate possible sources of the contamination. No sources were found.

Initial Response

Although CCHD issued health advisories to the exposed residents in 1989, affected well owners

were not provided with alternate water sources. About six property owners independently installed granular activated carbon filter systems and others purchased bottled water.

Basis for Taking Action

Following the listing of the site on the NPL in June 1996, EPA prepared a focused feasibility study (FFS) to develop, screen, and evaluate alternatives for an alternative water supply system for the affected and potentially affected residences at the site.

IV. Remedial Actions

Remedy Selection

Based upon the findings of the FFS, EPA issued a ROD on September 30, 1996, providing for the installation of air stripper treatment unit¹ on all affected and potentially affected private wells to ensure that drinking water standards are met². The ROD also called for an evaluation of the efficacy of the 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 ESD, EPA determined that it would be more appropriate to evaluate the need for a permanent alternative water supply during the selection of a final remedy for the site, which will address the source area(s) and the groundwater contamination. EPA also determined that because of the downward trend in contaminant concentrations in the private wells³, granular activated carbon units alone will effectively remove the contamination. Therefore, EPA will remove the air stripper treatment units and only use granular activated carbon units. Under NYSDEC and NYSDOH standard operating procedures, two granular activated carbon treatment units in series are required for individual wells. So as to comply with this requirement, when the air strippers are removed, an additional carbon unit will be added.

Remedy Implementation

The design related to the individual treatment units was performed from December 1996 through March 1997. Installation of the air stripper treatment units was performed from May 1997 through

¹ The ROD called for the installation of air stripper treatment units on TCE-contaminated private wells associated with the site. 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. Subsequently, granular activated carbon units were installed in addition to the air strippers as polishing units to insure the consistent removal of contaminants.

² The drinking water standard for TCE, the contaminant of concern, is 5 micrograms per liter ($\mu\text{g/l}$).

³ The highest concentration of TCE is now 18.5 $\mu\text{g/l}$, as compared to an historical high of 50 $\mu\text{g/l}$.

October 1997. Subsequently, 1.5 cubic foot-granular activated carbon treatment units were installed hydraulically downgradient of the air strippers. Currently, there are air stripper/granular activated carbon treatment units installed on 90 private wells at the site.

Upon the execution of an amendment to the Superfund State Contract (SSC)⁴ with New York State for the site, funding will be provided for the removal of the air strippers and the installation of an additional granulated activated carbon unit on each well as per the ESD.

System Operations/Operation and Maintenance

Routine maintenance is conducted on the treatment units on a quarterly basis, and repairs are performed as needed. The most recent quarterly maintenance was performed in January 2002. As part of the ongoing maintenance of the treatment units, EPA evaluates the effectiveness of the treatment units by sampling the groundwater passing through the individual treatment systems. Private wells in the area are sampled annually.

The air strippers are reaching the end of their useful life. Therefore, the maintenance requirements associated with these units will likely increase. EPA will remove the air stripper treatment units and only use granular activated carbon units to address the contamination in the private wells. The estimated cost to remove the existing air strippers, perform structural repairs related to the removal of the air stripper vents, rebed the existing carbon units, and install new carbon units is \$238,000. The estimated annual operation and maintenance cost for two granular activated carbon treatment units in series is \$217,000. The costs are broken down in Table 2 (attached).

V. Five-Year Review Process

Administrative Components

The five-year review team consisted of Patricia Simmons Pierre (RPM), James Haklar (On-Scene Coordinator), Michael Scorca (Hydrogeologist), and Michael Sivak (Risk Assessor) of EPA and Gregory Sutton of NYSDEC.

Community Involvement

The EPA Community Involvement Coordinator (CIC) for the Little Valley site, Michael Basile, published notices in the *Olean Times Herald* and the *Salamanca Press*, the local newspapers, on April 30, 2002, notifying the community of the initiation of the five-year review process. The notice indicated that EPA would be conducting a five-year review of the individual treatment units to ensure that the implemented remedy remains protective of public health and is functioning as

⁴ Superfund-financed remedial actions are cost-shared by the affected states. The SSC will, among other things, provide New York State's cost for the additional work. The amendment to the SSC was sent to NYSDEC for execution on April 2, 2002.

designed. It was also indicated that once the five-year is completed, the results will be made available in the local site repositories. In addition, the notice included the RPM's and the CIC's addresses and telephone numbers for questions related to the five-year review process or the Little Valley site. A similar notice will be sent when the review is completed.

Document Review

The documents, data, and information which were reviewed in completing the five-year review are summarized in Table 3 (attached).

Data Review

A review of the historical residential well sampling data indicates that the number of affected wells in the site area is decreasing. Of the 90 private wells that have treatment units installed, 16 are now at or below the drinking water standard of 5 µg/l for TCE. Of the 74 wells that have contaminant levels exceeding the drinking water standard, the majority of these wells only marginally exceed 5 µg/l (49 wells have TCE levels between 6 mg/l and 10 mg/l). In addition, sampling results since 1989 indicate that there is a downward trend of contaminants in all but a few wells; the highest concentration is now 18.5 µg/l, as compared to an historical high of 50 µg/l. The pre- and post-treatment sampling results from wells with treatment systems and the sampling results from wells without treatment systems are summarized in the *Residential Well Sampling Data, 1989 - 2001*.

Site Inspection

EPA routinely evaluates the effectiveness of the individual treatment units by sampling the groundwater passing through the treatment units. Therefore, a separate five-year review-related site inspection was not necessary. The most recent maintenance visit was in January 2002.

Interviews

Since the air strippers were installed, James Haklar, the On-Scene Coordinator, and Michael Basile, the CIC, received complaints from residents concerning the electrical costs to operate the air stripper treatment units and the noise that they make. EPA's decision in its ESD to replace the air stripper treatment units with granular activated carbon treatment units responds to the residents' complaints.

VI. Technical Assessment

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

The objective of the ROD, as modified by the ESD, is to prevent exposure of area residents to contaminated groundwater. Based upon the review of the documents summarized in Table 3 and the results of the routine evaluations of the treatment units, it has been concluded that the remedy is functioning as intended by the ROD, as modified by the ESD. The residents are not being exposed

to contaminated groundwater.

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

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no changes in the Applicable or Relevant and Appropriate Requirements and no new standards affecting the protectiveness of the remedy.

The exposure assumptions used to develop the human health risk assessment were residential exposure via ingestion, direct contact, and inhalation during bathing. There have been no changes in the toxicity factors for TCE that were used in the baseline risk assessment and no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

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

There is no information that calls into question the protectiveness of the individual treatment units.

Technical Assessment Summary

Based upon the results of the five-year review, it has been concluded that the individual treatment units are functioning as intended by the ROD, as modified by the ESD. A technical assessment of the OU1 remedy was conducted in the ESD. The ESD concluded that because of the downward trend in contaminant concentrations in the private wells, granular activated carbon units alone will be able to effectively remove the contamination.

Although EPA is currently conducting a groundwater and source identification and control RI/FS, and data from this investigation is not available, a review of the historical residential well sampling data indicates that the number of affected wells in the site area is decreasing.

VII. Recommendations and Follow-Up Actions

Table 4, below, summarizes the recommendations and follow-up actions stemming from this 5-year review.

Table 4: Recommendations and Follow-up Actions						
Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Replace the air strippers with granulated activated carbon units.	Upon execution of the SSC by New York State, funding will be provided for the removal of the air strippers and the installation of an additional granulated activated carbon unit on each well.	EPA	EPA	October 2002	N	N
Source control and final groundwater remedy has not been selected.	Complete Proposed Plan and ROD for OU2.	EPA	EPA	December 2003	N	Y

VIII. Protectiveness Statement

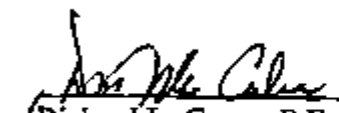
The individual treatment units currently protect residents from exposure to contaminated groundwater. It is expected to remain protective of public health until the next five-year review.

A protectiveness determination related to OU2 cannot be made at this time, as the source control and groundwater RI/FS is currently underway. However, the investigation, to date, has not identified any direct exposure to contamination other than groundwater contamination. Since the individual treatment units prevent exposure to contaminated groundwater, it appears that human exposure is under control.

IX. Next Review

The subsequent OU2 ROD will address the final groundwater remedy. The selection of a final groundwater remedy will require a review of the OU1 remedy. Consequently, the OU2 ROD will constitute the second five-year review.

Approved:


 Richard L. Caspe, P.E., Director
 Emergency and Remedial Response Division

5-16-02
 Date

Emergency and Remedial Response Division

Table 1: Chronology of Site Events	
Event	Date(s)
Cattaraugus County Health Department (CCHD) and New York State Department of Environmental Conservation (NYSDEC) investigate trichloroethylene contamination at a local manufacturing facility.	1982
CCHD and New York State Department of Health sample residential wells.	1989-1996
NYSDEC conducts a source investigation.	1989-1994
Little Valley Site listed on National Priorities List.	1996
Alternate water supply Record of Decision signed.	1996
Source identification and control remedial investigation and feasibility study commences.	1997
Installation of stripper treatment units on impacted residential wells.	1997
Alternate water supply Explanation of Significant Differences issued.	2002

Table 2: Annual Operating Costs	
Activity	Annual Cost
Sampling and Analysis	\$80,000
Carbon Replacement	\$27,000
Ultraviolet Light Bulb Replacement	\$10,000
Labor	\$40,000
Miscellaneous (equipment and other direct costs)	\$60,000
Total Estimated Cost	\$217,000

Table 3: Documents, Data, and Information Reviewed in Completing the Five-year Review

<ul style="list-style-type: none">• Focused Feasibility Study Report, EPA, August 1996
<ul style="list-style-type: none">• Record of Decision, EPA, September 1996.
<ul style="list-style-type: none">• Remedial Design Report, EPA, March 1997.
<ul style="list-style-type: none">• Operation and Maintenance Manual, Earth Tech, Inc., August 1997.
<ul style="list-style-type: none">• Remedial Action Report, EPA, September 1998.
<ul style="list-style-type: none">• Assessment of individual treatment units Costs, EPA, January 2002.
<ul style="list-style-type: none">• Residential Well Sampling Data, 1989 - 2001.
<ul style="list-style-type: none">• Assessment of individual treatment units Costs, Little Valley Superfund Site, EPA, October 2001
<ul style="list-style-type: none">• Explanation of Significant Differences, EPA, April 2002.
<ul style="list-style-type: none">• EPA Hazardous Substance Response Fund Contractor Cost/Receiving Reports from 1997 - 2002.
<ul style="list-style-type: none">• Sampling Trip Reports and Data Transmittal Memos, prepared by Roy F. Weston, Inc. for EPA.
<ul style="list-style-type: none">• EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new applicable or relevant and appropriate requirements relating to the protectiveness of the remedy have been developed since EPA issued the ROD.

Table 5: Acronyms Used in this Document	
ARAR	Applicable or Relevant and Appropriate Requirement
CCHD	Cattaraugus County Health Department
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
CIC	Community Involvement Coordinator
ESD	Explanation of Significant Differences
FFS	Focused Feasibility Study
MCL	Maximum Contaminant Level
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Protection
NYSDOH	New York State Department of Health
RA	Remedial Action
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
TCE	Trichloroethene