

**THIRD FIVE-YEAR REVIEW REPORT  
FOR  
BENNINGTON LANDFILL SUPERFUND SITE  
BENNINGTON COUNTY, VERMONT**

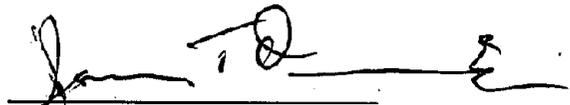
Superfund Records Center  
SITE: BENNINGTON LANDFILL  
BREAK: 8.3  
OTHER: 565412



September 2014

Prepared by

**U.S. Environmental Protection Agency  
Region 1 - New England  
BOSTON, MASSACHUSETTS**

  
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Office of Site Remediation and Restoration

9/16/14  
Date



SDMS DocID 565412

**2014 FIVE-YEAR REVIEW  
BENNINGTON LANDFILL SUPERFUND SITE**

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## LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
CWA	Clean Water Act
FYR	Five-Year Review
GAC	Granular activated carbon
HAAS	Hazardous ambient air standards
IC	Institutional control
IPC	Influent pump chamber
LCTS	Leachate collection treatment systems
LTMP	Long-term monitoring plan
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MW	Monitoring well
NCP	National Contingency Plan
NFA	No Further Action
NPL	National Priorities List
NTCRA	Non-Time Critical Removal Action
O&F	Operational and functional
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PCOR	Preliminary Close-Out Report
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
TAL	Target analyte list
TCA	1,1,1-trichloroethane
TCE	trichloroethylene

TCG	Target Cleanup Goals
VGES	Vermont Groundwater Enforcement Standards
VOC	Volatile Organic Compound
VT DEC	Vermont Department of Environmental Conservation
VT DOH	Vermont Department of Health
VTGWES	Vermont Groundwater Enforcement Standard
Ug/L	Microgram per Liter

## EXECUTIVE SUMMARY

This is the third Five-Year Review (FYR) for the Bennington Landfill Superfund Site (Site) located at Houghton Lane, Bennington, VT. The purpose of this FYR is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of these reviews are documented in the FYR Reports. In addition, FYR Reports identify issues found during the review, if any, and recommendations to address them.

The Non-Time Critical Removal Action (NTCRA) for the Site included excavation and on-site disposal of contaminated soils, a multi-layer landfill cap, drainage controls, passive gas vents, an interceptor trench for surface and ground water, groundwater and leachate collection and on-site treatment, long-term monitoring, and institutional controls. A 1998 Record of Decision (ROD) made the final remedial decision that no further action (NFA) beyond the NTCRA was required at the Site to protect human health and the environment. The Site achieved construction completion on June 30, 1999. In the ROD, EPA also determined that it would conduct FYRs of the Site as a matter of policy. The first of these reviews was signed on September 21, 2004, the second was signed on September 11, 2009 and is the trigger date for this third five-year review report. The VT Department of Environmental Conservation (VT DEC) has reviewed and provided input into this FYR report.

This third FYR found that the remedy is constructed in accordance with the requirements of the NTCRA Action Memorandum, Consent Decree (CD), and (ROD). The remedy is functioning as designed, the response actions are protective, and thus the remedy at this Site is protective of human health and the environment.

## Five-Year Review Summary Form

SITE IDENTIFICATION		
<b>Site Name:</b> Bennington Landfill Superfund Site		
<b>EPA ID:</b> VTD981064223		
<b>Region:</b> 1	<b>State:</b> VT	<b>City/County:</b> Bennington, VT
SITE STATUS		
<b>NPL Status:</b> Final		
<b>Multiple OUs?</b> Yes	<b>Has the site achieved construction completion?</b> Yes	
REVIEW STATUS		
<b>Lead agency:</b> EPA		
<b>Author name (Federal or State Project Manager):</b> Almerinda Silva		
<b>Author affiliation:</b> EPA		
<b>Review period:</b> 1/29/2014 – 9/11/2014		
<b>Date of site inspection:</b> June 6, 2014		
<b>Type of review:</b> Policy		
<b>Review number:</b> 3		
<b>Triggering action date:</b> 9/11/2009		
<b>Due date (five years after triggering action date):</b> 9/11/2014		

Protectiveness Statement(s)	
<i>Operable Unit:</i> OU1 & OU2	<i>Site Wide Protectiveness Determination:</i> Protective
<p><i>Protectiveness Statement:</i> Contamination at the Site has been addressed through excavation and on-site disposal of contaminated soil, capping of contaminated soil on-site, a leachate and groundwater collection system, on-site treatment of contaminated groundwater and leachate, gas collection vents, and institutional controls, thus there is no exposure of Site related waste to humans or the environment at levels that would represent a health concern. Operation and maintenance activities and regular oversight inspections ensure that the remedy remains effective and the Site is protective of human health and the environment.</p>	

## I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA 121 states:

*“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”*

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which states:

*“If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action.”*

The EPA conducted this FYR of the response actions implemented at the Bennington Landfill Superfund Site (Site) in Bennington, VT. This review was conducted from January 29, 2014 through September 2014. The FYR included consultation with the VT Department of Environmental Conservation (VT DEC). This report documents the results of the review.

This is the third FYR for the Site. There are two operable units (OUs) at the Site: a non-time critical removal action (NTCRA) and a no further action (NFA) remedial decision. Operation and maintenance continues at the Site. Therefore, this FYR addresses the status of the Site response actions in their entirety and considers components of both the NTCRA and the final remedial decision. The triggering action for this policy review is the date of the previous FYR Report, signed on September 11, 2009. This policy review is conducted because hazardous substances, pollutants, or contaminants remain on-site above levels that allow for unlimited use and unrestricted exposure.

## **II. PROGRESS SINCE THE LAST REVIEW**

The second Five-Year Review Report was signed on September 11, 2009 and found the Site to be protective in the short and long-term.

### **Protectiveness Determinations/Statements from the 2009 FYR**

Because the response actions at the entire Site are protective, the Site is protective of human health and the environment. Contamination at the Site has been addressed through excavation and on-site disposal of contaminated soil, capping of contaminated soils on-site, a leachate and groundwater collection system, on-site treatment of contaminated groundwater and leachate, gas collection vents, and institutional controls. Operation and maintenance activities and regular oversight inspections ensure that the remedy remains effective and the Site is protective of human health and the environment.

### **Status of Issues and Recommendations from the 2009 FYR**

There were no issues that affected current or future protectiveness identified in the 2009 FYR. The Site inspection conducted during the 2009 FYR did identify several minor maintenance issues requiring attention which include:

- burrow holes and other areas of animal disturbance;
- areas of mower damage that needed to be filled and seeded;
- small trees and bushes near the perimeter of the landfill cap extension that needed to be removed;
- areas of subsidence and depressions that needed to be watched for increases in settling;
- soil loss and settling along the northeastern perimeter ditches that needed filling, seeding, and watch for future cap stability;
- sediment was observed at the outlet pipe openings in the perimeter ditch near the northeast corner of the landfill that needed to be removed periodically;
- the gabions needed to continue to be monitored for evidence of overturning or other instability, especially in the area of the gabion retaining wall where the bulging has been noted in previous inspections; and
- monitoring should be done on a monthly basis, or more frequently in time of high precipitation.

All of these maintenance issues have been and continue to be promptly addressed as the need arises.

An additional recommendation listed below that does not affect the protectiveness of the Site was identified in the 2009 FYR.

The recommendation listed here simply transfers ambient monitoring responsibility from the EPA to the VT DEC as required per the Memorandum of Agreement, dated August 2001, between the U.S. EPA and VT DEC.

- Transfer of ambient monitoring responsibility from the U.S. EPA to VT DEC is documented in a letter dated September 9, 2014, from Mr. Chuck Schwer, Section Chief of the Sites Management Section with the VT DEC, to Mr. Michael Jasinski, Section Chief of ME/VT/CT/NH/RI Superfund Section with the U.S. EPA (See Appendix G for copy of this letter).

## **Remedy Implementation Activities**

No remedy implementation activities other than O & M took place during this FYR period.

## **System Operation/Operation and Maintenance Activities**

Long-term monitoring of groundwater, surface water, and sediment has continued during the period covered by this review (Fall 2009 to Summer 2014). Operation and maintenance activities continue to be performed by the Town of Bennington on a regular and timely basis.

## **III. FIVE-YEAR REVIEW PROCESS**

### **Administrative Components**

The Town of Bennington who is the PRP for the Site and the VT DEC were notified of the initiation of the FYR on January 29, 2014. This FYR was led by Almerinda Silva, the EPA Remedial Project Manager, and John Schmeltzer, the VT DEC Project Manager, assisted in the review.

The review, which began on January 29, 2014, consisted of the following components:

- Community Notification and Involvement;
- Document Review;
- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

### **Community Notification and Involvement**

Activities to involve the community in this five-year review process were initiated with a discussion in January 2014 between the Remedial Project Manager and Community Involvement Coordinator for the Site. Per Region 1 policy, a region-wide press release announcing all upcoming five-year reviews in New England was sent to all regional newspapers including the Bennington Banner. The press release was sent on February 13, 2014 and is attached in Appendix B. The results of the review and the report will be made available at the Site information repository located at:

Bennington Town Hall  
205 South Street  
Bennington, VT 05201

and at

US Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

## **Document Review.**

This five-year review consisted of a review of relevant documents including monitoring data. Applicable groundwater, surface water, and sediment cleanup standards, as listed in the 1998 Record of Decision, and the Grant of Environmental Restrictions and Right of Access which describes institutional controls (See Appendix H for detail) were also reviewed.

## **Data Review**

A summary evaluation of groundwater, surface water, and sediment sampling results is presented below. A No Further Action final Record of Decision (ROD) was signed in October 1998, which summarized the basis for the No Further Action (NFA). According to the ROD, the NTCRA (i.e. landfill cap, interceptor trench, along with all of the other landfill cap components) resolved the exposure pathways with the exception of groundwater. The ROD went on to say that the NTCRA institutional controls (ICs) will effectively prevent use of the contaminated groundwater at the Site. Therefore, the establishment of cleanup standards was not required for groundwater, surface water, or sediment. Long-term monitoring is being performed to document that conditions documented in the Remedial Investigation/Feasibility Study (RI/FS) and used as the basis for the NFA do not change. Site-Specific Target Cleanup Goals (TCGs) were established for the long-term monitoring as a basis for evaluation of groundwater data. The TCGs are the more stringent of the Maximum Contaminant Levels (MCLs) established by the Federal Safe Drinking Water Act or State of Vermont Groundwater Enforcement Standards (VTGWES). Contaminants of Concern (COCs) for the Site include metals (arsenic, barium, and manganese) and PCBs that have exceeded VTGWES and MCLs during long-term monitoring of Site groundwater. Historically, other metals that have been detected at the Site no longer exceed the TCGs. Site groundwater monitoring wells, surface water, and sediment sampling locations are shown on Figure 2.

## **Groundwater**

According to the last FYR in 2009, groundwater data had indicated stable or decreasing trends in downgradient well contaminant levels. Additionally, at the time of the 2009 FYR, the extent of downgradient metals and PCB impacts did not appear to be expanding beyond historic limits.

Since the 2009 FYR, groundwater, surface water, and sediment samples have been collected as part of the long-term monitoring required by the 1998 ROD. In September 2009, groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and PCB homologs. Surface water and sediment samples were analyzed for metals and PCB homologs. In July 2010, groundwater, surface water, and sediment samples were analyzed for metals and PCB homologs. In December 2013, groundwater, surface water, and sediment samples were also analyzed for metals and PCB homologs.

A review of the results of September 2009 sampling indicates no VOCs or SVOCs were detected above the VTGWES/MCL and most results were below laboratory detection limits. Arsenic and manganese

concentrations were detected in exceedance of VTGWES/MCL in several wells for both total and dissolved metals including well B-19. The highest concentration of arsenic (27.6 ug/L) was detected at B-23. The highest concentration of manganese (3,000 ug/L) was detected at PZ-1. Groundwater samples were also analyzed for PCB homologs and samples from six of twenty-two wells contained PCBs at concentrations greater than 0.5 ug/L. The highest concentration (4.13 ug/L) was detected at B-5-2.

Twenty-two groundwater samples collected during July 2010 were only analyzed for metals and PCBs. Arsenic and manganese concentrations were detected above the VTGWES/MCL at most wells in both total and dissolved metals samples. The highest arsenic concentration (92.1 ug/L) was detected at B-2-2. The highest manganese concentration (1,953 ug/L) was detected at B-19. Groundwater samples from five of twenty-two wells contained PCBs at concentrations greater than the target cleanup goal (TCG) of 0.5 ug/L. The highest concentration (2.09 J ug/L) was detected at B-5-2.

In 2013, groundwater samples were collected from 10 wells and analyzed for only total metals and PCB homologs. Arsenic was not detected at concentrations exceeding the VTGWES, however, the detection limit was set at 20 ug/L; therefore concentrations were less than the detection limit, but potentially higher than the VTGWES of 10 ppb. Manganese concentrations were detected at concentrations above the VTGWES of 300 ppb (an MCL does not exist) in six of the ten wells sampled located upgradient from the landfill where manganese was 4-6 times higher than the VTGWES. Total PCB concentrations did not exceed the 0.5ug/L TCG.

In summary, concentrations of VOCs, SVOCs, metals, and PCB homologs were within the historic range for samples collected as part of the RI/FS and the 2006 long-term monitoring sample round with the exception of arsenic in the sample collected from well B-2-2 on July 26, 2010, which was slightly higher than the historic range of concentrations. The location and number of wells sampled as part of the long-term monitoring provide sufficient coverage to monitor the location and concentrations of the contaminated plume. PCBs found were all located east of the edge of the landfill. Based on the analytical data for the samples collected since the last FYR, it appears that the contaminant plume has not expanded beyond its historic limits and it remains within the IC zone. Concentrations of COCs detected in samples collected in 2009, 2010, and 2013 are shown on Figure 3 in Appendix D and listed on Table 1 listed in Appendix C.

## **Surface Water**

Surface water samples have been collected as part of the long-term monitoring from wetlands and Hewitt Brook located hydraulically down gradient of the landfill. According to the last FYR in 2009, surface water samples had only been collected in 1999 and 2000 up to that time. Results of metals and PCBs were compared to RI/FS data and concentrations were consistent. As a result, EPA determined surface water sampling was no longer necessary based on these unchanged conditions.

Surface water sampling was reinstated as part of the long-term monitoring of the Site in 2009. Results of surface water samples collected in 2009 and 2010 indicated concentrations of metals were generally within the historic range detected in the RI/FS with the exception of arsenic (59.1 ug/L) and barium (2,140 ug/L) in the sample collected from SW-05 on September 18, 2009 which were slightly higher than the historical range for samples collected as part of the Remedial Investigation. In 2013, one surface water sample was collected at SW-02, which is immediately upstream from the Site boundary to

the east. Concentrations of COCs in the 2013 sample collected from SW-02 were lower than the 2010 sampling event and within the historic range of concentrations for surface water detected during the RI. In general, concentrations of COCs in surface water decrease with distance downstream of the landfill. Concentrations of COCs detected in samples collected in 2009, 2010 and 2013 are shown on Figure 4 in Appendix D and listed on Table 2 in Appendix C.

### **Sediment**

Sediment samples have been collected as part of long term monitoring from wetlands and Hewitt Brook located hydraulically down gradient of the landfill. At the time of the last FYR in 2009, sediment samples had only been collected in 1999. In general, the concentrations of PCBs were comparable to RI/FS data. Arsenic, barium, and iron were detected at higher concentrations, however EPA concluded the concentrations did not pose an increased risk to human health or the environment. As a result, sediment sampling was discontinued.

Sediment sampling was reinstated as part of the long-term monitoring of the Site in 2009. Numerous metals were detected in the sediment samples collected in September 2009, July 2010, and December 2013. Currently, there are no standards for metals in sediments at the Site; however, these results are comparable to historical RI/FS data and October 1999 long-term monitoring data. The maximum concentrations of arsenic (156 mg/kg), barium (4,320 mg/kg) and manganese (27,600 ug/L) were detected in the sample from SED-08 on September 18, 2009. Concentrations of total PCB homologs were less than the NTCRA cleanup criteria of 1,000 ug/kg in long-term monitoring sediment samples collected in 2009, 2010, and 2013. In general, concentrations of COCs in sediment decrease with distance downstream of the landfill. Concentrations of COCs detected in samples collected in 2009, 2010, and 2013 are shown on Figure 5 and listed on Table 3.

### **Site Inspection**

The inspection of the Bennington Landfill was conducted on June 6, 2014. In attendance were Almerinda Silva EPA Remedial Project Manager, Michael Jasinski, EPA ME/VT/CT & NH/RI Section Chief, and Greg Michale, Nobis Engineering Inc. consultant to EPA. Also in attendance were John Schmeltzer and James Surwilo, representing VT DEC. The purpose of the inspection was to assess the protectiveness of the remedy. The inspection team walked the surface of the landfill and observed the condition of the landfill cap, storm water drainage structures, and gas vents. Due to a significant reduction in the flow from the former landfill underdrain pipe, the leachate collection treatment system (LCTS) installed to treat the landfill leachate was deactivated in 2008 and has not been used since that time. Therefore, the LCTS was not inspected. A checklist was prepared during the inspection and photographs were taken to document the condition of the landfill, all of which are presented in Appendix F.

The landfill appeared to be in good condition on the date of the inspection. The vegetated landfill surface was in good condition with no evidence of significant settlement, erosion, or damage. Landfill gas vents and storm water drainage structures were observed to be in good working condition. Several minor issues were identified during the inspection including:

- Several shallow holes less than 12 inches deep were observed on the eastern side of the landfill that may be animal burrows.
- Minor vegetation was observed growing in storm water drainage structures including slope benches and perimeter ditches.
- Woody vegetation was observed growing adjacent to the toe of the landfill cap and drainage structures in several locations.

The Town should continue monitoring for and remove any burrowing animals found on the landfill. Sediments and vegetation should be removed from drainage structures if the flow of storm water is impeded. Woody vegetation growing adjacent to the landfill cap should be removed periodically. These items can be addressed as part of the routine operation and maintenance and do not affect the protectiveness of the landfill cap system. Changes in the use of the Site were not observed that would be inconsistent with the ICs place on the Site property.

### **Interviews**

During the FYR process, interviews were conducted by Almerinda Silva, EPA Remedial Project Manager, with parties impacted by the Site. These parties included: Stuart Hurd, Manager for the Town of Bennington and PRP representative; John Schmeltzer, VT DEC Project Manager; Steve Brusio, resident and Site gate keeper; Dale Baker, Manager for Cassella Waste Management; and Brenda Rowland, resident. The purpose of the interviews was to document any perceived problems or successes with the remedy that has been implemented to date. Interviews were conducted during the month of July 2014. The general consensus was that the Site was functioning as intended and being maintained properly. No one had questions or concerns. The record of interviews is included in Appendix E.

## **IV. TECHNICAL ASSESSMENT**

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

**Yes.**

### ***Remedial Action Performance***

The long-term monitoring data and oversight inspections confirm that the NTCRA is functioning as intended and that the No Further Action ROD monitoring program is being implemented. The information sources include review of the available documents, review of post NTCRA monitoring data, the interviews, and the Site inspection. The landfill cap and the leachate collection treatment system (LCTS) have achieved the remedial objectives to minimize the migration of contaminants and prevent direct contact with, or ingestion of, contaminants.

Evidence to indicate that the remedy is performing as intended includes the following:

- The remedial objectives of the cap have been achieved by preventing direct exposure to waste and contaminated soils. All waste materials consolidated under the cap as part of the NTCRA were placed at least 30 feet above the groundwater table to ensure there would be no further impact to area groundwater.
- There is no indication that the cap is leaking; therefore, the objective of reducing or eliminating the generation of landfill leachate has been met. The cap is maintained and inspected by the Town of Bennington. The Town is responsible for repair work at the landfill.
- At the time of this FYR, the landfill cap and upgradient groundwater isolation system appear to be functioning as designed and in good overall condition. The surface of the landfill remains stable and shows no signs of erosion or cracks. The benches in the landfill surface are also functioning as designed and in good overall condition. Perimeter ditches remain in good overall condition and operating as designed. The outlet pipes and riprap outlet of the drainage layer at the perimeter of the cover system remains in good overall condition. The upgradient groundwater isolation system continues to function as designed and requires minimal maintenance.
- Construction of the landfill cap and leachate collection system were designed to eliminate the discharge of contaminants to surface water receptors. With continued maintenance of the landfill cap and decommissioning of the leachate collection system in 2008, future compliance regarding surface water and sediments can be expected without additional remedial action.

### ***System Operations/O&M***

- The operation and maintenance of the cap and the decommissioning of the leachate collection system has been and continues to be effective. Issues identified during semi to annual inspections are regularly addressed or continue to be monitored. The current sampling and analytical methods for groundwater, surface water, and sediment are adequate to evaluate the performance of the remedy. The location and number of wells sampled give sufficient coverage to monitor the location and concentrations of the contaminated plume within the IC zone.

### ***Opportunities for Optimization***

- EPA in consultation with VT DEC has reduced the number of wells to be sampled and the monitoring frequency to every five years unless a reason arises in the future that necessitates an increase in monitoring.

### ***Early Indicators of Potential Issues***

- There have not been any indicators of potential issues (such as IC non-compliance) since the last FYR.

### ***Implementation of Institutional Controls and Other Measures***

- A restrictive covenant has been placed on the property to prevent the use of contaminated groundwater and disturbance to the cap and its appurtenances. The impacted groundwater has been reclassified as non-potable to further prevent future use. No activities were observed that would have violated the institutional controls. ICs ensure that the risk of exposure is low by preventing use of groundwater and any land activities that could threaten the effectiveness of the landfill cap and remedy as well as to protect against risk to human health and the environment.

**QUESTION B:** Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy section still valid?

**No.** Although there have been changes in exposure assumptions and risk assessment methods since the risk assessments were conducted to support the 1998 ROD, the changes do not affect the remedy protectiveness as discussed below.

### ***Changes in Standards and TBCs***

As discussed in the 2009 FYR, the MCL for arsenic was updated from 50 ppb to 10 ppb in 2002. There have been no other changes to the COCs identified in the February 1998 Risk Assessment. As no groundwater cleanup levels were identified for the Site in the No Further Action ROD and institutional controls prevent the use of groundwater, the new arsenic MCL does not affect the protectiveness of the remedy.

### ***Changes in Exposure Pathways***

For groundwater, the exposure assumptions used to develop the ROD focused on the groundwater ingestion pathway; potential dermal contact with groundwater used as a household water source and inhalation of volatiles during household water use were not evaluated. However, these pathways presently are not a concern because institutional controls prevent residential development, installation of groundwater wells and use of groundwater for any purpose. In addition based on the analytical data collected for the samples collected since the 2009 five-year review, the contaminant plume has not expanded beyond its historical limits and COCs identified in the 1998 Risk Assessment do not appear to be migrating off site.

The vapor intrusion pathway was not evaluated in the 1998 ROD. The current and future land use of the landfill itself is considered non-residential because of the institutional controls which prevent

constructing residences on the landfill. The areas surrounding the landfill are considered residential, however the residences are not currently located in close proximity to the predicted location of the plume. The transfer station adjacent to the landfill is not an enclosed structure and therefore any potential future vapor intrusion pathway for this building is not complete.

### ***Changes in Toxicity***

There have been no changes to the toxicity values of the COCs identified in the February 1998 Risk Assessment since the 2009 FYR.

### ***Changes in Risk Assessment Methods***

In 2014, EPA finalized a Directive to update standard default exposure factors and frequently asked questions associated with these updates.

[http://www.epa.gov/oswer/riskassessment/superfund\\_hh\\_exposure.htm](http://www.epa.gov/oswer/riskassessment/superfund_hh_exposure.htm) (items # 22 and #23 of this web link). Some of these exposure factors differ from those used in the risk assessments for the 1998 ROD. These changes in general would result in a slight decrease of the risk estimates for most chemicals. Also note that changes in exposure factors for the groundwater exposure pathway that have occurred since the 1998 ROD do not affect the remedy because of its reliance on institutional controls incorporated during the NTCRA which prevent residential development, installation of groundwater wells and use of groundwater for any purpose.

### ***Expected Progress Towards Meeting RAOs***

The remedy is progressing as expected. Data indicate that the landfill cap and isolation trench are effective at preventing infiltration of water through the solid waste mass. Decommissioning of the LCTS in 2008 is another measure that leachate has been significantly reduced, thus is not negatively impacting the shallow unit of groundwater downgradient of the landfill. Cleanup goals for arsenic, iron, manganese, and PCBs are not fully met. However, the contaminant plume has not expanded its extent either horizontally or vertically, indicating that the remedy is effective at preventing the spread of site-related contamination. There are no ARARs established at this Site and this FYR found no appreciable changes from the last two FYRs. In addition, ICs ensure that risk of exposure is low by preventing use of groundwater and any land activities that could threaten the effectiveness of the landfill cap and remedy as well as protect against risk to human health or the environment.

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

No.

## Technical Assessment Summary

According to the data reviewed, the Site inspection, and the interviews, the remedy is functioning as intended by the NTCRA Action Memorandum, and ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. There have been no significant changes to the overall exposure assumptions used in evaluating human health and ecological risk. Because the Site is a no further action, there are no ARARs set in the 1998 ROD at this Site. There is no other information that calls into question the protectiveness of the remedy.

## V. ISSUES/RECOMMENDATIONS AND FOLLOW-UP ACTIONS

There are no issues which affect the protectiveness of the remedy. For continued protection and effectiveness of remedy implementation, regular O&M should be continued by the Town of Bennington with oversight by VT DEC and EPA.

While there are no protectiveness issues at this time, it is possible that conditions not addressed by continued and timely O&M could potentially affect protectiveness in the future. Future remedy protectiveness would only be affected if the O&M is not consistent at or above the level conducted at present

## VI. PROTECTIVENESS STATEMENTS

Protectiveness Statement(s)		
<i>Operable Unit:</i> <i>Operable Unit OUI &amp;OU2</i>	<i>Protectiveness Determination:</i> Site Wide Protectiveness Statement	<i>Addendum Due Date</i> <i>(if applicable):</i> Click here to enter a date.
<i>Protectiveness Statement:</i> Contamination at the Site has been addressed through excavation and on-site disposal of contaminated soil, capping of contaminated soil on-site, a leachate and groundwater collection system, on-site treatment of contaminated groundwater and leachate, gas collection vents, and institutional controls, thus there is no exposure of Site related waste to humans or the environment at levels that would represent a health concern. Operation and maintenance activities and regular oversight inspections ensure that the remedy remains effective and the Site is protective of human health and the environment.		

## VII. NEXT REVIEW

The next five-year review report for the Bennington Landfill Superfund Site is required five years from the signature date of this review in 2019.

## **APPENDIX A**

### **Existing Site Information**

## APPENDIX A – EXISTING SITE INFORMATION

### A. SITE CHRONOLOGY

**Table 1: Chronology of Site Events**

Date	Event
prior to 1969	Site run as a sand and gravel operation
1969-1985	Site leased by the Town of Bennington as a municipal solid waste and industrial dump
1969-1975	Portion of the site used as a liquid waste lagoon
1987	Landfill closed
March 31, 1989	NPL listing
1990	State solid waste closure performed by the Town of Bennington
1991	Remedial Investigation (RI) begun
December 23, 1994	Action Memorandum to initiate Non-Time Critical Removal Action (NTCRA) signed
November 26, 1996	Administrative Order on Consent (AOC) for NTRCA design signed
December, 1996	NTCRA design phase begins
August 18, 1997	Consent Decree for construction and maintenance of NTCRA signed
September, 1997	NTCRA construction begins
December 23, 1997	RI completed
July 1, 1998	Restrictive covenant and groundwater reclassification for landfill and area of groundwater impact implemented
September 29, 1998	Record of Decision signed
1998	Maintenance and monitoring
June 30, 1999	NTCRA construction completed, PCOR signed
September 21, 2004	First Five-Year Review Report signed
2004-2009	Ongoing Site monitoring, maintenance, and inspections
September 11, 2009	Second Five-Year Review signed

August 2014	Long-Term Monitoring Transferred from EPA to VT DEC
September 2014	Third Five-Year Review signed

## B. BACKGROUND

### Physical Characteristics

The Site consists of a 15-acre municipal solid waste landfill and associated drainage pond situated in an 85-acre parcel owned by the Town of Bennington, Vermont. Prior to the landfill, the location of the Site was a sand and gravel pit. The areas to the north and east of the Site are former borrow pits. The area directly east of the Site is wetland/woodland that is within the groundwater institutional control area and is unlikely to be developed in the future. The other areas surrounding the Site are residential. The Site is bordered by wetlands serving as headwaters for Hewitt Brook to the east of the Site, residential areas are to the south, and U.S. Route 7 to the west. The 2006 U.S. Census Bureau population estimate for the Town of Bennington is 36,382.

### Hydrology

There are two groundwater systems at the Site. The shallow system is comprised of a surficial sand and gravel unit that ranges in thickness from 7 to 29 feet. The saturated thickness of the sand and gravel unit increases with the thickness of the unit. The surficial sand and gravel unit is underlain by a dense glacial till. This unit was consistently dry during drilling and has been characterized as a confining layer. The till layer thickness ranges from 0 feet west of the landfill to 530 feet east of the landfill.

The bedrock and a deep sand and gravel unit represent the second water bearing formation at the Site. This unit is separated from the surficial sand and gravel unit by the till layer. Bedrock is exposed in several locations upgradient of the landfill limiting the horizontal extent of the surficial sand and gravel unit. Groundwater flow in the surficial sand and gravel unit is predominantly west to east with the headwaters of Hewitt Brook serving as a discharge zone for the groundwater. This is confirmed by the pattern of groundwater contamination.

### Land and Resource Use

There were no zoning or other land use restrictions in place at the start of the remedial investigation and feasibility study (RI/FS) that would have precluded future residential use of the Site. The restrictive covenant implemented by the Town of Bennington and State of Vermont as part of the NTCRA prohibits residential development and helps prevent exposure to contaminated soil and groundwater. Landfill use decisions in Bennington County are made by the Bennington County Regional Planning

Commission in accordance with their Regional Plan (most recent is May 17, 2007).

A solid waste transfer station and recycling center are currently located adjacent to the landfill. This transfer station accepts mixed solid waste and recyclables. It is operated by Casella Waste Management.

To compensate for Natural Resource Damages at the Site, the U.S. Fish and Wildlife Service and the Town of Bennington conducted a wetland restoration project approximately 3 miles southeast of the Site on Burgess Road. An antiquated water collection system of concrete cisterns and underground pipes was removed to restore natural hydrologic conditions. The restoration project was completed in 1998, with monitoring through 2001. The project restored 2.8 acres of wetland and protected 14 acres of wetland and upland in perpetuity via a conservation covenant, as required by the 1997 Consent Decree.

In addition, as compensation for Natural Resource Damages at two other Superfund Site (the Burgess Brothers Landfill and the Tansitor Electronics Site), the U.S. Fish and Wildlife Service has restored 2 acres of wetland and 7 acres of grassland immediately adjacent to the Bennington Landfill Superfund Site. This effort was completed in partnership with the Town of Bennington and the USDA Natural Resource Conservation Service.

### **History of Contamination**

The landfill began operations in 1969 and received commercial, residential, and industrial solid and liquid wastes. The Town of Bennington leased the property for use as a landfill until 1985, when the Town purchased the property. In April 1987, the landfill was closed and the Town established a transfer station adjacent to the landfill.

Throughout the entire period of operation (1969 – 1987), residential, industrial, and commercial waste was disposed in the landfill. One portion of the landfill was used for disposal of liquid wastes from 1969 -1975. This area, known as the “lagoon”, was covered with debris and is within the limits of the current solid waste mass. A drainage system was constructed within the landfill in 1976 to lower the groundwater level in the waste. The outlet for this drainage system was a pipe the discharge from which was responsible for the creation of the drainage pond.

The Town of Bennington performed a solid waste closure of the landfill in 1990 in accordance with the Vermont Solid Waste Program. Collection of the underdrain discharge was not included in the solid waste closure.

The surficial sand and gravel aquifer was impacted by the landfill. PCBs, VOCs (including vinyl chloride, chloroethane, 1,1-dichloroethene, 1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene, methylene chloride, and benzene) and several metals (arsenic, barium, and manganese) were detected at elevated levels. Elevated levels of PCBs were also found in the soil and sediment of a small area of standing water near the outlet to the discharge from the drainage pipe.

The contamination of the surficial sand and gravel aquifer extended from under the landfill to the area to the east where groundwater recharges the wetland serving as headwaters for Hewitt Brook. Elevated levels of contaminants were detected in wells abutting the landfill and dropped significantly within several hundred feet of the landfill. There was an increase in arsenic with distance from the landfill that was likely a results of the mobilization of arsenic from natural soil materials due to a reducing environment created by the presence of landfill leachate. Very low levels of VOCs were detected in the

bedrock aquifer adjacent to the landfill. High levels of PCBs were found in the soil and sediment adjacent to the discharges from the underdrain discharge pipe. Some of the PCBs migrated into the sediments of the wetland and of Hewitt Brook.

### **Initial Response**

In December 1994, EPA signed an Action Memorandum to initiate a non-time-critical removal action (NTCRA) at the Site to address the source of contamination. The NTCRA was designed to control the source of contamination to groundwater, surface water, and sediment. The major components of the NTCRA are:

- Construction of a multi-barrier landfill cap over the entire waste mass;
- Construction of an upgradient interceptor trench to divert groundwater upgradient of the landfill around the waste;
- Construction of a leachate collection and treatment system to collect and treat discharge from the underdrain discharge pipe; and
- Excavation and consolidation of sediments and soils with PCB concentrations above 1 milligram per kilogram (mg/kg).

The NTCRA also included ICs to prevent future use of the Site. EPA entered into an Administrative Order with the potentially responsible parties (PRPs) for the design of the NTCRA in 1996. EPA and the PRPs entered into a CD in August 1997. The CD required the PRPs to perform construction activities, implement ICs, and perform long-term post-removal Site control (PRSC). All construction activities and ICs included in the NTCRA were completed in June 1999.

### **Basis for Taking Action**

The initial cleanup action was taken to address the PCB contamination in sediment adjacent to the landfill and to comply with federal and state landfill closure requirements. The Human Health and Ecological Risk Assessment (HHERA) concluded that there was not an unacceptable risk to human health or the environment after completion of the NTCRA.

## **C. REMEDIAL ACTIONS**

### **Remedy Selection**

A ROD selecting "no further action" was signed in September 1998. This ROD records the final remedy decision for the Site. Based on the RI/FS, HHERA, and monitoring results upon the completions of the NTCRA, the ROD determined that no further remedial action was required at the Site to ensure protectiveness of human health and the environment. The ROD did include a long-term monitoring requirement to confirm that conditions upon which the remedy decision was based do not change. EPA is responsible for monitoring activities during the first 10 years (December 1999 – December 2009) of the Site's post construction life; and the State of Vermont is responsible for the

remainder.

### **Remedy Implementation**

The long-term monitoring required by the ROD is being implemented by EPA. The NTCRA construction activities and ICs were completed in June 1999. The cleanup actions implemented by the NTCRA are operated and maintained by the Town of Bennington in accordance with the Action Memorandum and the 1997 CD, with EPA providing oversight.

### **Institutional Controls**

ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any area that do not allow for unlimited use or unrestricted exposure (UU/UE). ICs are required at the Site to ensure the protectiveness of the remedy and are selected in both the NTCRA Action Memorandum and ROD. All non-UU/UE areas are addressed effectively by ICs as determined by IC evaluation activities discussed below. The ICs in use at this Site are effective and no further ICs or changes to the current ICs are recommended at this time.

### **ICs in Site Documents**

The 1993 Action Memorandum for the NTCRA included ICs and the 1997 CD and NTCRA Statement of Work (SOW) detailed IC requirements and outlined the objectives:

- restrict groundwater use;
- limit exposure to landfill material;
- protect remedy components; and
- maintain effectiveness and integrity of response actions.

The ROD states that the ICs implemented as part of the NTCRA adequately address the exposure potential from future use of groundwater.

### **IC Implementation**

The Town of Bennington, as PRP and site owner, recorded a restrictive covenant on the Site properties on July 1, 1998 (Town of Bennington Landfill Records 0-343 p.81). The Town is the grantor and the State the grantee on this covenant. The covenant includes a 35 acre capped landfill parcel and a 46-acre groundwater restriction parcel. Surveys of both parcels are included in the recorded covenant. The covenant includes perpetual right of access, listings of restricted activities, emergency provisions, enforcement stipulations, and termination provisions. The covenant runs with the land and is incorporated into all deeds, mortgages, leases, and transfers. In brief, the restrictions included in the restrictive covenant are:

- no use that disturbs the integrity of the cap, LCIS, gas vents, or other response action or monitoring structures;
- no use of groundwater for any purpose;

- no installation of groundwater wells for purposes other than site-related monitoring; and
- no residential development.

In addition to the restrictive covenant, the State of Vermont reclassified the groundwater at the Site as Class IV (non-potable). This IC provides a layered approach to the potential for groundwater exposure, further ensuring that the groundwater is not used for any purpose.

### **Operation and Maintenance**

The Town of Bennington is conducting long-term monitoring and maintenance activities associated with the PRSC. Such activities focus on the condition of the multilayer landfill cap (e.g., vegetative cover, erosion), the operation of the LTSC now decommissioned and underdrain system, and groundwater monitoring. The primary activities associated with maintenance and long-term monitoring include:

- regular monitoring and maintenance of the LCTS;
- regular inspection of the landfill cap; and
- regular inspection of the landfill cap collection system.

EPA conducts annual inspections of the Site as part of EPA's oversight of the Town of Bennington. Inspections are typically conducted each spring. Oversight of ambient monitoring was transferred from EPA to the State of VT on September 9, 2014. The future monitoring will also include inspection to ensure that the prohibited activities associated with the land use restrictions do not occur. EPA will remain responsible for conducting future Five-Year Reviews of this Site.

## **APPENDIX B**

### **PRESS RELEASE ANNOUNCING THE FIVE-YEAR REVIEW**



**EPA New England News Release**  
Protecting Human Health and the Environment

www

**News Release**

**U.S. Environmental Protection Agency**  
**New England Regional Office**  
**February 13, 2014**

Contact: Emily Zimmerman, 617-918-1037

**EPA Will Review 27 Superfund Site Clean Ups This Year**

**Boston, Mass.** – (February 13, 2014) – EPA will review site clean ups and remedies at 27 Superfund Sites across New England this year by doing routine Five-Year Reviews at each site.

EPA conducts evaluations every five years on previously-completed clean up and remediation work performed at Superfund sites and Federal Facilities listed on the "National Priorities List" (aka Superfund sites) to determine whether the implemented remedies at the sites continue to be protective of human health and the environment. Further, five year review evaluations identify any deficiencies to the previous work and, if called for, recommend action(s) necessary to address them.

In addition to a careful evaluation of technical work at the sites, during the Five Year Review process EPA also provides the public with an opportunity to evaluate preliminary findings and to provide input on potential follow up activity that may be required following the review process.

The Superfund Sites at which EPA is performing Five Year Reviews over the following several months include the following sites. Please note, the Web link provided after each site provides detailed information on site status and past assessment and cleanup activity.

**Connecticut**

Linemaster, Woodstock, CT

<http://www.epa.gov/region1/superfund/sites/linemaster>

Nutmeg Valley, Wolcott, CT

<http://www.epa.gov/region1/superfund/sites/nutmeg>

**Maine**

Saco Tannery Waste Pits, Saco

<http://www.epa.gov/region1/superfund/sites/sacotannery>

## **Massachusetts**

Nyanza Chemical Waste Dump, Ashland  
<http://www.epa.gov/region1/superfund/sites/nyanza>

Baird & McGuire, Holbrook  
<http://www.epa.gov/region1/superfund/sites/baird>

Hatheway & Patterson, Mansfield  
<http://www.epa.gov/region1/superfund/sites/hatheway>

Hocomonco Pond, Westborough  
<http://www.epa.gov/region1/superfund/sites/hocomonco>

Rose Disposal, Lanesborough  
<http://www.epa.gov/region1/superfund/sites/ftrose>

Silresim, Lowell  
<http://www.epa.gov/region1/superfund/sites/silresim>

W.R. Grace, Acton  
<http://www.epa.gov/region1/superfund/sites/graceacton>

Wells G&H, Woburn  
<http://www.epa.gov/region1/superfund/sites/wellsgh>

Norwood PCBs, Norwood  
<http://www.epa.gov/region1/superfund/sites/norwood>

South Weymouth Naval, Weymouth, MA  
<http://www.epa.gov/region1/superfund/sites/sweymouth>

## **New Hampshire**

Ottati & Goss, Kingston  
<http://www.epa.gov/region1/superfund/sites/og>

Tinkham Garage, Londonderry  
<http://www.epa.gov/region1/superfund/sites/tinkham>

Sylvester, Hillsborough County  
<http://www.epa.gov/region1/superfund/sites/sylvester>

Town Garage/Radio Beacon, Rockingham  
<http://www.epa.gov/region1/superfund/sites/towngarage>

New Hampshire Plating, Hillsborough County  
<http://www.epa.gov/region1/superfund/sites/nhplating>

Pease Air Force Base, Portsmouth, Newington and Greenland, NH  
<http://www.epa.gov/region1/superfund/sites/pease>

## **Rhode Island**

Landfill Resource & Recovery, North Smithfield  
<http://www.epa.gov/region1/superfund/sites/lrr>

## **Vermont**

Elizabeth Mine, Strafford  
<http://www.epa.gov/region1/superfund/sites/elizmine>

Parker Sanitary Landfill, Lyndonville  
<http://www.epa.gov/region1/superfund/sites/parker>

Pownal, North Pownal  
<http://www.epa.gov/region1/superfund/sites/pownal>

Bennington Municipal Landfill, Bennington  
<http://www.epa.gov/region1/superfund/sites/bennington>

BFI Sanitary Landfill, Rockingham  
<http://www.epa.gov/region1/superfund/sites/bfi>

Tansitor Electronics, Inc, Bennington County  
<http://www.epa.gov/region1/superfund/sites/tansitor>

Pine Street Canal, Burlington  
<http://www.epa.gov/region1/superfund/sites/pinestreet>

Learn More about the [Latest EPA News & Events in New England](http://www.epa.gov/region1/newsevents/index.html)  
(<http://www.epa.gov/region1/newsevents/index.html>)

Follow [EPA New England on Twitter](http://twitter.com/epanewengland) (<http://twitter.com/epanewengland>)

More info on [EPA's Environmental Results in New England](http://www.epa.gov/region1/results/index.html)  
(<http://www.epa.gov/region1/results/index.html>)

# APPENDIX C

## TABLES

Table 1  
 Historic PCB, Arsenic, Barium, and Manganese Concentrations in Groundwater  
 2009 through 2013  
 Bennington Landfill Superfund Site  
 Bennington, Vermont  
 Page 1 of 2

Standard	Analyte	Total PCBs <sup>1</sup>	Total Arsenic <sup>1</sup>	Total Barium <sup>1</sup>	Total Manganese <sup>1</sup>
	VTGWES <sup>2</sup>	0.5 µg/L	10 µg/L	2,000 µg/L	300 µg/L <sup>3</sup>
	MCL <sup>2</sup>	0.5 µg/L	10 µg/L	2,000 µg/L	NS <sup>4</sup>
Well ID	Sample Date <sup>6,7,8</sup>				
B-1-1	9/15/2009	0.0002	10 U	93.1 J	270
	7/27/2010	0.000121	2.6 J	36.3 J	3.8 J
	12/11/2013	0.013 J	20 U	32	20 U
B-1-2	9/15/2009	0.0006	10 U	105 J	113
	7/27/2010	0.0069	3 J	109 J	143
	12/11/2013*	0.0003 J	20 U	120	640
	12/11/2013*	0.002 J	20 U	120	640
B-2-1	9/15/2009	0.0003	10 U	136 J	89.6
	7/26/2010	0.000539	3 J	111 J	53.2
B-2-2	9/15/2009	0.0184	15.6	619	924
	7/26/2010*	0.0177	92.1	632	920
	7/26/2010*	0.0188	39.4	634	934
B-2-3	9/15/2009	0.0001	10 U	30 J	15 U
	7/26/2010	0.00002	2.6 J	19.5 J	15 U
B-5-1	9/16/2009	1.35	22.8	651	716
	7/28/2010	0.620 J	22.5	631	640
	12/10/2013	0.496 J	20 U	620	530
B-5-2	9/16/2009*	4.06	19	1,350	554
	9/16/2009*	4.13	19.1	1,340	552
	7/28/2010	2.09 J	17.3	1,032	457
B-6-3	9/1/2009	0.0001	2.9 J	123 J	22.1
	7/27/2010	0.000023	1.9 J	115 J	13 J
	12/12/2013	0.0013 J	20 U	180	410
B-8-1	9/17/2009	0.0013	10 U	1,120	841
	7/29/2010	0.0006	2 J	783	879
	12/12/2013	0.0027 J	20 U	130	150
B-15	9/16/2009	0.687	11.1	716	1,650
	7/27/2010*	0.386	10.9	596	1,255
	7/27/2010*	0.422	9.8 J	618	1,297
	12/10/2013	0.174 J	20 U	490	940
B-17	9/16/2009	0.0002	10 U	32.5 J	15 U
	7/28/2010	2.52E-05	1.7 J	30.3 J	1.2 J
	12/10/2013	0.0002 J	20 U	32	20 U
B-18	9/15/2009	0.00003	2.9 J	66.4 J	37.2
	7/27/2010	0.0027	3.9 J	52.1 J	11.5 J
B-19	9/17/2009	0.0013	6.4 J	40.8 J	1,320
	7/27/2010	0.0047	10.2	162 J	1,953
	12/11/2013	0.002 J	20 U	130	1,200
B-20	9/15/2009	0.094	10 U	174 J	1,740
	7/28/2010	0.0592	10 U	199 J	1,605
B-21	9/17/2009	0.005	10 U	680	1,120
	7/29/2010	0.0018 J	2.7 J	631	817
B-22	9/16/2009	0.617	26.4	1,280	656
	7/27/2010	0.853	27.2	1,442	724
B-23	9/15/09*	0.346	27.6	1,130	492
	9/15/09*	0.403	26.7	1,160	504
	7/27/2010	0.223	29.5	956	450

Table 1  
 Historic PCB, Arsenic, Barium, and Manganese Concentrations in Groundwater  
 2009 through 2013  
 Bennington Landfill Superfund Site  
 Bennington, Vermont  
 Page 2 of 2

Standard	Analyte	Total PCBs <sup>1</sup>	Total Arsenic <sup>1</sup>	Total Barium <sup>1</sup>	Total Manganese <sup>1</sup>
	VTGWES <sup>2</sup>	0.5 µg/L	10 µg/L	2,000 µg/L	300 µg/L <sup>3</sup>
	MCL <sup>2</sup>	0.5 µg/L	10 µg/L	2,000 µg/L	NS <sup>4</sup>
Well ID	Sample Date <sup>6,7,8</sup>				
MW-3	9/16/2009	2.13	31.3	764	602
	7/28/2010	<b>0.942 J</b>	<b>32.5</b>	881	<b>663</b>
MW-4	9/17/2009	0.0418	8.8 J	547	<b>1,290</b>
	7/28/2010	0.0366 J	7.5 J	505	<b>1,425</b>
PZHB-01	9/16/2009	0.280	9.9 J	749	<b>497</b>
	7/26/2010	0.138	7.2 J	686	<b>427</b>
	12/10/2013	0.32 J	20 U	1300	<b>750</b>
PZ-1	9/15/2009	<b>1.29</b>	10 U	1,020	<b>3000</b>
	7/27/2010	<b>0.580</b>	3.9 J	553	<b>588</b>
PZ-2	9/15/2009	0.198	10 U	718	<b>1,100</b>
	7/27/2010	0.0815	2.7 J	487	6.4 J
MW-5	12/11/2013	0.0007 J	20 U	29	20 U

**Notes:**

- \* Indicates a duplicate groundwater sample
- 1. All sample results in micrograms per liter (µg/L), equivalent to parts per billion.
- 2. VTGWES = Vermont Groundwater Enforcement Standard (State of Vermont Agency of Natural Resources (VTANR), Revised May 2005), MCL = Maximum Contaminant Level (USEPA)
- 3. Interim VTGWES (VTANR 3/6/2009)
- 4. NS = No Standard established, PCBs = polychlorinated biphenyls, B = Value is between instrument detection limit and Contract Required Detection Limit (CRDL), E = Estimated due to presence of interference, J = Estimated value, U = Not detected above specified instrument detection limit (prior to 2004), not detected above the Contract Required Quantification Limit (2004 Data), or below detection limit (2009 and 2010 data)
- 5. **Bold** values exceed VT-GWES and/or MCL.
- 6. Data dated 2009 excerpted from Draft Fall 2009 *Groundwater Monitoring Datas Summary Report, Bennington Landfill Superfund Site, Bennington, Vermont*, Nobis Engineering, Inc., June 2010.
- 7. Data dated 2010 excerpted from *July 2010 Groundwater Monitoring Datas Summary, Bennington Landfill Superfund Site, Bennington, Vermont*, Nobis Engineering, Inc., August 2011.
- 8. Data dated 2013 collected by EPA.
- 9. Yellow highlight signifies wells that were sampled in December 2013.

**Table 2**  
**Historic PCB, Arsenic, Barium, and Manganese Concentrations in Surface Water**  
**2009 through 2013**  
**Bennington Landfill Superfund Site**  
**Bennington, Vermont**

Location ID	Analyte Sample Date <sup>2,3,4</sup>	Total PCBs <sup>1</sup> (µg/L)	Total Arsenic (µg/L)	Total Barium (µg/L)	Total Manganese (µg/L)
SW-01	9/18/2009	NA	0.22 J	383	14.7 J
	7/29/2010	0.0038 J	0.42 J	412	11.8 J
SW-02	9/18/2009	NA	0.22 J	401	40.2
	7/29/2010	0.0072 J	0.49 J	459	127
	12/12/2013	0.0003	20 U	370	89
SW-03	9/18/2009	NA	0.35 J	506	61.7
	7/29/2010	0.0108 J	0.41 J	548	55
SW-04	9/18/2009	NA	4	889	1960
	7/29/2010	0.0198 J	0.67 J	744	74.9
SW-05	9/18/2009	0.03775 J	59.1	2140	14200
	7/29/2010	0.0248 J	7.7	1076	1629
SW-06	9/18/2009	0.00396 J	0.72 J	277	106
	7/29/2010	NA	0.95 J	305	49
SW-07	9/18/2009	0.01208 J	11.9	611	5080
	7/29/2010	0.0118	3.8	440	692
SW-08	9/18/2009	NA	NA	NA	NA
	7/29/2010	0.0268 J	3.9	1196	413
SW-09	9/18/2009	NA	NA	NA	NA
	7/29/2010	0.0137 J	0.93 J	271	27.9
SW-10	9/18/2009	NA	NA	NA	NA
	7/29/2010	NA	NA	NA	NA
SW-11	9/18/2009*	0.08554 J	7.4	525	716
	9/18/2009*	0.1198 J	6.4	436	632
	7/29/2010*	0.041 J	2.8	539	16.1
	7/29/2010*	0.0426 J	2.9	540	18.4
SW-12	9/18/2009	0.10683 J	20.5	511	299
	7/29/2010	0.0381 J	3.1	552	40.2
SW-13	9/18/2009	0.53176 J	5.4	435	1040
	7/29/2010	0.0781 J	2.3	525	16.6
SW-14	9/18/2009	0.47184 J	10.7	729	2080
	7/29/2010	0.0474 J	2.7	551	51.5
SW-15	9/18/2009	0.64552 J	10.1	757	2300
	7/29/2010	0.0922 J	2.4	573	78.5

**Notes:**

- \* Indicates a duplicate sample
- 1. PCBs = polychlorinated biphenyls, J = Estimated value, U = Not detected above detection limit.
- 2. Data dated 2009 excerpted from Draft Fall 2009 *Groundwater Monitoring Data Summary Report, Bennington Landfill Superfund Site, Bennington, Vermont*, Nobis Engineering, Inc., June 2010.
- 3. Data dated 2010 excerpted from *July 2010 Groundwater Monitoring Data Summary, Bennington Landfill Superfund Site, Bennington, Vermont*, Nobis Engineering, Inc., August 2011.
- 4. Data dated 2013 collected by EPA.

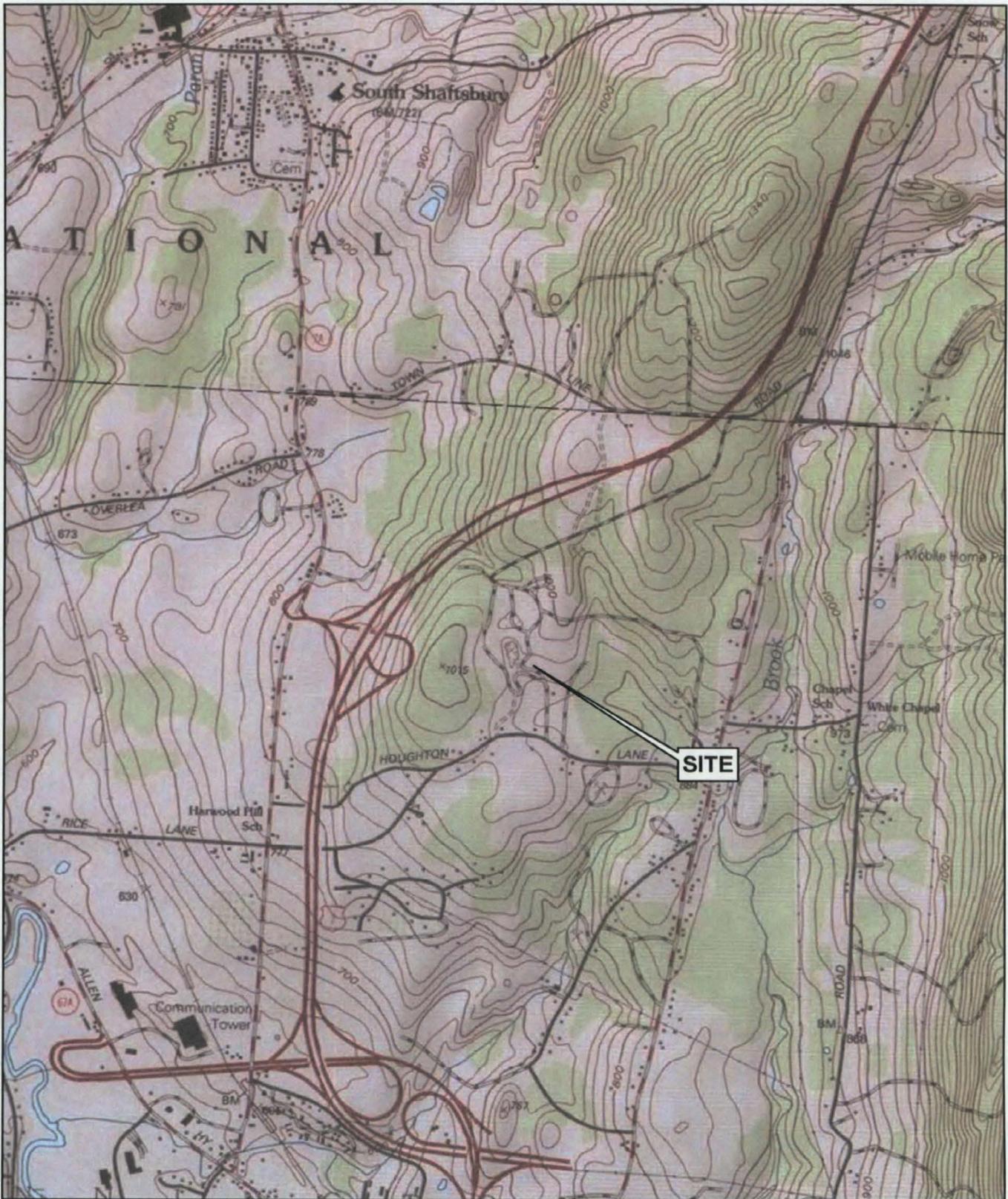
Table 3  
**Historic PCB, Arsenic, Barium and Manganese Concentrations in Sediment**  
**2009 through 2013**  
**Bennington Landfill Superfund Site**  
**Bennington, Vermont**

	Analyte	Total PCBs (µg/kg)	Total Arsenic (mg/kg)	Total Barium (mg/kg)	Total Manganese (mg/kg)
Location ID	Sample Date <sup>2,3,4</sup>				
SED-01	9/18/2009	8.714	1.8	36.7	413
	7/29/2010	4.32	2.3	34.5	319
SED-02	9/18/2009	8	1	78.1	207
	7/29/2010	0.963	2.7	86.6	1141
	12/12/2013	79.70	26	1500	19000
SED-03	9/18/2009	17.5	5.7	438	2580
	7/29/2010	4.11	7.8	234	2329
SED-04	9/18/2009	2.1	3	98.1	619
	7/29/2010	9.55 J	14.2	378	3956
SED-05	9/18/2009	34.8	30.4	1590	8990
	7/29/2010	11.6 J	43	1046	8072
SED-06	9/18/2009	16.3	2.1	60.6	670
	7/29/2010	3.75	2.3	28.4	377
SED-07	9/18/2009	2.8	1.8	14.2 J	119
	7/29/2010	3.41	4	26.4	549
SED-08	9/18/2009	145.3	156	4320	27600
	7/29/2010	7.18	4.1	133	402
SED-09	9/18/2009*	320.9	113	1090	3370
	9/18/2009*	97.4	91.6	809	2580
	7/29/2010	96.6 J	14.5	137	587
SED-10	9/18/2009	146.9	42.3	274	3150
	7/29/2010	19.3	70.5	190	1167
SED-11	9/18/2009	614.9	14.4	79.1	221
	7/29/2010*	96.9 J	33.4	73.8	257
	7/29/2010*	100. J	27	458	2973
SED-12	9/18/2009	217.9	18.4	842	4060
	7/29/2010	61.8 J	17.2	50.5	272
SED-13	9/18/2009	67.1	10	58.4	581
	7/29/2010	82.8 J	31.2	113	1091
SED-14	9/18/2009	286.1	11.7	52	352
	7/29/2010	11.4 J	9.8	61.9	369
SED-15	9/18/2009	174.4	10.4	63.3	610
	7/29/2010	9.73	15.3	64.2	624

# APPENDIX D

## FIGURES

Path: R:\80000 Task Orders\80019 Bennington\Technical Data (TD)\GIS\Fig\_1\_Bennington\_Locus.mxd Date Printed: 7/30/2014



USGS Topographic Map  
Bennington, VT  
Revised 1997

0 500 1,000 2,000  
Feet  
1 inch = 2,000 feet

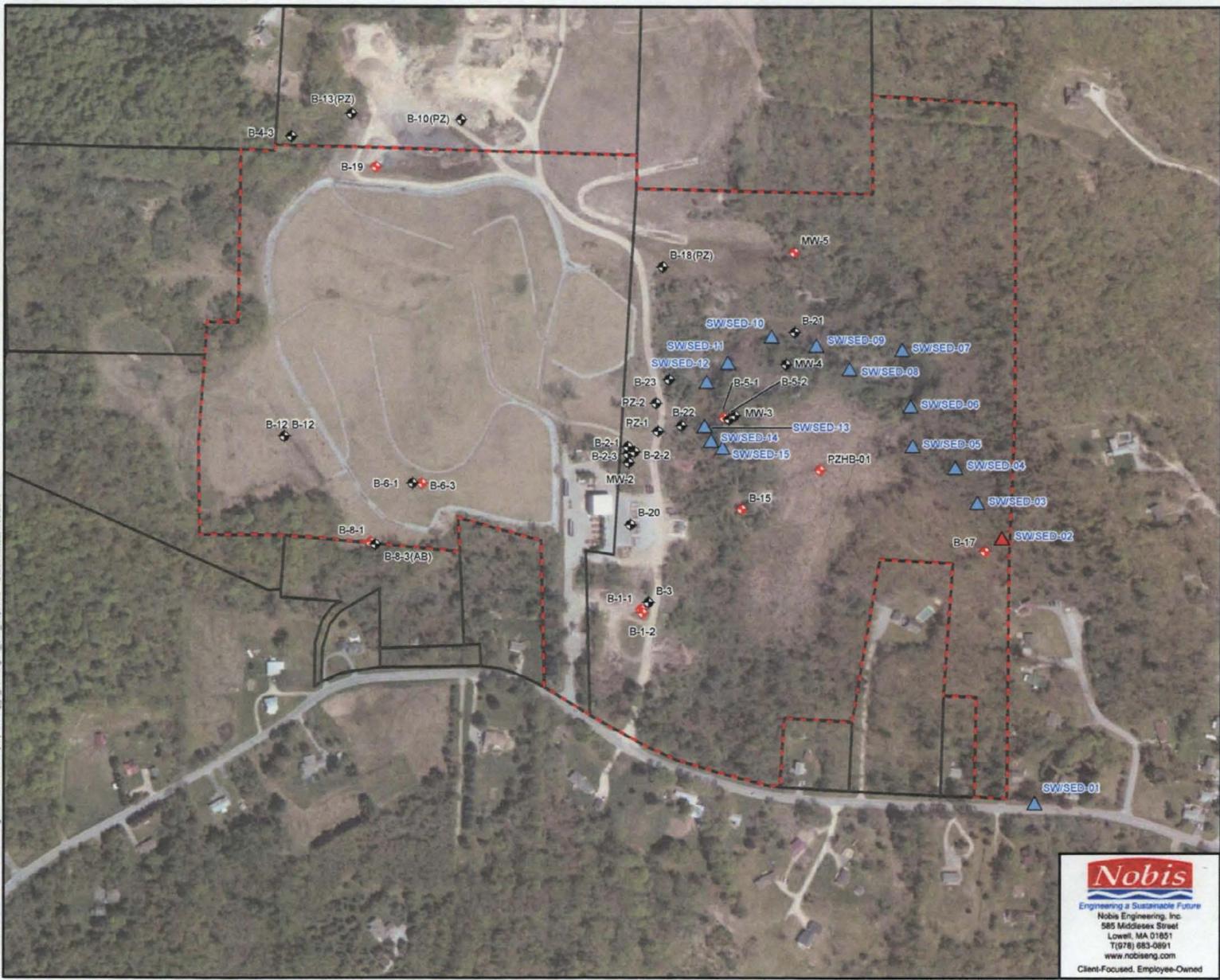


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**FIGURE 1**  
**LOCUS MAP**  
**BENNINGTON LANDFILL**  
**SUPERFUND SITE**  
**BENNINGTON, VERMONT**

PREPARED BY: JH	CHECKED BY: GM
PROJECT NO. 80019	DATE: JULY 2014

Path: R:\00000 Task Orders\00012 Bennington\Technical Data (TD)\GIS\Fig\_2\_Bennington\_Site\_Map.mxd Date Printed: 7/30/2014

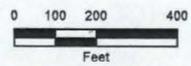


**Notes:**

1. Plan images were adjusted to the best possible fit to aerial photograph and additional images. Locations and dimensions are approximate.
2. Data Sources: Aerial imagery provided by ESRI, Dames & Moore plan titled: "Petition for Groundwater Reclassification, Bennington, Vermont Landfill"; Gerald E. Morrissey, Inc. plan titled "Map of Property Showing Bennington Landfill Environmental Restrictions", May 13, 1998; TRC plan titled "Figure 2 Site Map, Bennington Landfill, Bennington Vermont", April 2006.

**Legend**

- ◆ Monitoring Well
- ◆ Monitoring Well for LTM Starting in 2013
- ▲ Surface Water / Sediment Sample Location
- ▲ Surface Water / Sediment for LTM Starting in 2013
- Approximate Property Line
- Approximate Site Boundary



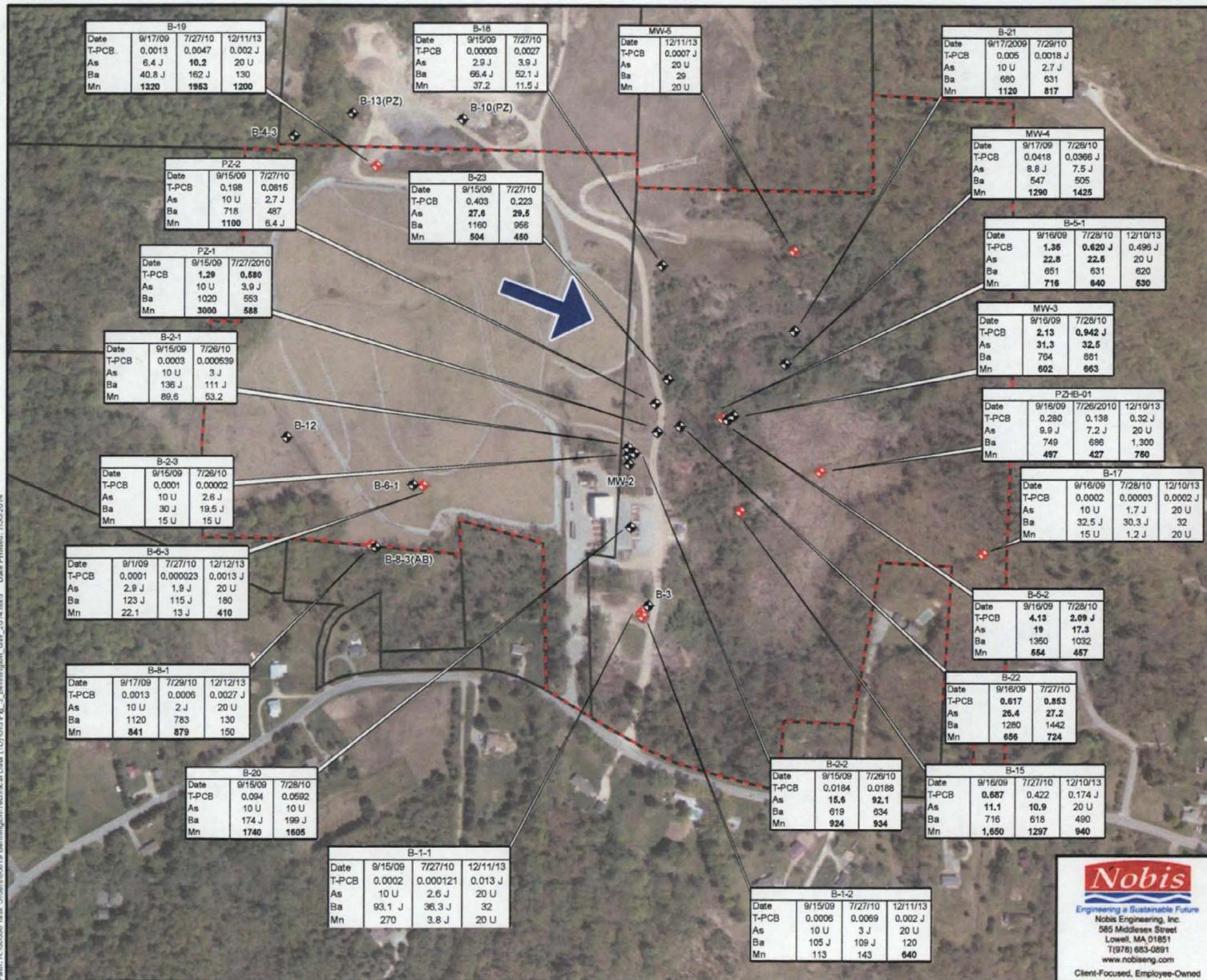
Approximate Scale



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<b>FIGURE 2</b>	
SITE MAP BENNINGTON LANDFILL SUPERFUND SITE BENNINGTON, VERMONT	
PREPARED BY: JH	CHECKED BY: GM
PROJECT NO. 80019	DATE: JULY 2014

Path: R:\00000 Task: 01-0000019 Bennington\Technical Data (TD)\GIS\Fig\_3\_Bennington\_OW\_2014.mxd Date Printed: 7/20/2014



**Notes:**

1. Plan images were adjusted to the best possible fit to aerial photograph and additional images. Locations and dimensions are approximate.
2. Data Sources: Aerial imagery provided by ESRI. Dames & Moore plan titled: "Petition for Groundwater Reclassification, Bennington, Vermont Landfill"; Gerald E. Morrissey, Inc. plan titled "Map of Property Showing Bennington Landfill Environmental Restrictions", May 13, 1998; TRC plan titled "Figure 2 Site Map, Bennington Landfill, Bennington Vermont", April 2006.
3. Analytical results are presented in parts per billion (ppb), and represent the total concentration of each analyte. **Bold** values indicate an exceedance of Vermont Groundwater Enforcement Standard (VTGWES) or MCL. J = Result is estimated; U = Analyte not detected above sample specific detection limit. T-PCB = Total Polychlorinated Biphenyl Homologues.

**Legend**

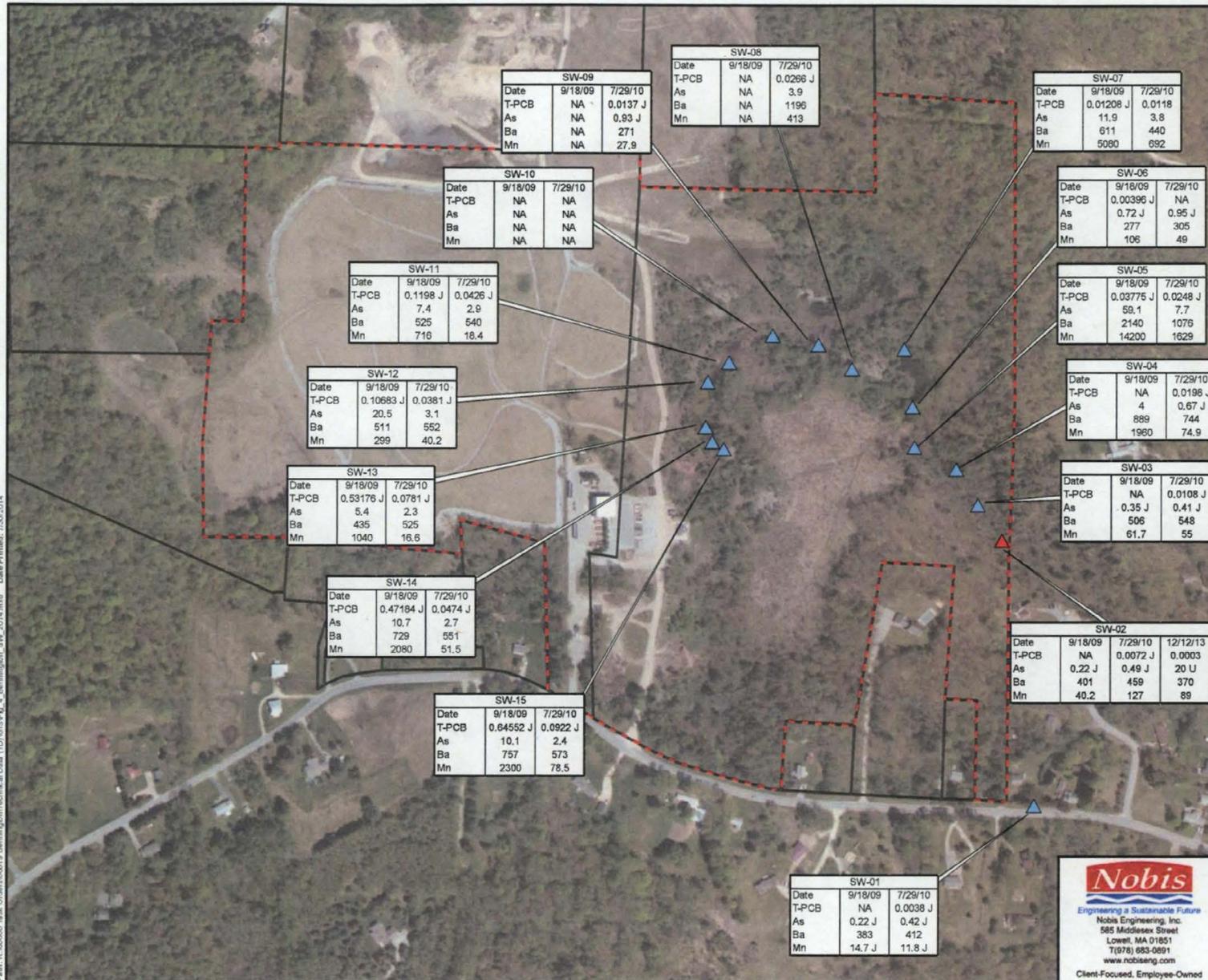
- Monitoring Well
- Monitoring Well for LTM Starting in 2013
- Approximate Property Line
- Approximate Site Boundary
- Approximate Groundwater Flow Direction

0 100 200 400  
Feet  
Approximate Scale

**FIGURE 3**  
CONTAMINANT CONCENTRATIONS IN  
GROUNDWATER  
BENNINGTON LANDFILL  
SUPERFUND SITE  
BENNINGTON, VERMONT

PREPARED BY: JH	CHECKED BY: GM
PROJECT NO. 80019	DATE: JULY 2014

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**Notes:**

1. Plan images were adjusted to the best possible fit to aerial photograph and additional images. Locations and dimensions are approximate.
2. Data Sources: Aerial imagery provided by ESRI. Dames & Moore plan titled: "Petition for Groundwater Reclassification, Bennington, Vermont Landfill"; Gerald E. Morrissey, Inc. plan titled "Map of Property Showing Bennington Landfill Environmental Restrictions", May 13, 1998; TRC plan titled "Figure 2 Site Map, Bennington Landfill, Bennington Vermont", April 2006.
3. Analytical results are presented in parts per billion (ppb), and represent the total concentration of each analyte. J = Result is estimated; U = Analyte not detected above sample specific detection limit.

**Legend**

- ▲ Surface Water for LTM Starting in 2013
- ▲ Surface Water Sample Location
- ▭ Approximate Property Line
- ▭ Approximate Site Boundary

**FIGURE 4**

**CONTAMINANT CONCENTRATIONS  
IN SURFACE WATER  
BENNINGTON LANDFILL  
SUPERFUND SITE  
BENNINGTON, VERMONT**

PREPARED BY: JH	CHECKED BY: GM
PROJECT NO. 80019	DATE: JULY 2014

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SW-09		
Date	9/18/09	7/29/10
T-PCB	NA	0.0137 J
As	NA	0.93 J
Ba	NA	271
Mn	NA	27.9

SW-08		
Date	9/18/09	7/29/10
T-PCB	NA	0.0266 J
As	NA	3.9
Ba	NA	1196
Mn	NA	413

SW-07		
Date	9/18/09	7/29/10
T-PCB	0.01208 J	0.0118
As	11.9	3.8
Ba	611	440
Mn	5080	692

SW-10		
Date	9/18/09	7/29/10
T-PCB	NA	NA
As	NA	NA
Ba	NA	NA
Mn	NA	NA

SW-06		
Date	9/18/09	7/29/10
T-PCB	0.00396 J	NA
As	0.72 J	0.95 J
Ba	277	305
Mn	106	49

SW-11		
Date	9/18/09	7/29/10
T-PCB	0.1198 J	0.0426 J
As	7.4	2.9
Ba	525	540
Mn	716	18.4

SW-05		
Date	9/18/09	7/29/10
T-PCB	0.03775 J	0.0248 J
As	59.1	7.7
Ba	2140	1076
Mn	14200	1629

SW-12		
Date	9/18/09	7/29/10
T-PCB	0.10683 J	0.0381 J
As	20.5	3.1
Ba	511	552
Mn	299	40.2

SW-04		
Date	9/18/09	7/29/10
T-PCB	NA	0.0196 J
As	4	0.67 J
Ba	889	744
Mn	1960	74.9

SW-13		
Date	9/18/09	7/29/10
T-PCB	0.53176 J	0.0781 J
As	5.4	2.3
Ba	435	525
Mn	1040	16.6

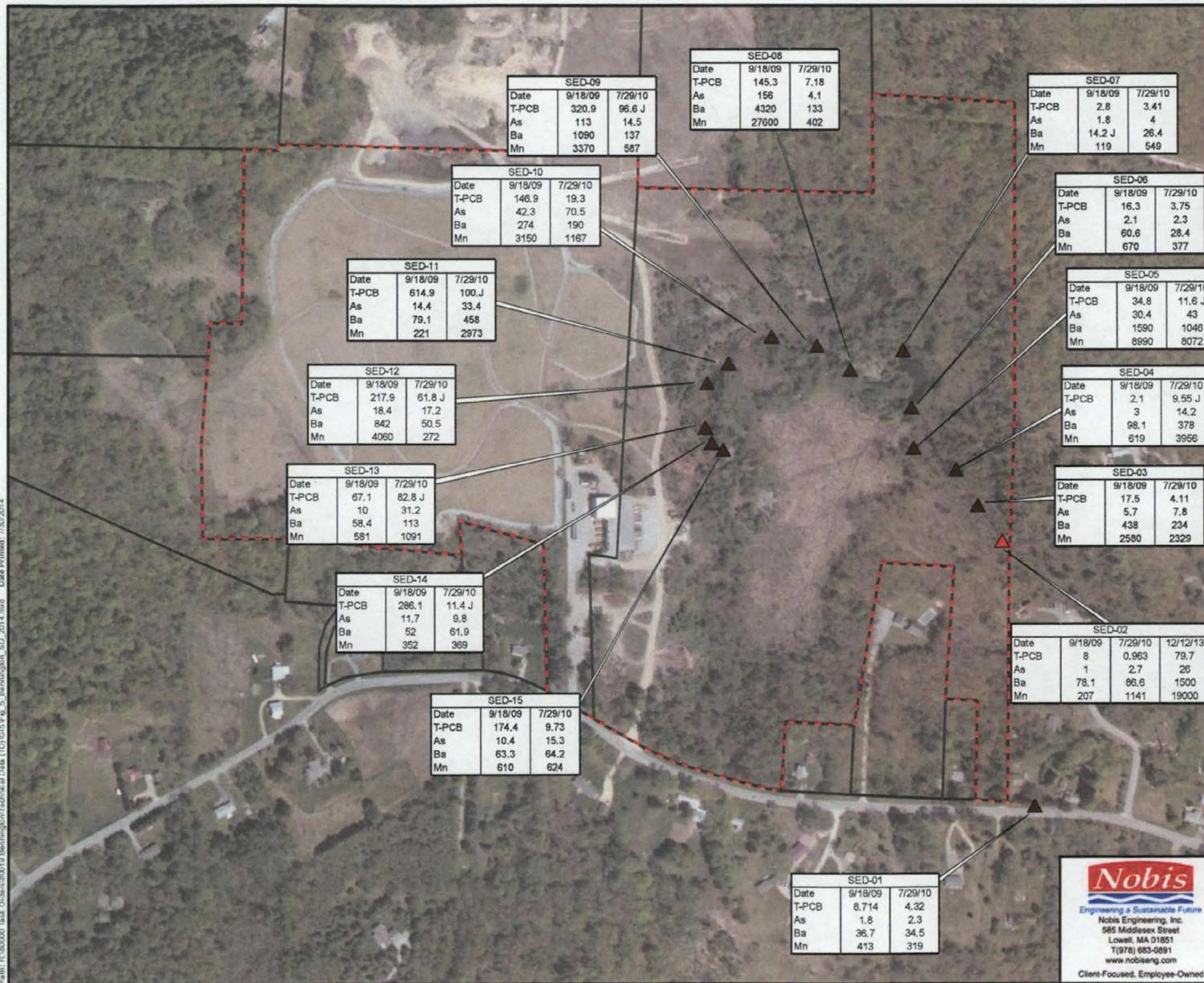
SW-03		
Date	9/18/09	7/29/10
T-PCB	NA	0.0108 J
As	0.35 J	0.41 J
Ba	506	548
Mn	61.7	55

SW-14		
Date	9/18/09	7/29/10
T-PCB	0.47184 J	0.0474 J
As	10.7	2.7
Ba	729	551
Mn	2080	51.5

SW-02			
Date	9/18/09	7/29/10	12/12/13
T-PCB	NA	0.0072 J	0.0003
As	0.22 J	0.49 J	20 U
Ba	401	459	370
Mn	40.2	127	89

SW-15		
Date	9/18/09	7/29/10
T-PCB	0.64552 J	0.0922 J
As	10.1	2.4
Ba	757	573
Mn	2300	78.5

SW-01		
Date	9/18/09	7/29/10
T-PCB	NA	0.0038 J
As	0.22 J	0.42 J
Ba	383	412
Mn	14.7 J	11.8 J



**Notes:**

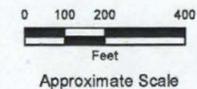
1. Plan images were adjusted to the best possible fit to aerial photograph and additional images. Locations and dimensions are approximate.

2. Data Sources: Aerial imagery provided by ESRI. Dames & Moore plan titled: "Petition for Groundwater Reclassification, Bennington, Vermont Landfill"; Gerald E. Morrissey, Inc. plan titled "Map of Property Showing Bennington Landfill Environmental Restrictions", May 13, 1998; TRC plan titled "Figure 2 Site Map, Bennington Landfill, Bennington Vermont", April 2006.

3. Analytical results are presented in parts per billion (ppb), and represent the total concentration of each analyte. J = Result is estimated; U = Analyte not detected above sample specific detection limit.

**Legend**

- ▲ Sediment Sample Location
- ▲ Sediment for LTM Starting in 2013
- Approximate Property Line
- Approximate Site Boundary



SED-01		
Date	9/18/09	7/29/10
T-PCB	8,714	4,32
As	1.8	2.3
Ba	36.7	34.5
Mn	413	319

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<b>FIGURE 5</b>	
CONTAMINANT CONCENTRATIONS IN SEDIMENT BENNINGTON LANDFILL SUPERFUND SITE BENNINGTON, VERMONT	
PREPARED BY: JH	CHECKED BY: GM
PROJECT NO. 80019	DATE: JULY 2014

# **APPENDIX E**

## **RECORD OF INTERVIEWS**

## INTERVIEW DOCUMENTATION FORM

The following is a list of individuals interviewed for this five-year review. See the attached Record of Interviews for a detailed summary of the interviews.

Name	Title/Position	Organization	Date
<b>John Schmeltzer</b>	Environmental Analyst	Vermont DEC	8/6/14
Name	Title/Position	Organization	Date
<b>Stuart Hurd</b>	Municipal Manager	Town of Bennington	6/29/14
Name	Title/Position	Organization	Date
<b>Dale Baker</b>	Manager	Casella Waste Management	7/23/14
Name	Title/Position	Organization	Date
<b>Steve Brusio</b>	Resident	Homeowner	7/24/14
Name	Title/Position	Organization	Date
<b>Brenda Rowland</b>	Resident	Homeowner	7/20/09
Name	Title/Position	Organization	Date
Name	Title/Position	Organization	Date
Name	Title/Position	Organization	Date

## INTERVIEW RECORD

Site Name: Bennington Landfill	EPA ID No.: VTD981064223
Subject: Third Five-Year Review	Time: 2:30 PM      Date: 8/06/14
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input checked="" type="checkbox"/> Other	Incoming <input type="checkbox"/> X Outgoing
Location of Visit:	

### CONTACT MADE BY

Name: Almerinda Silva	Title: Project Manager	Organization: EPA
-----------------------	------------------------	-------------------

### INDIVIDUAL CONTACTED:

Name: John Schmeltzer	Title: Environmental Analyst	Organization: Vermont Department of Environmental Conservation
Telephone No: (802)249-5620	Street Address: 1 National Life Dr-Davis 1.	
Fax No:	City, State, Zip: Montpelier, VT 05620-3704	
E-Mail Address: john.schmeltzer@state.vt.us		

### SUMMARY OF CONVERSATION

**Q1:** What is your overall impression of the project and site?  
**A1:** Good overall impression. The remedy (landfill cap and groundwater diversion trench) are working effectively. Town is effectively maintaining the cap, which includes regular mowing to prevent woody vegetation from getting established on the cover and removing woody vegetation in the perimeter channels along the toe of the landfill cap.

The December 2013 monitoring results were consistent with past monitoring results. Contaminant levels are either stable or declining. These results support the premise that the remedy is functioning as designed.

**Q2:** Are you aware of any issues the five-year review should focus on?

**A2:** No

**Q3:** Is the remedy functioning as expected?

**A3:** Yes

**Q4:** Do you have any comments or suggestions regarding the site's management or operation?

**A4:** At the next five year review, the state will be the lead related to the sampling and analysis of the monitoring network. The next sampling round is scheduled for 2018. In the next two years, the state and EPA need to finalize the scope of the 2018 sampling and analysis events so that the state has time to budget this sampling event and likely go out to bid to obtain an environmental consultant to perform the required monitoring.

**Q5:** Are you aware of any community concerns regarding the site or its operation and administration?

**A5:** No.

**Q6:** Have there been any changes in the site or surrounding property in the last 5 years, or are changes planned?

**A6:** Not to my knowledge. The surrounding area is still residential. However, Institutional controls are in place and continue to be effective. Groundwater has been reclassified.

**Q7:** Have there been any complaints or incidents that required a response by your office?

**A7:** No.

## INTERVIEW RECORD

Site Name: Bennington Landfill		EPA ID No.: VTD981064223	
Subject: Third Five-Year Review		Time: 11:29 AM	Date: 6/29/14
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	Incoming <input type="checkbox"/> X Outgoing		
Location of Visit:			

### CONTACT MADE BY

Name: Almerinda Silva	Title: Project Manager	Organization: EPA
-----------------------	------------------------	-------------------

### INDIVIDUAL CONTACTED:

Name: Stuart Hurd	Title: Town Manager	Organization: Town of Bennington, VT
Telephone No: (802) 442-1037	Street Address: 205 South Street	
Fax No:	City, State, Zip: Bennington, VT 05201	
E-Mail Address:		

### SUMMARY OF CONVERSATION

- Q1:** What is your overall impression of the project and site?  
**A1:** It is running very well. Only minor repair work from time to time due to groundhogs digging holes that need to be patched up. The site has caused very little work for us.
- Q2:** Are you aware of any issues the five-year review should focus on?  
**A2:** No issues.
- Q3:** Are you aware of any community concerns regarding the site or its operation and administration?  
**A3:** None. The community has generated no questions or concerns.
- Q4:** Have there been any complaints or incidents that required a response by your office?  
**A4:** None

## INTERVIEW RECORD

Site Name: Bennington Landfill	EPA ID No.: VTD981064223	
Subject: Third Five-Year Review	Time: 4:00 PM	Date: 7/23/14
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	Incoming <input type="checkbox"/> X Outgoing	
Location of Visit:		

### CONTACT MADE BY

Name: Almerinda Silva	Title: Project Manager	Organization: EPA
-----------------------	------------------------	-------------------

### INDIVIDUAL CONTACTED:

Name: Dale Baker	Title: Manager	Organization: Casella Waste Management, Southerland County
Telephone No: (802) 733-1311	Street Address: Adjacent to Bennington Landfill	
Fax No:	City, State, Zip: Bennington, VT 05201	
E-Mail Address:		

### SUMMARY OF CONVERSATION

**Q1:** What is your overall impression of the project and site?

**A1:** It is running very smoothly. It is maintained professionally.

**Q2:** Are you aware of any issues the five-year review should focus on?

**A2:** No issues just a comment. There is a composting facility out back run by the Town.

**Q3:** Are you aware of any community concerns regarding the site or its operation and administration?

**A3:** None.

**Q4:** Have there been any complaints or incidents that required a response by your office?

**A4:** None

**INTERVIEW RECORD**

Site Name: Bennington Landfill		EPA ID No.: VTD981064223	
Subject: Third Five-Year Review		Time: 2:00 PM	Date: 7/24/14
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	Incoming <input type="checkbox"/> X Outgoing		
Location of Visit:			

**CONTACT MADE BY**

Name: Almerinda Silva	Title: Project Manager	Organization: EPA
-----------------------	------------------------	-------------------

**INDIVIDUAL CONTACTED:**

Name: Steve Brusco	Title: Resident and Gate Keeper for the Town	Organization: Homeowner and Town Employee
Telephone No: (802) 442-8446	Street Address: Houghton Lane	
Fax No:	City, State, Zip: Bennington, VT	
E-Mail Address:		

**SUMMARY OF CONVERSATION**

**Q1:** What is your overall impression of the project and site?  
**A1:** Everything is fine over there. Never had a problem. There were some parking space issues earlier but the Town took care of it. Everything seems to be running very smoothly.

**Q2:** Do you have any questions or concerns regarding the site?  
**A2:** No.

**INTERVIEW RECORD**

Site Name: Bennington Landfill		EPA ID No.: VTD981064223	
Subject: Third Five-Year Review		Time: 4:36 AM	Date: 7/25/14
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	Incoming <input type="checkbox"/> X Outgoing		
Location of Visit:			

**CONTACT MADE BY**

Name: Almerinda Silva	Title: Project Manager	Organization: EPA
-----------------------	------------------------	-------------------

**INDIVIDUAL CONTACTED:**

Name: Brenda Rowland	Title: Resident	Organization: Homeowner
Telephone No: (802) 447-0831	Street Address: 860 Houghton Lane	
Fax No:	City, State, Zip: Bennington, VT	
E-Mail Address:		

**SUMMARY OF CONVERSATION**

**Q1:** What is your overall impression of the project and site?  
**A1:** I live next to the entrance. Very good neighbors. Everything appears to be fine.

**Q2:** Do you have any questions or concerns regarding the site?  
**A2:** No concerns.

# **APPENDIX F**

## **SITE INSPECTION LOG AND PHOTOS**

### SEMI-ANNUAL LANDFILL INSPECTION CHECKLIST

**Task Order:** 0019-AM-GM-01C2      **Weather:** Cloudy, 65°F  
**Site Name:** Bennington Landfill      **Temperature:** \_\_\_\_\_  
**Town:** Bennington      **Site Map:** Attach Map  
**State:** Vermont      **Date of** \_\_\_\_\_  
**PRP Representatives:** None      **Inspection:** June 6, 2014  
**Inspection Team:** (None) S. Mischel, A. Silva, M. Jasinski (EPA)  
J. Schmeltzer, J. Surwitow (VTDEC)

ITEM	REMARKS
<b>LANDFILL SURFACE</b>	
1. SETTLEMENT (LOW SPOTS)      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): _____ Areal Extent: _____      Depth: _____	
2. CRACKS      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): _____ Length: _____      Width: _____      Depth: _____	
3. EROSION      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): _____ Areal Extent: _____      Depth: _____	
4. HOLES      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Location (indicate on site map): _____ Areal Extent: _____      Depth: _____ Suspected Cause (rodent or other): _____	Possible animal burrows on east side of landfill. Holes were less than 12" deep
5. VEGETATIVE COVER      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Grass: _____ Condition: <u>Good</u> Trees/Shrubs: _____      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): _____ Size: _____	
6. ARMORED COVER      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Material Type: _____ Condition: _____	
7. BULGES      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): _____ Areal Extent: _____      Height: _____ Suspected Cause (gas pressure or other): _____	



ITEM	REMARKS
4. UNDERCUTTING                      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Areal Extent:                      Depth:	
5. OBSTRUCTIONS                      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Type: Location (indicate on site map): Areal Extent:                      Size:	
6. VEGETATIVE GROWTH              Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Type: <i>Grass/weeds</i> Location (indicate on site map): Areal Extent:	<i>Minor growth of grass and weeds in riprap not anticipated to impact flow capacity</i>
<b>COVER PENETRATIONS</b>	
1. GAS VENTS                              Active <input type="checkbox"/> <u>Passive</u> <input checked="" type="checkbox"/> Located:                                  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Functioning:                              Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Condition: <i>Good</i>	
2. GAS MONITORING PROBES          Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Located:                                  Yes <input type="checkbox"/> No <input type="checkbox"/> Functioning:                              Yes <input type="checkbox"/> No <input type="checkbox"/> Condition:	
3. MONITORING WELLS                  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Located:                                  Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Functioning:                              Yes <input type="checkbox"/> No <input type="checkbox"/> Condition: <i>Did not open well covers</i>	
<b>COVER DRAINAGE LAYER</b>	
1. OUTLET PIPES                          Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Functioning:                              Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Condition: <i>Good</i>	
2. OUTLET ROCK                          Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Functioning:                              Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Condition: <i>Good</i>	
<b>RETAINING WALLS (End of UGIT)</b>	
1. DEFORMATIONS                      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Horizontal Displacement: Vertical Displacement: Rotational Displacement:	
2. DEGRADATION                        Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Description of Damage:	

ITEM	REMARKS
<b>GROUNDWATER SYSTEMS</b>	
1. LEACHATE COLLECTION AND TREATMENT SYSTEM Functioning: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> - Influent wet well/pumps Yes <input type="checkbox"/> No <input type="checkbox"/> - Piping, flow meters, etc. Yes <input type="checkbox"/> No <input type="checkbox"/> - Particulate and carbon filters Yes <input type="checkbox"/> No <input type="checkbox"/> - Effluent wet well/pumps Yes <input type="checkbox"/> No <input type="checkbox"/> Routinely Monitored: Yes <input type="checkbox"/> No <input type="checkbox"/>	System not in use
2. UPGRADIENT GROUNDWATER ISOLATION TRENCH Flowing: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Estimated discharge: ~ 1 gpm	
<b>PERIMETER DITCHES/OFF-SITE DISCHARGE</b>	
1. SILTATION Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Areal Extent: Depth:	
2. VEGETATION GROWTH Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Location (indicate on site map): Areal Extent: Type: Grass	Minor woody vegetation observed should be removed
3. EROSION Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Areal Extent: Depth:	
4. DISCHARGE STRUCTURE Functioning: Yes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Condition: Good	Culverts under access road flowing freely
<b>FENCING</b>	
1. FENCING DAMAGE Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Description of Damage:	
<b>PERIMETER ROADS</b>	
1. ROADS DAMAGED Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Description of Damage:	
<b>SITE ACCESS</b>	
1. ACCESS RESTRICTION Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

ITEM	REMARKS
<b>GENERAL</b>	
1. VANDALISM                      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location (indicate on site map): Description of Damage:	
2. CHANGED SITE CONDITION      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

<b>INTERVIEWS</b> (conduct interviews if the following are present during inspection)	
1. INTERVIEW WORKERS ON SITE	Not Available
Problems:	
Suggestions:	
Attach Report	
2. INTERVIEW SITE NEIGHBORS	Not Available
Problems:	
Suggestions:	
Attach Report	
3. INTERVIEW LOCAL OFFICIALS	Not present during inspection
Problems:	
Suggestions:	
Attach Report	
<b>REVIEW DOCUMENTS</b>	
1. GROUNDWATER MONITORING RECORDS	
Abnormalities: None	
2. LANDFILL CLOSURE PROGRESS REPORT	
Report Date:	
Abnormalities:	
Not Available	
3. OPERATION AND MAINTENANCE PLAN	
Is there a plan in place?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is it being followed?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is it adequate?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Not Available for review	

**Attachment 2**

**Site Inspection Photographs  
June 6, 2014**

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**



Photo 1 Photo taken of eastern side of landfill



Photo 2 Eastern perimeter ditch, town transfer station to the left

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**



Photo 3 End of the Upgradient Groundwater Isolation Trench looking south



Photo 4 Southern side of landfill looking north

Bennington Landfill Superfund Site  
Site Inspection June 6, 2014



Photo 5 Western perimeter ditch looking north



Photo 6 Slope bench looking south with GW-13 in distance

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**



Photo 7 View from top of landfill looking east



Photo 8 View of gravel pit to the northwest of the landfill

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**

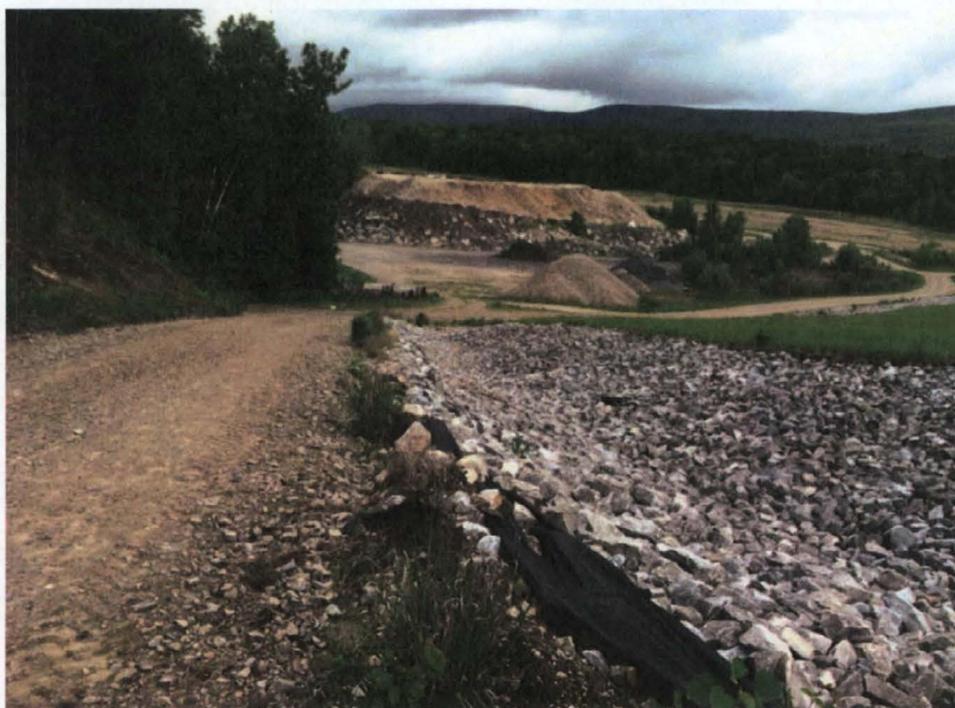


Photo 9 Perimeter ditch at northwest corner of landfill from access road to gravel pit



Photo 10 View of northern slope of landfill looking east

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**



Photo 11 Slope bench at gas well GW-3



Photo 12 View of gravel pit to the north of the landfill

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**



Photo 13 View of the "cap extension" looking east from the main landfill



Photo 14 Possible animal burrows on the east side of the landfill

**Bennington Landfill Superfund Site  
Site Inspection June 6, 2014**



Photo 15 View of slope benches on the east side of the landfill looking north, "cap extension" to the right



Photo 16 Riprap at the toe of the landfill cap, southern side of the "cap extension"

# **APPENDIX G**

## **AMBIENT MONITORING TRANSFER OF RESPONSIBILITY LETTER FROM VT DEC TO EPA**



State of Vermont  
Department of Environmental Conservation  
Waste Management and Prevention Division  
1 National Life Dr-Davis 1  
Montpelier, VT 05620-3704  
[chuck.schwer@state.vt.us](mailto:chuck.schwer@state.vt.us)  
802.249-5324

AGENCY OF NATURAL RESOURCES

September 9, 2014

MR MICHAEL R JASINSKI  
US EPA OFFICE OF SITE REMEDIATION AND RESTORATION  
5 POST OFFICE SQUARE SUITE 100  
MAIL CODE OSRR07-1  
BOSTON MA 02109-3912

RE: Bennington Landfill Monitoring, Bennington, VT (SMS Site #1977-0002)

Dear Mr. Jasinski:

This letter confirms that the Vermont Department of Environmental Conservation (VT DEC) will be taking over the lead responsibility for ambient monitoring at the Bennington Landfill Superfund Site, with the next monitoring event to take place in 2018. This activity will consist primarily of (but not limited to) sampling groundwater from onsite monitoring wells.

In 2001, the U.S Environmental Protection Agency (EPA) and VT DEC signed a Memorandum of Agreement (MOA) regarding ongoing monitoring at the Bennington Landfill. In the MOA, it was assumed initially that annual monitoring would take place; however, it provided flexibility to modify the monitoring program if both parties mutually agreed. During the time that EPA was in the lead, the monitoring frequency was reduced given that contaminant levels were either stable or declining. In meetings over the last year, EPA and VT DEC concurred that the monitoring frequency can be further reduced to once every five years, with the understanding that the monitoring frequency could be modified if analytical results show a significantly increase in contaminant concentrations. The 2013 analytical results support the current conceptual model that the contaminant plume is stable or declining and that the plume is contained within the boundaries of an easement that prohibits groundwater use.

In late 2014 or early 2015, the DEC project manager will initiate discussions with the EPA remedial project manager (RPM) about the 2018 monitoring event. These discussions will address monitoring requirements (the number of monitoring points, parameters to be tested, documentation requirements, etc.) to ensure that there is concurrence between EPA and DEC prior to the 2018 monitoring event.

If you have any questions, please feel free to call John Schmeltzer, the DEC project manager, at 802 249-5620 or me at 802-249-5324.

Sincerely,

Chuck Schwer, Section Chief  
Sites Management Section



# **APPENDIX H**

## **GRANT OF ENVIRONMENTAL RESTRICTIONS AND RIGHT OF ACCESS**

DOWNNS RACHLIN & MARTIN PLLC

ATTORNEYS AT LAW

DEACON JOHN HOLBROOK HOUSE • 14 LINDEN STREET • PO BOX 9 • BRATTLEBORO • VERMONT 05302 0009  
+1 802 258 3070 • FAX +1 802 258 4875

FEDERAL RECORDS CTR

Bennington 14

11.14

7026

July 9, 1998

Edward M. Hathaway  
Remedial Program Manager  
US Environmental Protection Agency  
Office of Site Remediation & Restoration  
J.F.K. Federal Building (HBT)  
Boston, MA 02203

Re: Grant of Environmental Restrictions and Right of Access

Dear Ed:

Enclosed for your records please find a copy of the Grant of Environmental Restrictions and Right of Access as recorded with the Town of Bennington Land Records on July 1, 1998 at Book 0-343, page 81.

Very truly yours,



Peter D. Van Oot

/sf  
enclosure

cc: Hugh Martinez w/enc.  
Mark A. Gallagher, Esq. w/enc.  
Mark Barash, Esq. w/enc.  
Stuart Hurd w/enc.  
Mary McCabe, Esq. VT Attorney General's Office w/enc.  
Geoff Seibel w/enc.  
David Rosenblatt w/enc.  
Donald Robisky w/enc.

BRT0015888.01



7026

SDMS DocID

COPY

TOWN CLERK'S OFFICE  
Bennington, VT

This 1 day of July  
A.D. 1998 at 12 o'clock 45  
minutes P.M., received and  
recorded in book 0-343  
Page 81

Timothy R. Casman Town Clerk

COPY

**GRANT OF ENVIRONMENTAL RESTRICTIONS AND RIGHT OF ACCESS**

THIS AGREEMENT is made this 1<sup>st</sup> day of July, 1998 by THE TOWN OF BENNINGTON, a Vermont municipal corporation, in the County of Bennington and the State of Vermont (hereinafter referred to as "Grantor") and the SECRETARY OF THE STATE OF THE VERMONT AGENCY OF NATURAL RESOURCES (hereinafter referred to as the "Grantee");

WITNESSETH THAT:

WHEREAS, Grantor is the legal title holder in fee simple of certain real property parcels situated in Bennington, County of Bennington, State of Vermont, more particularly depicted in Exhibit A and described as follows:

**CAPPED LANDFILL PARCEL:** Being a parcel of land consisting of thirty-five (35) acres, more or less, whereon the former Town of Bennington Landfill (the "Landfill") is located, more particularly described as the "Capped Landfill Parcel" on the survey plan dated May 13, 1998 entitled "Bennington Landfill Environmental Restrictions" prepared by John Endres, Registered Land Surveyor (the "Environmental Restrictions Survey Plan"), to be recorded concurrently herewith in the Town of Bennington Land Records (the "Capped Landfill Parcel"). Said Capped Landfill Parcel consists of lands conveyed to the Town of Bennington by Warranty Deed of Alden A. Harbour dated December 3, 1985 and recorded in Book 0-255, Page 12 of the Bennington Land Records, which said lands were a portion of the land conveyed to Grantor Alden A. Harbour by Warranty Deed of Thressia E. Harbour to Alden A. Harbour and Marion L. Harbour dated September 2, 1970 and recorded in Book 0-190, Page 194 of the Bennington Land Records. Said Capped Landfill Parcel also consists of portions of land conveyed to the Town of Bennington by Warranty Deed of Frank N. Rice, Charles J. Hogan and wife, Barbara R. Hogan dated January 13, 1992 and recorded in Book 0-294, Page 190 of the Bennington Land Records; and Warranty Deed of Robert A. Church and Betty A. Church dated November 23, 1982 and recorded in Book 0-240, Page 124 of the Bennington Land Records.

**GROUNDWATER RESTRICTION PARCEL:** Being a parcel of land consisting of forty-six (46) acres, more or less, more particularly described as the "Groundwater Restriction Parcel" on the Environmental Restrictions Survey Plan, to be recorded concurrently herewith in the Town of Bennington Land Records (the "Groundwater Restriction Parcel"). Said Groundwater Restriction Parcel was conveyed to the Town of Bennington by Warranty Deed of Gary Harbour and Marilyn Watson dated August 6, 1990 and recorded in Book 0-286, Page 215 of the Bennington Land Records. Said Groundwater Restriction Parcel is a portion of the land decreed to Grantors Gary Harbour and Marilyn Watson by Decree of Distribution signed and entered in the Bennington County Probate Court on December 14, 1989, and is a part of the same lands and premises conveyed to Alden A. Harbour and Marion L. Harbour by Warranty Deed of Thressia E. Harbour dated September 2, 1970 and recorded in Book 0-190, Page 194 of the Bennington Land Records.

WHEREAS, the Capped Landfill Parcel and the Groundwater Restriction Parcel hereinabove described, in whole or in part, are part of the Bennington Landfill Superfund Site (the "Site"). The Site consists of an approximately 15-acre solid waste landfill and the surrounding areas impacted or potentially impacted by the release of hazardous substances, pollutants or contaminants from the Landfill. The Site is the subject of a response action by the United States Environmental Protection Agency ("EPA"), a duly constituted agency organized under the laws of the United States of America, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), as amended, 42 U.S.C. § 9601 *et seq.* and the National Contingency Plan ("NCP"), 40 C.F.R. 300.400 *et seq.* and by the Vermont Department of Environmental Conservation ("VTDEC"), a duly constituted department of the Vermont Agency of Natural Resources organized under the laws of the State of Vermont (the "State") pursuant to 10 V.S.A. § 6615.

WHEREAS, pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on March 31, 1989, 54 Fed. Reg. 13,295;

WHEREAS, in an Action Memorandum dated December 23, 1994, the EPA Regional Administrator selected a non-time critical removal action (the "NTCRA" or "Removal Action") for the Site.

WHEREAS, under the terms of a Consent Decree filed in the cases of United States v. Town of Bennington et al. Civil No. 2:97CV197 and State of Vermont v. Town of Bennington et al., Civil No. 2:97CV208, (the "Consent Decree"), entered into, by and between the Grantor, eighteen (18) other settling defendants (the "Settling Defendants"), the United States, on behalf of the U.S. Environmental Protection Agency ("EPA") and the U.S. Department of the Interior ("DOI"), and the State, Grantor and the other Settling Defendants have agreed to fund and/or perform the Removal Action identified in the Action Memorandum, in order to protect the public health and welfare and the environment from the actual or threatened release of hazardous wastes or hazardous substances at or from the Site. Under the terms of the Consent Decree, Grantor, and the other Settling Defendants have agreed to fund, design, construct and/or perform, among other obligations, the following:

- a. a composite barrier low permeability cap with drainage controls;
- b. the excavation of contaminated soils and sediments exceeding action levels from the drainage pond and underdrain discharge pipe area and consolidate them with the existing landfill;
- c. a gas management system;
- d. air monitoring activities as part of the Demonstration of Compliance Plan to verify that no air emissions occur which exceed applicable or relevant and appropriate state or federal limits or which represent an unacceptable threat to

human health, until EPA approval of the Demonstration of Compliance Report;

- e. for as long as required to meet the Performance Standards, collection of leachate and groundwater from the existing underdrain discharge and treatment off-site to remove contaminants, or treatment in some other manner previously approved by EPA under the Consent Decree and the SOW;
- f. a structure (e.g., slurry wall or interceptor trench) to prevent groundwater in the water table aquifer from coming into contact with the landfill waste material;
- g. Post-Removal Site Controls include operation and maintenance of the gas collection and treatment system, the multi-barrier cap, the leachate collection system, and the groundwater isolation system and the installation of any monitoring points necessary to evaluate the effectiveness of the NTCRA. These Post-Removal Site Controls shall be implemented to ensure the long-term effectiveness and integrity of each component of the NTCRA and shall continue for as long as required to meet the Performance Standards;
- h. the installation of any water table aquifer monitoring points to evaluate the effectiveness of the NTCRA which are requested by EPA prior to the date of EPA approval of the Completion of Removal Action Report; and
- i. implementation of institutional controls, including access restrictions, deed restrictions, land-use restrictions, groundwater use restrictions, or easements *and/or other controls, including fencing, to prohibit the future use of the Site in any manner that would compromise the integrity of the cap and its related systems.*

A copy of the Consent Decree is available from:

Office of Environmental Stewardship  
United States Environmental Protection Agency  
JFK Federal Building - RCA  
Boston, MA 02203  
Attention: Hugh Martinez

or

United States Environmental Protection Agency  
Waste Management Division  
Records Center  
JFK Federal Building  
Boston, MA 02203

WHEREAS, the United States has determined that certain easements, rights, obligations, covenants and restrictions, as more particularly set forth below, are necessary at certain portions of the Site to conduct and maintain the integrity and effectiveness of the Removal Action; and

WHEREAS, the Grantor agrees to grant the aforesaid easements, rights, obligations, covenants, and restrictions, as more particularly set forth below to the Grantee pursuant to the Consent Decree;

NOW, THEREFORE, in consideration of the agreements reached in the Consent Decree, Grantor hereby grants to the Grantee and its assigns, including the EPA, with WARRANTY COVENANTS, the easements, rights, obligations, covenants, and restrictions (hereinafter, collectively referred to as the "Environmental Restrictions"), the terms and conditions of which are as follows:

1. Right of Access.

- a. In establishing the within Environmental Restrictions, Grantor hereby grants to the Grantee and its assigns, including EPA, a perpetual right of access (i) in, on, upon, through, over and under the portion of the Landfill Parcel described above and (ii) to pass and repass over the Site, on the portion of the Landfill Parcel described above, for the following purposes:
  - i. Monitoring the Removal Action, including Operation and Maintenance of the Removal Action and any future response action;
  - ii. Verifying any data or information submitted to the United States and the State;
  - iii. Conducting investigations relating to the contamination at or near the Site;
  - iv. Obtaining samples;
  - v. Monitoring the groundwater, surface water or air;
  - vi. Assessing the need for, planning, or implementing additional response actions at or near the Site;
  - vii. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, consistent with Section XXV of the Consent Decree;
  - viii. Assessing Settling Defendants' compliance with the Consent Decree; and
  - ix. Conducting other investigations and response actions consistent with CERCLA, the NCP, and/or other applicable State or Federal environmental regulations, including, but not limited to, the performance of the Removal Action by the State and/or EPA pursuant to Paragraph 95 of the Consent Decree.

- b. **With respect to the Groundwater Restricted Parcel described above, Grantor hereby grants to the Grantee and its assigns, including EPA, a right of access (i) in, on, upon, through, over and under the Groundwater Restricted Parcel, and (ii) to pass and repass over the Groundwater Restricted Parcel for the following purposes:**
- i. **Monitoring the Removal Action, including Operation and Maintenance of the Removal Action and any future response action;**
  - ii. **Verifying any data or information submitted to the United States and the State;**
  - iii. **Conducting investigations relating to contamination at or near the Site;**
  - iv. **Obtaining samples;**
  - v. **Monitoring the groundwater, surface water or air;**
  - vi. **Assessing the need for, planning, or implementing additional response actions at or near the Site;**
  - vii. **Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, consistent with Section XXV of the Consent Decree;**
  - viii. **Assessing Settling Defendants' compliance with the Consent Decree; and**
  - ix. **Conducting other investigations and response actions consistent with CERCLA, the NCP, and/or other applicable State or Federal environmental regulations, including, but not limited to, the performance of the Removal Action by the State and/or EPA pursuant to Paragraph 95 of the Consent Decree.**

Grantee's right of access under this subparagraph, 1.b., shall expire 30 years from EPA approval of the Completion of Removal Action Report under paragraph 52 of the Consent Decree, or sooner, provided that Grantor has petitioned the Grantee for amendment, modification, or release of this Grant, and such petition is approved by the Grantee, pursuant to Paragraph 13 below. Grantee may require Grantor to substantiate that such amendment, modification, or release is appropriate.

2. **Designation of Restricted Areas.** The Environmental Restrictions shall apply, as set forth below in Paragraph 3, to:

- a. the "Capped Landfill Parcel," e.g., that section of the land herein restricted which constitutes the cap and the gas collection system, as identified in Exhibit A, attached hereto; and
  - b. the "Groundwater Restriction Parcel," e.g., that section of the land herein restricted which includes the leachate collection/treatment system and the remaining section of the land herein restricted at the Site. This area is also identified in Exhibit A, attached hereto.
3. Restricted Uses and Activities. Grantor shall neither perform, nor suffer, allow or cause any other person to perform, any of the following activities or uses in, on, upon, through, over or under those portions of the Landfill Parcel and the Restricted Parcel.
- a. The Capped Landfill Parcel. Except pursuant to a plan approved by the Grantee (and by EPA pursuant to the Consent Decree), and in accordance with the procedures set forth in subsection 3.d. below, no use shall be made which disturbs the integrity of any of the layers of the cap, the leachate collection system, the gas collection system, or any other structures for maintaining the effectiveness of the Removal Action, whether in place now or put in place in the future. Nor shall any use be made which disturbs or interferes with the function of any necessary system for monitoring these structures. This restriction shall apply, without limitation, to all aspects of the cap and related structures identified in Exhibit A.
  - b. The Groundwater Restriction Parcel. Except pursuant to a plan approved by the Grantee (and by EPA pursuant to the Consent Decree), and in accordance with the procedures set forth in subsection 3.d. below, groundwater within the Groundwater Restriction Area shall not be used in any manner, including, but not limited to, use as a drinking water supply. No groundwater wells shall be installed within the Groundwater Restriction Parcel except for purposes of groundwater monitoring pursuant to a plan approved by the Grantee and EPA.
  - c. The Capped Landfill Parcel and the Groundwater Restriction Parcel. Except pursuant to a plan approved by the Grantee (and by EPA pursuant to the Consent Decree), and in accordance with the procedures set forth in subsection 3.d. below, there shall be no residential development, and no activity or use shall be conducted which adversely impacts the Removal Action, or any aspect thereof, whether now or in the future, including, without limitation: (1) systems and areas to collect and/or contain groundwater, surface water runoff, or leachate; (2) systems or containment areas to excavate, dewater, store, treat, and/or dispose of soils and sediments; and (3) systems and studies to provide long-term environmental monitoring of on-site groundwater, surface waters, and to ensure the long-term effectiveness of the Removal Action and its protectiveness of human health and the environment.

- d. The restrictions in 3.a. through 3.c. above shall not apply if and only if, for the specific activity planned, Grantor first obtains from the Grantee (and by EPA pursuant to the Consent Decree) a written approval to a demonstration by Grantor, that the proposed disturbance: (a) constitutes a permissible use and will not increase the potential hazard to public health, safety, or welfare or the environment; or (b) is necessary to reduce a threat to public health, safety or welfare or the environment. The VTDEC Commissioner and EPA's Director, Site Restoration and Remediation Division shall sign such written approval. This approval shall be recorded and/or registered by Grantor in the Town of Bennington Land Records within twenty-one (21) days of receipt. A certified copy of the same shall be filed with VTDEC and EPA within twenty-one (21) days of the date of its recordation and/or registration.
- e. It is recognized and understood that a portion of the Capped Landfill Parcel and the Groundwater Restriction Parcel is comprised of an active facility used as: an office and a solid waste transfer station; a scale house; a leachate collection/treatment system; and as a staging area for recycling and the storage/disposal of leaf/yard waste (identified as the "Active Facility Areas" on the Environmental Restrictions Survey Plan). Subject to the limitations in 3.a. through 3.d. above, the Grantor, its successors, lessees and assigns shall have the right to continue to use the Capped Landfill Parcel and the Groundwater Restriction Parcel for the purposes listed above or for any other lawful use.
4. Applicability. The Environmental Restrictions established herein shall not apply to any and all activities or uses in, on, upon, through, over or under those portions of the Capped Landfill Parcel and the Groundwater Restriction Parcel situated within the Site, or any portion thereof, duly authorized or approved by the Grantee pursuant to 10 V.S.A. § 6615 and the Consent Decree, and EPA pursuant to CERCLA and the Consent Decree, including, without limitation, all response actions authorized or approved by the State and/or EPA for the Site.
5. Emergency Excavation. In the event it becomes necessary to excavate a portion of the Capped Landfill Parcel or the Groundwater Restriction Parcel as part of a response to emergency repair of utility lines, or as part of a response to emergencies such as fire or flood, the activity and use restriction provisions of Paragraph 3 above, which would otherwise restrict such excavation, shall be suspended with respect to such excavation for the duration of such response, provided that Grantor:
- a. orally notifies the VTDEC's Site Manager and EPA's Project Coordinator or, in his or her absence, EPA's Alternate Project Coordinator, or in the event of both of EPA's designated representatives are unavailable, the Director of the Waste Management Division, EPA Region I, of such emergency as soon as possible but no more than two (2) hours after having learned thereof, and follows up with a written notice to VTDEC and EPA; and

- b. **limits the actual disturbance involved in such excavation to the minimum reasonably necessary to adequately respond to the emergency.**

This provision shall not waive liability for releases of hazardous substances, nor shall this provision excuse compliance with CERCLA or any other applicable federal or state laws and regulations.

6. **Severability. If any court or other tribunal determines that any provision of this Grant is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this Grant as though it had never been included herein. In either case, the remaining provisions of this Grant shall remain in full force and effect; provided, however, that the Grantee retains its right to modify this Grant pursuant to Paragraph 13 below.**
7. **Enforcement. Grantor expressly acknowledges that a violation of the terms of this Grant could result in the following:**
  - a. **Upon a determination by a court of competent jurisdiction, in the issuance of criminal and civil penalties, and/or equitable remedies, including, but not limited to, injunctive relief, such injunctive relief could include, without limitation, the issuance of an order to modify or remove any improvements constructed upon those portions of the Capped Landfill Parcel and Groundwater Restriction Parcel situated within the Site in violation of the terms of the within Environmental Restrictions;**
  - b. **In the assessment of penalties and enforcement action by the Grantee or EPA to enforce the terms of the within Environmental Restrictions pursuant to CERCLA and the NCP, separate from, or in addition to, any penalties applicable by virtue of non-compliance with the Consent Decree; and**
  - c. **In the assessment by Grantee of all costs and expenses incurred by the State or EPA, in the event of either 7.a. or 7.b. above, including, without limitation, attorneys' fees.**

Any action taken by the Grantee, or EPA pursuant to this Section shall be in addition to, but not in lieu of, such rights as EPA and/or the State possess to enforce the terms and conditions of the Administrative Order and the Consent Decree, which enforcement rights the State and EPA fully reserve.

8. **Provisions to Run With the Land. These Environmental Restrictions set forth rights, liabilities, agreements and obligations upon and subject to which the Capped Landfill Parcel and the Groundwater Restriction Parcel or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights,**

liabilities, agreements and obligations herein set forth shall run with the Capped Landfill Parcel and the Groundwater Restriction Parcel, as applicable thereto, and any portion thereof, and shall inure to the benefit of the Grantee and EPA, and their successors and be binding upon Grantor and all parties claiming by, through or under Grantor. The rights hereby granted to the Grantee, and their successors and assigns, include the right of Grantee and EPA, as its agent, to enforce these Environmental Restrictions. Grantor hereby covenants for itself and its executors, administrators, heirs, successors and assigns, to stand seized and hold title to the Capped Landfill Parcel and the Groundwater Restriction Parcel, or any portion thereof, subject to these Environmental Restrictions, provided, however, that a violation of these Environmental Restrictions shall not result in a forfeiture or reversion of Grantor's title to the Capped Landfill Parcel and the Groundwater Restriction Parcel.

9. Grantor Concurrence. Grantor and all parties claiming by, through or under Grantor covenant and agree with the provisions herein set forth and agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, sub-contractors and employees, that the Environmental Restrictions herein established shall be adhered to and not violated and that their respective interests in the Capped Landfill Parcel and the Groundwater Restriction Parcel shall be subject to the provisions herein set forth.
10. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this Grant, in full or by reference, into all deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Capped Landfill Parcel and the Groundwater Restriction Parcel, or any portion thereof, is conveyed. Any transfer of the Capped Landfill Parcel and the Groundwater Restriction Parcel, or any portion thereof, shall take place only if the grantee agrees, as a part of the agreement to purchase or otherwise obtain an interest in the Capped Landfill Parcel and the Groundwater Restriction Parcel, that it will comply with the obligations of the Grantor to provide access and/or Institutional Controls, as set forth in Section IX of the Consent Decree and this Grant, with respect to such Capped Landfill Parcel and/or Groundwater Restriction Parcel.
11. Recordation. Grantor shall record and/or register this Grant with the Town of Bennington Land Records within ten (10) days of having received the Grantee's written approval of this Grant. The Grantor, within thirty (30) days of the date of recordation and/or registration, shall mail a certified Registry copy of this Grant to EPA Project Manager and VTDEC Site Manager.

Grantor shall record and/or register any amendment to or release of this Grant, made pursuant to Paragraph 13 below, with the Town of Bennington Land Records within thirty (30) days of having received from the Grantee said amendment or release, as agreed to and accepted by, or granted by, the Grantee and mailed to Grantor by certified mail, return receipt requested. Grantor shall file with VTDEC's and EPA's Site Managers

a certified Registry copy of any such amendment or release as recorded and/or registered, within thirty (30) days of its date of recordation and/or registration.

This Grant shall become effective upon its recordation and/or registration with the Town of Bennington Land Records.

12. Legal Notice. This Grant shall be published as a legal notice, in a form prescribed by the Grantee, after a reasonable opportunity for review and comment by EPA, within fourteen (14) days of its date of execution, in a newspaper which circulates in the community in which the Capped Landfill Parcel and the Groundwater Restriction Parcel are located.

Any amendment to or release of this Grant, made pursuant to Paragraph 13 below, shall be published as a legal notice, in a form prescribed by the Grantee, after a reasonable opportunity for review and comment by EPA, within fourteen (14) days of its date of execution, in a newspaper which circulates in the community in which the Capped Landfill Parcel and the Groundwater Restriction Parcel are located.

13. Amendment, Modification and Release. This Grant may be amended, modified, or released only by the Grantee, after a reasonable opportunity for review and comment by EPA, in accordance with CERCLA and the NCP, to the extent applicable. Grantor may submit to EPA and the VTDEC Site Manager a proposal for modifying or withdrawing the Environmental Restrictions or a portion thereof. Said proposal shall demonstrate that the Environmental Restrictions contained herein may be modified or withdrawn in whole or in part consistent with the public interest and the public purposes of protecting human health and the environment. The Grantee shall issue a written decision with an explanation of the reasons for the approval, modification, or denial of such petition.

Grantor shall pay any and all recording fees, land transfer taxes and other such transactional costs associated with any such amendment, modification, or release.

14. No Dedication Intended. Nothing herein set forth shall be construed to be a gift or dedication of the Landfill Parcel or the Restricted Parcel to the Grantee, or to the general public for any purpose whatsoever.
15. Rights Reserved. It is expressly agreed that acceptance of this Grant by the Grantee shall not operate to bar, diminish, or in any way affect any legal or equitable right of the State and/or EPA to issue any future order or take response action with respect to the Site or in any way affect any other claim, action, suit, cause of action, or demand which the State and/or EPA may otherwise possess with respect thereto.
16. Filings with Grantee. All copies of instruments and documents to be filed with the VTDEC's and EPA's Site Managers, as required hereunder, shall be delivered to the VTDEC and EPA by any of the following methods: (i) hand delivery; (ii) delivery by overnight mail, or (iii) delivery by certified mail, return receipt requested.

17. **Governing Law.** It is expressly agreed that the law of the State of Vermont is the law governing this Grant and any disputes regarding its contents and interpretation.
18. **Dispute Resolution.** The dispute resolution procedures of this Paragraph shall be the exclusive mechanism to resolve disputes between the Grantor and Grantee or EPA regarding petitions for amendment, modification and release under Paragraph 13 of this Grant.
- a. **Informal Negotiations** - any dispute under this subparagraph shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed 30 days from the time the dispute arises, unless it is modified by written agreement of the parties. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute. In the event that the parties cannot resolve a dispute by informal negotiations under this subparagraph, then the position advanced by the State, after a reasonable opportunity for review and comment by EPA, shall be considered binding unless, within twenty-one (21) days after the conclusion of the informal negotiation period, Grantor invokes the formal dispute resolution procedures by serving on the State, with a copy to EPA, a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by the Grantor. Within twenty-one (21) days after receipt of Grantor's Statement of Position, the State, after a reasonable opportunity for review and comment by EPA, will serve on Grantor its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and supporting documentation relied upon by the State.
- b. **Formal Dispute Resolution** - Formal dispute resolution shall provide for review on the administrative record under applicable principles of administrative law. An administrative record of the dispute shall be maintained by the State and shall contain all Statements of Position, including supporting documentation, submitted pursuant to this subparagraph. Where appropriate, the State may allow submission of supplemental Statements of Position by themselves or the Grantor. The VTDEC Sites Management Section will issue, after a reasonable opportunity for review and comment by EPA's Director of the Office of Site Remediation and Restoration, New England Region, a final administrative decision resolving the dispute based on the administrative record. This decision shall be binding upon the Grantor, subject only to the right to seek judicial review pursuant to subparagraph 18 c. below.
- c. **Judicial Appeal** - Any administrative decision made by the State pursuant to subparagraph 18 b. shall be reviewable by a Court of competent jurisdiction, provided that a notice of judicial appeal is served by the Grantor on the State, with a copy to the United States, and within 10 days of receipt of the final administrative decision of the State. The notice of judicial appeal shall include a

description of the matter in dispute, the efforts made by the parties to resolve it, and the relief requested. The State may file within 30 days a response to Grantor's notice of judicial appeal. In proceedings on any dispute governed by this subparagraph, Grantor shall have the burden of demonstrating that the decision of the VTDEC Director of Sites Management Section is arbitrary and capricious or otherwise not in accordance with law. Judicial review of the decision by the State shall be on the administrative record compiled pursuant to subparagraph 18.b. above.

IN WITNESS WHEREOF, TOWN OF BENNINGTON as record title-holder of the above described lands and premises, hereby submits this GRANT OF ENVIRONMENTAL RESTRICTIONS AND RIGHT OF ACCESS, which said Grant shall be recorded in the Land Records of the Town of Bennington, Vermont.

Dated this 1 day of July, 1998.

Witness:

Town of Bennington

Jophy White

By:

Stuart A. Threl  
Name:

Its Duly Authorized Agent

State of Vermont  
County of Bennington

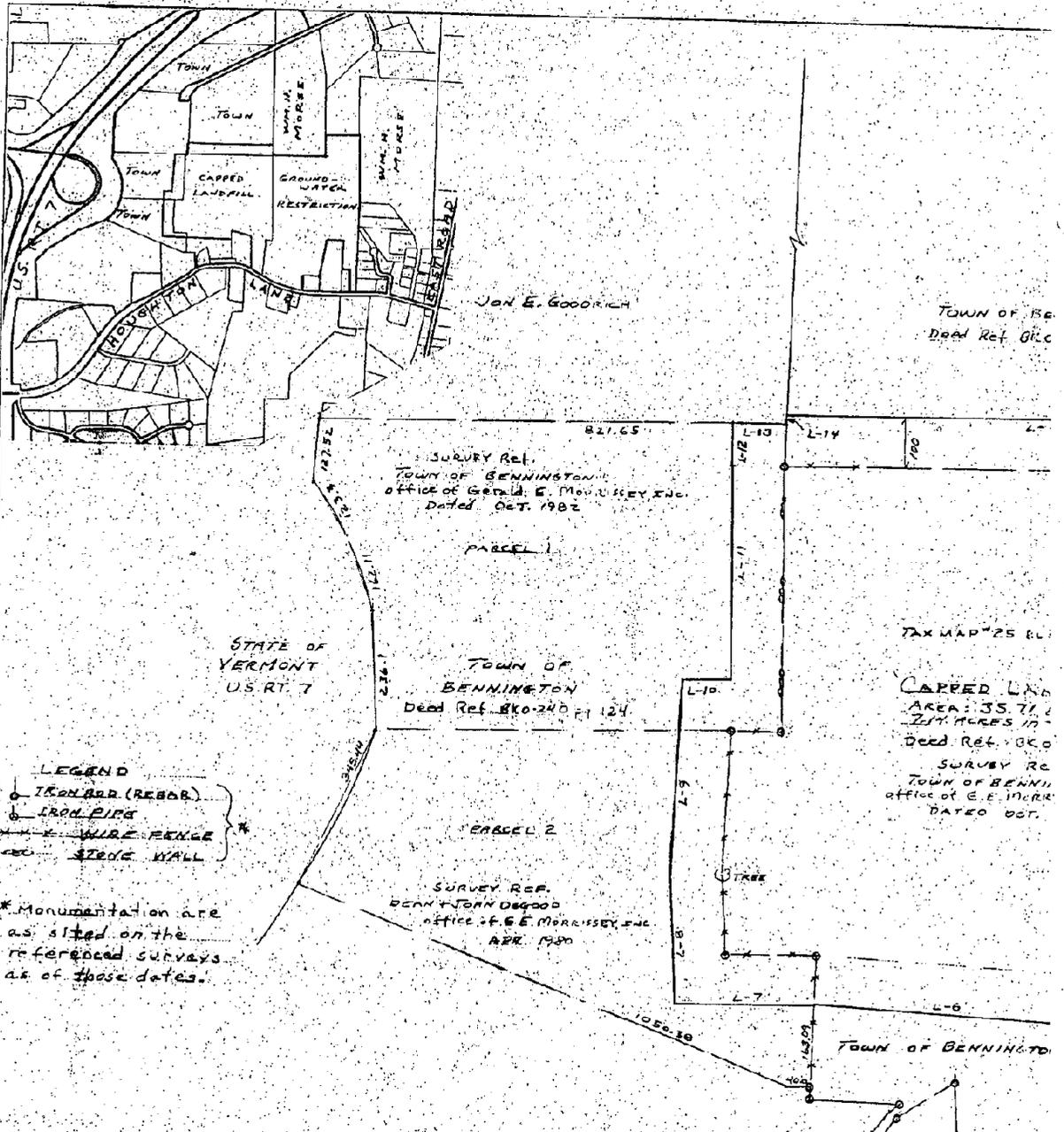
On this 1<sup>st</sup> day of July, 1998, personally appeared Stuart A. Threl, signer and sealer of the foregoing written conveyance and acknowledged the same to be his own free act and deed and the free act and deed of the Town of Bennington.

Before me,

Michael M. [Signature]  
Notary Public

My Commission Expires: 3/31/99

BRT0011596.05



**LEGEND**

- IRON BAR (REBAR)
- ⊖ IRON PIPE
- WIRE FENCE
- ▬ STONE WALL

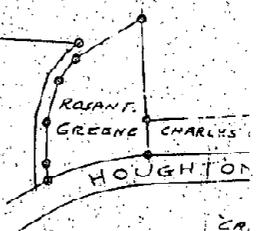
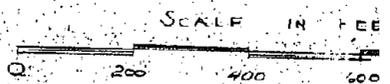
\* Monumentation are as sited on the referenced surveys as of those dates.

**CAPPED LANDFILL PARCEL**

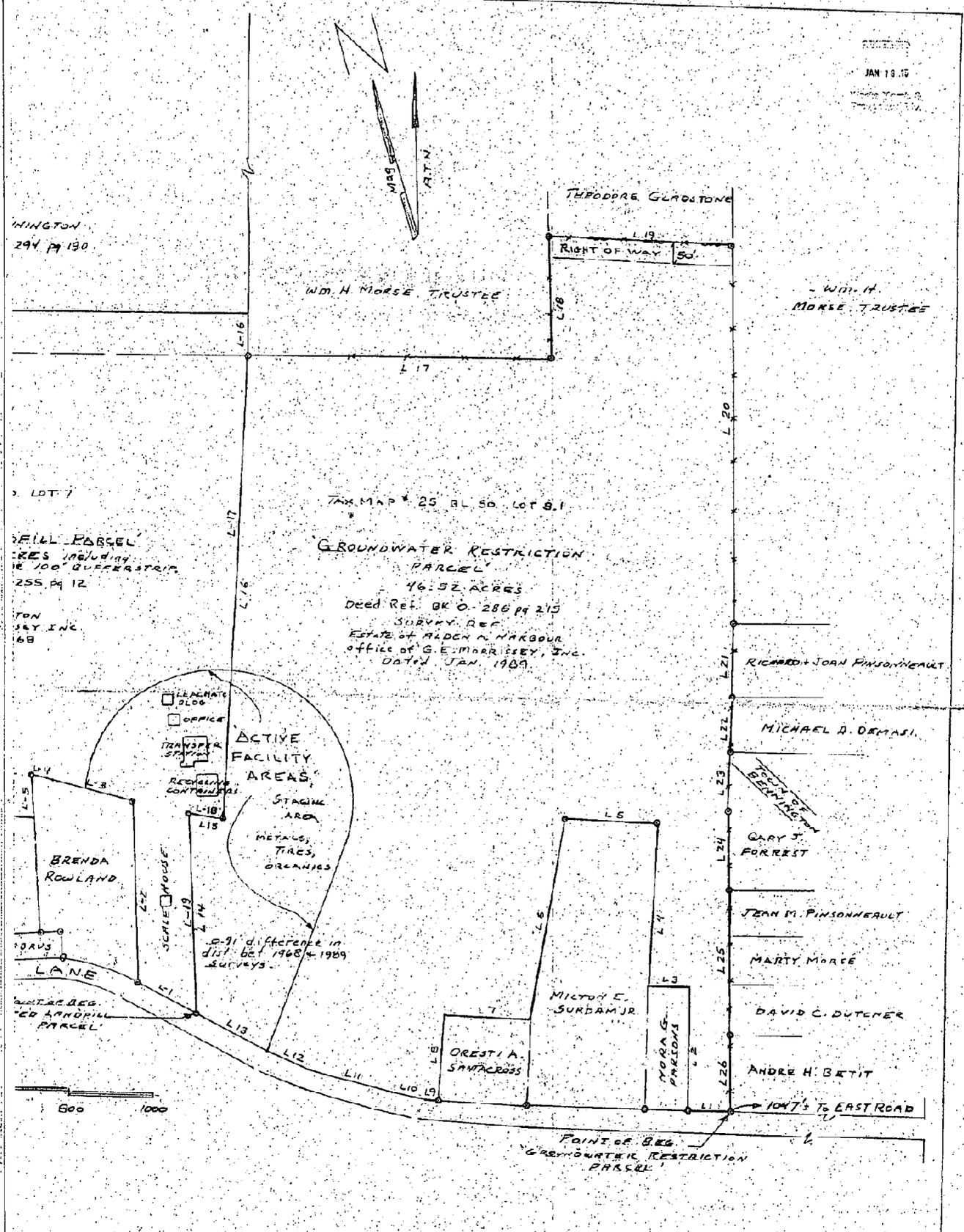
LINE	BEARING	DISTANCE
L-1	N 44 35' W	159.05'
L-2	N 13 01' E	445.38'
L-3	N 60 42' 30" W	199.55'
L-4	N 60 46' 30" W	52.41'
L-5	S 12 05' W	100.50'
L-6	N 70 38' 10" W	552.05'
L-7	N 74 30' W	269.15'
L-8	N 13 10' 50" E	259.42'
L-9	N 18 14' 50" E	393.02'
L-10	S 73 08' E	98.88'
L-11	N 15 43' 20" E	420.43'
L-12	N 17 36' E	86.06'
L-13	S 74 27' E	100.0'
L-14	N 17 36' E	13.92'
L-15	S 74 29' 30" E	1124.84' +/-
L-16	S 18 02' W +/-	100.0'
L-17	S 18 02' 20" W	1118.15'
L-18	N 63 30' W	85.35'
L-19	S 13 01' N	498.55'

**GROUNDWATER RESTRICTION PARCEL**

LINE	BEARING	DISTANCE
L 1	N 74 33' 59" W	99.46'
L 2	N 16 03' 28" E	300.00'
L 3	N 73 56' 35" W	100.02'
L 4	N 18 04 41" E	400.00'
L 5	N 71 55' 19" W	220.00'
L 6	S 24 07' 02" W	504.99'
L 7	N 72 16' 11" W	208.85'
L 8	S 17 43' 49" W	208.58'
L 9	N 67 33' 27" W	46.87'
L 10	N 63 07' 39" W	99.11'
L 11	N 60 45' 45" W	173.68'
L 12	N 52 01' 55" W	106.50'
L 13	N 45 55' 27" W	192.39'
L 14	N 12 43' 37" E	497.64'
L 15	S 63 46' 18" E	85.35'
L 16	N 17 46' 02" E	1118.15'
L 17	S 75 04' 16" E	725.21'
L 18	N 13 33' 08" E	296.28'
L 19	S 73 05' 51" E	437.82'
L 20	S 14 55' 33" W	912.63'
L 21	S 16 12' 24" W	180.38'
L 22	S 16 19' 28" W	132.67'
L 23	S 16 25' 29" W	142.68'
L 24	S 14 24' 30" W	192.29'
L 25	S 14 27' 26" W	360.32'
L 26	S 15 13' 44" W	180.20'



JAN 13 1998  
 Office of Gerald E. Morrissey, Inc.  
 312 Beech St. Bennington, VT 05201



I hereby certify that this plat has been compiled from the various surveys noted thereon and the current tax maps of the Town of BENNINGTON.  
 by John Endres L.S. #72  
 JOHN ENDRES

MAP OF PROPERTY SHOWING  
 BENNINGTON LANDFILL  
 ENVIRONMENTAL RESTRICTIONS  
 HOUGHTON LANE  
 BENNINGTON, VERMONT  
 Office of GERALD E. MORRISSEY, INC.  
 312 BEECH ST. BENNINGTON, VT 05201  
 SCALE 1"=200' MAY 13, 1998