SDMS DocID 494348

RECORD OF DECISION AMENDMENT

PART 1: DECLARATION

Burgess Brothers Landfill Superfund Site
Woodford and Bennington, VT

SEPTEMBER 2011

Superfund Records Center
SITE: BURGESS BROTHERS LANDFILL
BREAK: 5.4
OTHER: 494348

A. SITE NAME AND LOCATION

Burgess Brothers Landfill Superfund Site
Woodford and Bennington, Vermont
EPA Site I.D. No. VTD003965415

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents an amendment to the selected remedial action for the Burgess Brothers Landfill Superfund Site (the Site) in Woodford and Bennington, Vermont, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended (CERCLA), 42 USC § 9601 et seq., and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as amended, 40 CFR Part 300. The Director of the Office of Site Remediation and Restoration (OSRR) has been delegated the authority to approve this Record of Decision Amendment.

Under Section 117 of CERCLA and NCP, 40 CFR § 300.435(c)(2)(ii), EPA can propose an amendment to the Burgess Brothers Record of Decision (ROD) if the differences in the remedial or enforcement action, settlement, or consent decree fundamentally alter the basic features of the selected remedy with respect to scope, performance, or cost. An amendment to the September 1998 ROD for the Site is necessary because a fundamental change is needed to supplement the actions taken to address source control and groundwater in the 1998 ROD selected remedy.

This decision was based on the Administrative Record, which has been developed in accordance with Section 113(k) of CERCLA, and which is available for review at the Bennington Free Library, Bennington, Vermont and at the United States Environmental Protection Agency (EPA), Region 1, Office of Site Remediation and Restoration Records Center in Boston, Massachusetts.

The State of Vermont concurs with the selected remedy, as described in Section E of this Declaration and in further detail in Part 2: The Decision Summary attached hereto.

C. RATIONALE FOR AMENDMENT

The 1998 ROD selected a comprehensive remediation approach for the Site. For source control, the ROD selected capping of the landfill and adjacent marshy area and soil vapor extraction combined with air sparging (SVE/AS) of two lagoons within the landfill. For the contaminated groundwater beyond the landfill, the ROD selected natural attenuation. Based on the site data and computer modeling, groundwater contamination appeared to have reached steady state conditions at the time of the 1998 ROD and it was anticipated that the groundwater would meet Interim Cleanup Levels (ICLs) within seven years after initiation of the source control measures. To augment these actions, the remedy also included institutional controls such as restrictive covenants to prevent exposure to the contaminated groundwater during the period until ICLs are achieved. In addition to these components, the 1998 ROD included a provision that if EPA

determined that the selected remedy was not effective and that the remedial action objectives were not attained within an acceptable timeframe, an alternate remedial action would be evaluated and implemented.

The capping and construction of the SVE/AS were successfully completed in 1999. Long-term monitoring began in 1999 and continues to the present. In addition to the restrictive covenants that were recorded on the property deed, the State of Vermont reclassified the groundwater beneath the Site to non-potable as an extra institutional control. This reclassification is based on the expectation that the groundwater will remain non-potable for longer than five years but restoration of the groundwater beyond the landfill compliance boundary remains the stated goal of the State of Vermont.

Capping of the landfill and re-grading of the marshy area and associated swales resulted in changes in site hydrogeologic conditions. Capping of the landfill reduced rainfall infiltration and dilution of the groundwater contaminant plume within the landfill area. As a result of these actions, the groundwater flow direction shifted from southeasterly to southerly and then southwesterly. This led to the significantly elevated concentrations of contamination migrating southerly beyond the landfill toward the institutional control boundary and discharging farther downstream. Downgradient concentrations increased above pre-ROD levels and have remained above both ICLs and the pre-ROD levels more than ten years after the capping and implementation of the SVE/AS system. Consequently the 2005 Five-Year Review concluded that while the remedy provided short-term protectiveness, there were a number of concerns and limitations regarding the capability of the remedy to be protective in the long term. The Five-Year Review recommended a reevaluation of the source control and groundwater remedies, and indicated that modifications may be required to achieve the remedial action objectives.

On April 3, 2007, based on the findings of the 2005 Five-Year Review, additional data collected after the review, and follow-up meetings and discussions, EPA required the Performing Settling Parties (PSPs), the parties performing the remedy under the Consent Decree, to complete a Focused Feasibility Study (FFS) to evaluate possible measures to prevent migration of contaminated groundwater by controlling the source of the contamination so as to meet ICLs at the landfill compliance boundary, and to protect surface water from exceedances of the Performance Levels. The PSPs submitted an initial draft FFS to EPA in June 2007. The 2010 Five-Year Review concluded that that the selected remedy was not effective and that an alternate remedial action needed to be evaluated and implemented.

The FFS evaluated the current nature and extent of groundwater contamination, evaluated potential human health risks, and developed a range of remedial alternatives to address contaminated groundwater. EPA chose the selected remedy (Alternative 4; a barrier system at the landfill compliance boundary to contain further migration from the source area, and second barrier system downgradient of the highly contaminant plume beyond the landfill. Monitored natural attenuation remains the remedy for the area downgradient of the second barrier system) described in this ROD Amendment based on the evaluation conducted in the FFS.

This ROD Amendment supplements the 1998 ROD by selecting a barrier system to be installed at the landfill compliance boundary to prevent further migration of the contaminant source beneath the landfill. A second barrier system will be installed at the leading edge of the highly contaminated groundwater to prevent movement of this contamination from spreading toward the institutional control boundary and the site stream. This ROD Amendment is based on sampling results obtained since the time of the 1998 ROD.

D. ASSESSMENT OF THE SITE

The response action selected in this ROD Amendment is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

E. DESCRIPTION OF THE ROD AS AMENDED

The 1998 ROD selected capping and SVE/AS for source control, natural attenuation to address contaminated groundwater beyond the landfill, institutional controls and environmental monitoring for management of migration. This ROD Amendment will supplement the 1998 ROD. The Amended Remedy components are:

- Containment Barrier System at the Landfill Compliance Boundary. A containment barrier system will be constructed and maintained at the landfill compliance boundary to prevent further migration of contaminated groundwater from beneath the landfill and marshy area cap. Pre-design work will be performed to determine whether the barrier system will be a permeable reactive barrier or a groundwater collection trench. Should the former be selected, the groundwater collection trench with ex-situ treatment will serve as a contingency remedy should the permeable reactive barrier not successfully contain the contaminant flow from the landfill. Because the amount of residual contamination beneath the landfill is unknown, the FFS assumed it may be necessary to maintain the barrier system as much one hundred years.
- Barrier System at the Downgradient Edge of the Highly Contaminated Groundwater. To address the contamination that has migrated beyond the landfill compliance boundary, a second barrier system, a zero-valent iron permeable reactive barrier (PRB), will be constructed. This component of the remedy will rely on the existing groundwater flow to transport the contaminants to the second barrier. In addition to preventing further downgradient migration, the second barrier system will prevent discharge of contaminated groundwater to the site stream. This component includes an optimization approach for the area between the two barrier systems. If the environmental monitoring indicates that attainment of ICLs in the area between the two barrier systems will be longer than the calculations indicate, or if it appears the zero-valent iron in the downgradient barrier needs to be replaced ahead of the anticipated schedule, the Amended Remedy allows for the implementation of *in-situ* efforts. These efforts could include chemical oxidation or enhanced reductive dechlorination. Calculations based on hydrogeologic data estimate the restoration timeframe for the area between the two systems to be approximately thirty-five years.

- Monitored Natural Attenuation. The remedy will continue to rely on the 1998 selected remedy of natural attenuation processes to restore the area downgradient of the second barrier system. Total VOC concentrations in this area currently range from non-detect to less than 100 ppb and calculations indicate that once the second barrier system is installed, these concentrations will attenuate to ICLs prior to the institutional controls boundary. The restoration timeframe for this area is projected to be twenty-five years.

The Amended Remedy will continue the environmental monitoring, institutional controls, monitored natural attenuation for the area downgradient of the second barrier, and five-year reviews previously selected in the 1998 ROD.

This ROD Amendment documents two fundamental changes in the 1998 Selected Remedy. First, it includes an additional engineering component, a barrier system at the landfill compliance boundary, to the existing source control components, landfill cap and SVE/AS. Second, it includes an engineering component, the downgradient PRB, to the existing management of migration component, natural attenuation.

F. STATUTORY DETERMINATIONS

The Amended Remedy will be protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate, is cost effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable.

The two barriers will provide a high degree of overall protection, will be effective in the long-term, and will result in a permanent and significant decrease in the toxicity, mobility and volume of the VOCs present in the groundwater at the Site. This will be accomplished by completely mineralizing them into carbon dioxide, chloride ions, and water by PRBs or through adsorption onto liquid-phase granular activated carbon by *ex-situ* treatment for a groundwater collection trench. Construction and operation of the containment barriers satisfies the statutory preference for treatment as a principal element of the remedy for groundwater.

Based on the assessment among alternatives in terms of: (1) long-term effectiveness and permanence; (2) reduction of toxicity, mobility or volume through treatment; (3) short-term effectiveness; (4) implementability; and (5) cost, EPA finds that the selected remedy provides the best balance between the alternatives evaluated in the FFS. In balancing these factors, EPA has also considered the support of the community and the State for the selected remedy.

Because this remedy will result in hazardous substances remaining on-site (beneath the landfill cap) above levels that allow for unlimited use and unrestricted exposure, a review of the remedy will continue to be conducted every five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

G. ROD AMENDMENT DATA CERTIFICATION CHECKLIST

The following information and relevant updates are included in the Decision Summary section of this Record of Decision Amendment:

1. Key factors that led to amending the original 1998 ROD
2. Remedial Action Objectives and cleanup criteria
3. Site contaminants and their respective concentrations
4. Human health risk represented by the site contaminants
5. Cleanup levels established for site contaminants and the bases for these levels
6. Amended Remedy components
7. Estimated capital, operation and maintenance (O&M), and total present worth costs

Additional information can be found in the Administrative Record for the Site and this ROD Amendment.

H. AUTHORIZING SIGNATURES

The selected remedy documented in this ROD Amendment will supplement the 1998 ROD selected remedy for both source control and management of migration at the Burgess Brothers Landfill Superfund Site in Woodford and Bennington, Vermont. This remedy was selected by the U.S. EPA with concurrence of Vermont Department of Environmental Conservation.

U.S. Environmental Protection Agency

By: _____ **Date:** 9/30/11

James T. Owens III, Director
Office of Site Remediation and Restoration
U.S. EPA New England, Region 1

RECORD OF DECISION AMENDMENT

PART 2: The Decision Summary

Burgess Brothers Landfill Superfund Site
Woodford and Bennington, Vermont

SEPTEMBER 2011

Burgess Brothers Landfill Record of Decision Amendment

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BURGESS BROTHERS LANDFILL SUPERFUND SITE - RECORD OF DECISION AMENDMENT
PART 2: THE DECISION SUMMARY

A. INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE

1. SITE NAME:

Burgess Brothers Landfill Superfund Site
Woodford and Bennington, Vermont
EPA Site I.D. No. VTD003965415

2. SITE LOCATION:

The Burgess Brothers Landfill Superfund Site (Site) is located in southern Vermont in the towns of Woodford and Bennington, between Burgess Road and State Highway 9 (see Figure 1). Access to the Site is through the Burgess Brothers Construction Company's facility on Burgess Road, approximately 1.1 miles southeast of the junction of Burgess Road and State Highway 9. The Site consists of approximately three acres located in the northeastern section of a 60-acre property. The Green Mountain National Forest borders the property to the north and east.

The Site is located within the Walloomsac River drainage basin. The headwaters of a stream originate on the Site and this stream (designated as the Unnamed Stream in the 1996 Remedial Investigation) discharges into the Barney Brook within the 60-acre property. Barney Brook discharges into the Walloomsac River approximately two miles farther downstream. Based upon topographic and hydrologic information, regional surface water and groundwater discharges to the Walloomsac River.

More complete descriptions of the Site may be found in Section 1 of the Remedial Investigation Report (O'Brien and Gere, 1996) and Section 1.2 of the Focused Feasibility Study (EPG, 2011).

3. LEAD AND SUPPORT AGENCIES:

Lead Agency:	**U. S. Environmental Protection Agency-Region 1** **Office of Site Remediation and Restoration**
Contact:	Terrence Connelly Remedial Project Manager, ME/VT/CT Superfund Section (617) 918-1373
Support Agency:	**Vermont Agency of Natural Resources (VTANR)** **Waste Management Division**
Contact:	Gerold Noyes Project Manager (802) 241-3877

4. STATEMENT OF PURPOSE:

An amendment to the September 25, 1998 Record Of Decision (1998 ROD) is necessary because fundamental changes to the source control and management of migration components of the selected remedy are needed to supplement the existing landfill capping and natural attenuation

remedy. These changes include construction and operation of a barrier system at the edge of the landfill cap and another barrier system downgradient of the highly contaminated groundwater plume to prevent further migration of contamination. This ROD Amendment documents the basis for this fundamental change, and is issued in accordance with Section 117 of CERCLA and 40 CFR 300.435(c)(2)(ii) of the National Contingency Plan.

5. AVAILABILITY OF DOCUMENTS:

This ROD Amendment and supporting documentation will become part of the Administrative Record for the Site in accordance with 40 CFR 300.825(a)(2). Information pertinent to EPA's decision-making process in publishing this ROD Amendment is available for public viewing at the Site information repositories at the following locations:

U. S. EPA Records Center
5 Post Office Square, Suite 100
Mail Code: OSRR02-3
Boston, MA 02109-3912
(617) 918-1440
Hours: 9:00 a.m.-5:00 p.m.
Monday through Friday

Bennington Free Library
10Silver Street
Bennington, Vermont 05201
(802) 442-9051

Additional information is also available for review on-line at:
www.epa.gov/region1/superfund/sites/burgess

B. SITE DESCRIPTION, HISTORY AND CONTAMINATION, AND ORIGINAL (1998) SELECTED REMEDY

1. SITE DESCRIPTION:

As stated above, the Site consists of approximately three acres. See Figure 2. These three acres are within a twelve acre parcel that has institutional controls placed on it. The twelve acre parcel itself is in the northeastern section of a 60-acre property. The landfill occupies approximately 60,000 square feet (SF) or about one and a half acres and the former Lagoon Area is approximately 4,000 SF in area. The Landfill Area is enclosed by a perimeter fence. The landfill and portions of a marshy area adjacent to the landfill were capped in 1999 following the 1998 ROD. Immediately to the west of the capped landfill is the treatment building for the soil vapor extraction/air sparging system (SVE/AS). A residential dwelling, located on the 60-acre

property, is approximately 900 feet northwest of the landfill. This residence is connected to the public water system.

2. SITE HISTORY AND CONTAMINATION:

Activities at the Site began as a sand and gravel mining operations in the 1940s. Starting in the early 1950's the Site was used as a metal salvage facility and as a disposal area. Metals, sludges, and rejected small appliance and military specialty batteries were also disposed at the Site. The two Lagoon Cells (unlined pits) received liquid wastes and sludge from approximately 1967 to 1976. These wastes consisted of lead sludges, lead contaminated wastewater, spent solvents (primarily tetrachloroethene (PCE) and trichloroethene (TCE)), and battery waste. Manganese dioxide cells (containing zinc and mercury) were also disposed. According to the 1998 ROD, approximately 2,371,100 gallons of liquid waste and 241,090 pounds of solid or semi-solid wastes were disposed of at the Site from 1971-1976. An unknown quantity of waste, primarily lead sludge, was also disposed of at the Site from the 1960's through 1971.

Numerous investigations have been performed at the Site to evaluate the environmental impact of the disposal operation which occurred in the Landfill Area and former Lagoon Cells. The Vermont Department of Environmental Conservation (VTDEC) (then Vermont Agency of Environmental Conservation (VTAEC)) conducted a Preliminary Assessment in 1985 and EPA proposed the Site for listing on the National Priorities List (NPL) on June 24, 1988. On March 31, 1989 the Site was added to the NPL.

A Remedial Investigation/Feasibility Study (RI/FS) was begun in 1991 and completed in 1998. EPA completed a Baseline Risk Assessment in 1997. A number of different contaminants were identified in groundwater, surface water, sediment, and soil. The RI/FS found that exposure to on-site soils, air, sediments, and surface waters did not pose an unacceptable human health risk. However, a potential risk from drinking on-site groundwater was determined to be above acceptable risk levels. Additionally, contamination identified in surface soils outside the landfill was thought to pose a risk to wildlife.

3. ORIGINAL (1998) ROD SELECTED REMEDY:

CERCLA and the NCP set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, the 1998 FS developed alternatives for the Site that were also described in the 1998 ROD. With respect to source control, the FS followed EPA's presumptive remedy guidance for landfills, and therefore limited the source control alternatives to a no action alternative and capping the landfill with treatment of the lagoons. See *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, February 1991 (OSWER Directive 9355. 3-11); Presumptive Remedy for CERCLA Municipal Landfill Sites, September 1993 (Directive 9355.0-49FS).* With respect to management of

migration, the FS developed three remedial alternatives that attained site specific remediation levels within different timeframes using different technologies, as well as a no action alternative.

The remedy selected by EPA in the 1998 ROD, with VTDEC concurrence, included the following:

Source Control Component:

- A multi-layer (or composite barrier) cap over the Landfill Area.
- A gas collection and treatment system, if needed.
- A cap over the soils in the Marshy Area.
- Wetlands impacted by the installation of the cap were to be restored or replaced, preferably onsite.
- Hot spot remediation of the former Lagoon Cells within the Landfill Area using a SVE/AS system.

Management of Migration Component:

- Natural attenuation of contaminated groundwater beyond the area of influence of the SVE/AS system.

Additional Measures:

- The establishment of institutional controls to protect the capped areas, to prevent the use of groundwater potentially impacted by the Site, and to inform future purchasers of the groundwater restrictions associated with the property. Restrictions on the use of groundwater were to extend to the contaminant plume area at the time of the 1998 ROD and an associated buffer zone.
- Long-term monitoring of the groundwater, surface water, and sediments to evaluate the overall effectiveness of the remedy.
- A review of the Site every five years after the initiation of the remedial action to assure that the remedial action continues to protect human health and the environment.

In addition to these components, the ROD included a contingency provision that if EPA determined that the selected remedy was not effective and that remedial action objectives were not attained within an acceptable timeframe, an alternate remedial action would be evaluated and implemented.

Installation of the multi-layer cap over the Landfill Area and soil cap over the former Marshy Area was completed in 1999. The SVE/AS system was constructed in 2000 and became fully operational in January 2001. The SVE/AS system operated through 2002, at which time it was determined through pulse testing that the air sparging component of the remedy was no longer significantly contributing to VOC mass removal and was discontinued. Operation of the SVE system continued until February 2005 with some of the vapor extraction wells being operated

continuously, some intermittently, and others remaining off as influent VOC concentrations and removal rates progressively declined. Operation of the SVE system was suspended in February 2005 due to the relatively low influent VOC concentration and observations that groundwater quality was not responding to system operation. The SVE system remained shut down through mid-2007. At the direction of EPA, operation of the SVE system resumed on August 30, 2007. It was shut down in October 2007 when breakthrough of VOCs occurred in the next to last carbon vessel. The system was restarted on June 17, 2008, and now remains in operation, primarily with extraction wells VW-1 and VW-6 open (located at the south end of the lagoons).

Based on Site data and computer modeling, groundwater contamination appeared to have reached steady state conditions at the time of the 1998 ROD and it was anticipated that the groundwater beyond the landfill would meet Interim Cleanup Levels (ICLs) within seven years after initiation of the source control measures. However, long-term monitoring revealed that not only did contaminant concentrations not decrease beyond the landfill, but they increased significantly and as such, raised the prospect that contamination could migrate beyond the institutional controls boundary.

With respect to the institutional controls, in 2003 the State of Vermont reclassified the groundwater beneath and immediately around the landfill to non-potable as an extra institutional control. This reclassification is based on the expectation that the groundwater will remain non-potable for longer than five years but restoration of the groundwater beyond the landfill compliance boundary remains the stated goal of the State of Vermont. The reclassification prohibits use of the groundwater at the Site as a domestic water supply, unless otherwise allowed by the State. A Grant of Environmental Protection Easement and Declaration of Restrictive Covenants (Environmental Protection Easement or EPE) was executed by Clyde Burgess (former Site owner) and the Secretary of the Agency of Natural Resources for the State of Vermont (recorded in Woodford land records on March 5, 2005 Book 39, pages 63-74 and in Bennington land records on February 23, 2005 in Book 418 page 71). This easement runs with the land and also prohibits the use of the groundwater as a drinking water supply, and prohibits the use of the land for residential and certain other purposes. The area of groundwater reclassification is the same area that is covered by the Grant of Environmental Protection Easement and Declaration of Restrictive Covenants.

Groundwater monitoring has been performed since the landfill was capped in 1999 in wells screened in the overburden soils and bedrock. Samples are collected on a semi-annual or annual basis for VOCs and on a biennial basis for those metals with ICLs. Additional monitoring wells and/or piezometers were installed in 2005 and 2006 to better delineate the downgradient VOC plume and to confirm the hydrogeologic model and contaminant fate and transport evaluations. A total of four monitoring wells and 13 piezometers have been installed since the post-capping monitoring program was developed. In summary, since closure of the landfill, groundwater samples have been collected from 42 monitoring wells to evaluate the potential horizontal and vertical migration of contaminants.

The first five-year review was completed in March 2005. The review concluded that while the remedy was functioning as intended by the 1998 ROD and provided for short-term

protectiveness, a number of concerns and limitations regarding the capability of the remedy to be protective in the long term were identified. The 2005 Five-Year Review Report recommended a re-evaluation of the source control and groundwater remedies, and indicated that modifications may be required to achieve the remedial action objectives.

On April 3, 2007, based on the findings of the 2005 Five-Year Review, additional data collected after the review, and follow-up meetings and discussions, EPA required the Performing Settling Parties (PSPs), the parties performing the remedy under the Consent Decree, to complete a Focused Feasibility Study (FFS) to evaluate possible measures to prevent migration of contaminated groundwater by controlling the source of the contamination so as to meet ICLs at the landfill compliance boundary, and to protect surface water from exceedances of the Performance Levels (PLs). The FFS evaluated five remedial alternatives in detail to address controlling the contamination source and to address contaminated groundwater beyond the landfill. The alternatives evaluated in detail in the FFS are discussed in Section D.

A more detailed description of the 1998 ROD components can be found in Section X of the 1998 ROD located in the Administrative Record.

C. BASIS FOR THE ROD AMENDMENT

An amendment to the 1998 ROD is necessary because fundamental changes are needed to supplement the existing source control remedy to prevent further migration from the landfill and to supplement the management of migration remedy by restoring contaminated groundwater through an engineering technology. This ROD Amendment documents the basis for these fundamental changes. Additional environmental monitoring requirements are also included in this ROD Amendment.

Capping of the landfill and re-grading of the Marshy Area and associated swales resulted in changes in Site hydrogeologic conditions. Capping of the landfill reduced rainfall infiltration and dilution of the groundwater contaminant plume within the landfill area. As a result of these actions, the groundwater flow direction shifted from southeasterly to southerly and then southwesterly. This led to the significantly elevated concentrations of contamination migrating southerly beyond the landfill toward the institutional control boundary and discharging farther downstream. Downgradient concentrations increased above pre-ROD levels and have remained above both ICLs and the pre-ROD levels more than ten years after the capping and operation of the SVE/AS system. Consequently the 2005 Five-Year Review recommended a re-evaluation of the source control and groundwater remedies, and indicated that modifications may be required to achieve the remedial action objectives. The 2010 Five-Year Review concluded that implementation of an alternate cleanup action was necessary.

The information collected, which supports this ROD Amendment is summarized as follows and discussed in more detail below:

- The nature and extent of groundwater contamination has been updated;
- Risk has been evaluated in the context of this updated information regarding the nature and extent of groundwater contamination; and
- New alternatives to address source control and contaminated groundwater beyond the landfill have been evaluated in a FFS.

1. UPDATED NATURE AND EXTENT OF CONTAMINATION:

A detailed description of Site conditions at the time of the 1998 ROD can be found in Section V of the 1998 ROD. The following sections of this ROD Amendment provide a brief, updated description of the nature and extent of contamination that currently exists at and surrounding the Site.

a. Soil

The 1998 ROD stated that only soils adjacent to the landfill posed a risk to human health or the environment. These soils were covered as part of the Marshy Area capping. With this risk addressed, no additional soil sampling has been done since the 1998 ROD.

b. Overburden Groundwater

Post-landfill closure monitoring has been performed since 1999. The capping of the landfill and re-grading of the former Marshy Area and associated swales affected the groundwater contaminant plume. The former Marshy Area and associated swale at the toe of the landfill no longer exist or serve as the primary discharge point for groundwater downgradient of the Landfill Area. Additionally, a swale was constructed on the hillside east of the landfill and Marshy Area and has diverted surface water run-off from the hillside to a point farther downstream in the Unnamed Stream. As a result, groundwater now flows horizontally in a more southerly direction and discharges into the Unnamed Stream as far as 250 feet farther downstream compared to pre-capping conditions.

These activities resulted in increased VOC concentrations within the groundwater contaminant plume near the landfill compliance boundary and beyond it. This increase has been observed sequentially from upgradient to downgradient. The increased VOC concentrations were first observed at the W-04 well cluster in 2002, upgradient of the landfill compliance boundary but beyond the area of influence of the SVE system. Increases at the W-32 well cluster, located between the SVE system and W-04, were observed from 2005 when they were installed.

Increases in VOC concentrations were observed downgradient of the W-04 cluster at progressively later times the farther downgradient the well is located. At W-06D a large increase in VOC concentrations was observed in 2003 to 2005. At P-09, VOC concentrations increased

from the time the well was installed until in 2006, until 2008. VOC concentrations at P-10 were first observed in late 2006 to 2007 and have continued to increase. At W-09S1, VOC concentrations sharply increased in 2008 and have since decreased.

Figures 3, 4, and 5 show VOC concentrations at the time of the 1998 ROD, in Fall 2006, and in Fall 2010, respectively.

c. Bedrock Groundwater

The bedrock water quality was initially investigated during the RI/FS. Occasional and sporadic detections of trace levels of VOCs were reported from 1992 to 1997 at locations W-01B (upgradient of the landfill), W-04SI, W-04B, W-09SI, and W-09B. VOCs have not been detected since 1999, except at W-09SI, where TCE and PCE were detected at trace concentrations of 1 and 0.9 μg/l, respectively in Spring 2002, and of 2 and 3 μg/l, respectively, in Spring 2004. These detections were not repeated in the subsequent bedrock sampling event in Spring 2006. Trace concentrations (less than 1 μg/l) were reported in Spring 2008 sampling at W-04SI and W-09SI but trace concentrations were also detected in the equipment blank. In Spring 2010, trace concentrations of TCE (1.3 μg/l) were detected at W-04SI and trace concentrations of TCE, PCE and 1,2-DCE (less than 1 μg/l) were detected at W-04B. VOCs were not detected at W-09SI or W-09B.

The lack of any repeat detection of VOCs between wells or sampling events since 1992 suggests that these sporadic VOC detections are not indicative of groundwater quality in the bedrock. Possible explanations for these intermittent and sporadic detections of trace level VOCs below ICLs include cross-contamination between sampling equipment or laboratory cross-contamination. The lodgment till provides a barrier between the contamination in the shallow overburden kame sand and ablation till from the bedrock, and the vertical gradient is upwards from the ablation till.

c. Surface Water/Sediment

Prior to landfill capping, contaminated groundwater from the landfill discharged to surface water in the former Marshy Area and associated swales. After landfill capping and re-grading, the former Marshy Area and associated swales no longer existed, and the direction of groundwater flow from the landfill shifted slightly towards the south-southwest. As a result, discharge of groundwater from the landfill to surface water shifted farther south, and now discharges to surface water in the vicinity of P-10 and P-19. VOC concentrations in surface water attenuate to below PLs within approximately 200 feet downstream of P-19. A dilution calculation model was performed to evaluate potential impacts to surface water from discharge of the high concentration VOC groundwater plume. The model predicted, assuming the groundwater contaminant plume continues to discharge to the Unnamed Stream, that the VOC concentrations would be attenuated to near or at non-detect conditions by dilution effects within the upper reaches of the Unnamed Stream. This is consistent with observed surface water conditions.

2. RISK ANALYSIS:

The 1998 ROD presented a detailed summary of Site risks based on the exposure pathways considered at that time. The greatest risks were projected for the future ingestion of shallow groundwater at the Site. Land use surrounding the Site has not changed substantially since the 1998 ROD that would cause a change in the potential for exposure to Site-related contaminants at levels that pose a health concern. Consequently, the future exposure to shallow groundwater remains the greatest risk associated with the Site. Since risks from residential exposure to groundwater used as drinking water provides the basis for action under this ROD Amendment, the following discussion focuses on the evaluation of these risks.

a. Human Health Risks

A baseline human health risk assessment was prepared following the completion of the 1995 RI and included an evaluation of potential cancer risks and non-cancer health effects as a result of future exposure to Site contaminants in groundwater. Exposure to contaminants in groundwater via residential use included ingestion, dermal absorption, and inhalation. No exposure to groundwater was known to be occurring at the time of the 1997 risk assessment.

The 1997 baseline risk assessment concluded that the risk posed by the future potential residential use of groundwater from wells installed within the Site or in wells that could induce groundwater flow from the Site could exceed the acceptable cancer risk range; that is, the incremental increase in the probability that an individual will develop cancer during his or her lifetime due to Site-specific exposure, exceeded the range of 1 in ten thousand (1 in 10,000) to 1 in a million (1 in 1,000,000). "Incremental" refers to the risk from site-specific exposure above the background cancer risk for the general population. Both average (1×10^{-3}) and maximum (7×10^{-2}) cancer risk estimates exceed EPA's benchmark of 10^{-4}. Vinyl chloride, PCE, TCE, and 1,1-dichloroethene were some of the key contributors to these risk estimates. The groundwater ICLs established in the 1998 ROD for these contaminants were based upon Federal and State drinking water standards established at that time (see Table 1).

The 1997 baseline risk assessment also included an assessment of non-cancer health effects. Potential average daily exposures from residential water use were compared to established Reference Doses available at that time. This comparison is referred to as the Hazard Index (HI). A HI of unity (HI=1) is defined as the level below which adverse health effects are not expected. The highest noncarcinogenic hazard potential (HI=300) was also projected with the ingestion of maximum concentrations of shallow groundwater from wells at the Site. Both average (HI=20) and maximum (HI=300) noncarcinogenic hazard estimates exceeded EPA's benchmark of unity. TCE, 1,2-dichloroethene (total), benzene, and PCE were some of the key contributors to these risk estimates. The groundwater ICLs established in the 1998 ROD for these contaminants were based on Federal and State drinking water standards and risk-based calculations, respectively, established at that time (see Table 1).

b. Ecological Risks

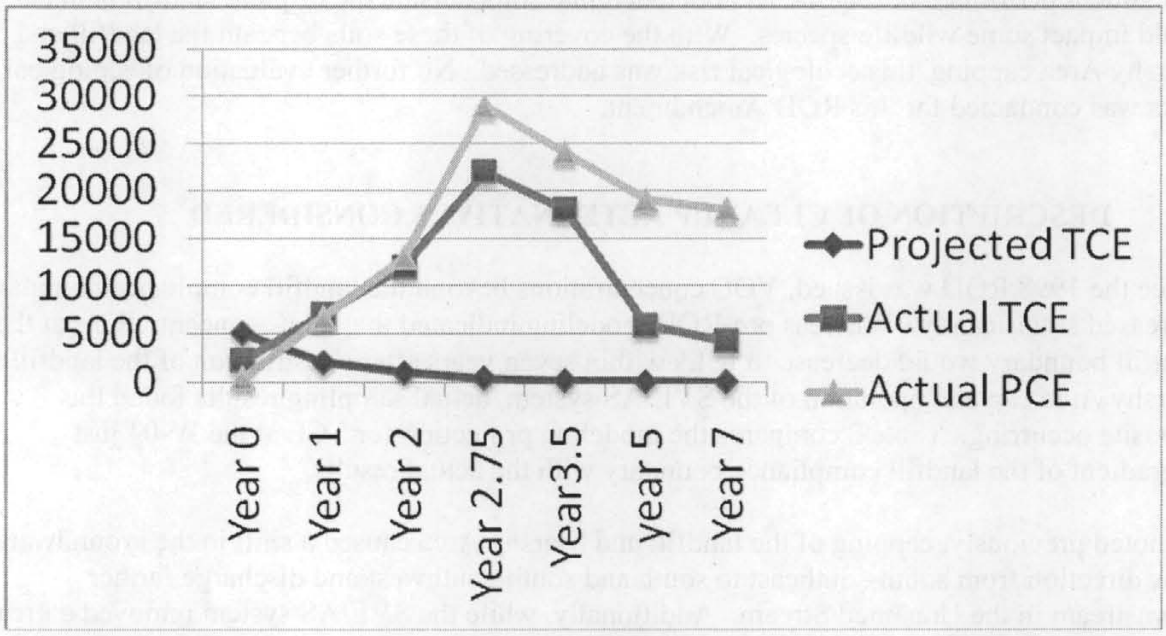
With respect to potential environmental impacts posed by Site contamination, the ecological risk assessment performed during the RI concluded that soils outside the original landfill boundary could impact some wildlife species. With the covering of these soils beneath the landfill and Marshy Area capping, this ecological risk was addressed. No further evaluation of ecological risks was conducted for this ROD Amendment.

D. DESCRIPTION OF CLEANUP ALTERNATIVES CONSIDERED

Since the 1998 ROD was issued, VOC concentrations beyond the landfill compliance boundary increased significantly. Whereas pre-ROD modeling indicated that VOC concentrations at the landfill boundary would decrease to ICLs within seven years after construction of the landfill and Marshy Area cap and operation of the SVE/AS system, actual sampling results found the opposite occurring. Table 2 compares the modeling projection for TCE at the W-04 just upgradient of the landfill compliance boundary with the actual results.

As noted previously, capping of the landfill and Marshy Area caused a shift in the groundwater flow direction from south-southeast to south and south-southwest and discharge farther downstream in the Unnamed Stream. Additionally, while the SVE/AS system removed a greater volume of contaminant mass than was estimated to be present within the landfill, the remaining volume of contaminant mass is unknown. Consequently, it was determined that the remedy selected in the 1998 ROD would not attain the remedial action objective of preventing further migration of contaminated groundwater beyond the landfill by controlling the source of contamination. Further, because of the shift in the groundwater flow direction, it is uncertain whether the groundwater would attenuate to the ICLs prior to the institutional controls boundary.

Table 2: Projected TCE Concentrations Post-Capping versus Actual TCE Concentrations and PCE Concentrations at W-04. Concentrations in µg/L



In response to these findings, a FFS was prepared to evaluate a range of source control and management of migration alternatives to address the remaining source material and the contaminated groundwater beyond the landfill. For purposes of developing remedial alternatives, the Site was divided into the following three areas, shown on Figure 6:

Area A - Upgradient of Landfill Compliance Boundary – This area is located upgradient of the compliance boundary and includes the Landfill Area, former Lagoon Area and the capped portion of the former Marshy Area. Area A contains elevated levels of VOCs in groundwater that are orders of magnitude above ICLs set forth in the ROD. The former Lagoon Area was located within the Landfill Area, where liquid and sludge wastes were disposed and where the SVE/AS source remedy was implemented. The former Marshy Area is located hydraulically downgradient of the former Lagoon Area and Landfill Area. Prior to landfill closure, this area was a low-lying marsh with natural surface water drainage swales and landfill leachate seeps, and was the primary area of discharge for groundwater moving beneath the landfill. The landfill capping system was extended over that portion of the former Marshy Area in Area A. In addition, surface water drainage features within Area A were realigned.

Area B - Downgradient of Landfill Compliance Boundary – This area is located immediately downgradient of the compliance boundary and now extends southward approximately 200 feet to the W-09 well cluster location. This area contains elevated levels of VOCs in groundwater that

are orders of magnitude above the ICLs set forth in the ROD. At the time of the ROD, these elevated levels were found in wells adjacent to the compliance boundary but these elevated levels are now found 100 - 200 feet southward beyond the compliance boundary. The groundwater contaminant plume also expanded approximately 30 feet to the southeast, towards W-06D, since the 1998 ROD. A significant portion of Area B is within the former Marshy Area.

Area C - Downgradient Plume Area – This area extends downgradient from the W-09 location and ends where the VOC plume reaches ICLs, between P-02 and P-08. The downgradient extent of the Area C plume is essentially unchanged since the ROD.

Five remedial alternatives were considered in detail in the FFS and are described below. The five alternatives are:

- Alternative 1: No Further Additional Action
- Alternative 2: Areas A and B *In Situ* Remedy, and Continued MNA in Area C
- Alternative 3: Area A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration *In Situ* Remedy, and Continued MNA in Area C
- Alternative 4: Area A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy, a PRB System at the Downgradient Edge of Area B, and Continued MNA in Area C
- Alternative 5: Area A Containment Remedy, PRB Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy by Excavation, and Continued MNA in Areas B and C

Alternative 1: No Further Additional Action

This alternative is developed as a baseline. The purpose of the No Further Additional Action alternative is to evaluate the overall human health and environmental protection provided by the current remedy at the Site, without any modification (i.e., in its present state). Under this alternative, natural attenuation by natural biological and chemical degradation, dispersion, and adsorption would continue. Operation of the SVE system would continue as appropriate to achieve its intended objectives. No additional remedial actions would be undertaken. The activities conducted under this alternative include monitoring to evaluate contaminant migration and a review of Site conditions and risks every five years. Existing institutional controls (the Environmental Protection Easement and Groundwater Reclassification) prohibit the use of the land and groundwater within the groundwater reclassification boundary. These institutional controls are considered adequate and no additional institutional controls are proposed.

Alternative 2: Areas A and B *In Situ* Remedy, and Continued MNA in Area C

Alternative 2 would provide active groundwater remediation to Areas A and B, and continue the 1998 selected remedy of MNA for Area C. Technologies that were considered for active remediation include:

- *In situ* bioremediation by enhanced reductive dehalogenation (ERD),
- *In situ* chemical oxidation (ISCO) using permanganate,
- *In situ* soil mixing (ISSM) using amendments (e.g., a mixture of zero-valent iron and ERD substrate), and
- A combination of ERD, ISCO, or ISSM.

Contaminated groundwater outside of the areas of active remediation would be remediated through MNA and the current institutional controls would remain in place.

In situ enhanced bioremediation would promote remediation of the chlorinated VOCs in groundwater by ERD. Under anaerobic conditions, a variety of naturally occurring bacteria can convert PCE and TCE to *cis*-1,2-dichloroethene (*cis*-DCE), subsequently to vinyl chloride, ethene/ethane, and ultimately to carbon dioxide, water, and inorganic chloride. ERD technology provides a carbon food source to the naturally occurring bacteria in order to accelerate the conversion of the contaminants.

ISCO involves oxidation-reduction reactions, which are essentially exchanges of electrons between chemical species. This exchange of electrons affects the oxidation state (valence) of the chemical species involved. The carbon bonds in VOCs are broken as a result of chemical oxidation, and the VOCs are either completely destroyed or converted to smaller and typically less toxic compounds. Permanganate is a well-known oxidant that can degrade chlorinated ethenes (e.g., PCE, TCE, *cis*-DCE, and vinyl chloride) in the subsurface into carbon dioxide, water and inorganic chloride in a relatively short time period (half lives are on the order of minutes).

ISSM has been used for a number of years in the construction industry, where cement grout is typically mixed with soil to create a foundation system or barrier wall. The proposed ISSM approach for the Site includes addition of a mixture of ERD substrate and zero-valent iron to promote biotic and abiotic reduction of VOCs.

Enhanced bioremediation or chemical oxidation amendments would be added in Areas A and B by a series of injection wells placed at pre-determined spacing and depth intervals. Appropriate amendment(s) and dosing rate(s) would be determined based on the results of the laboratory treatability study and/or field pilot test performed as part of the pre-design investigation.

Natural attenuation relies on natural processes to achieve site-specific cleanup objectives. The natural processes consist of a variety of physical, chemical or biological processes that act together to reduce the mass, toxicity, mobility, volume or concentration of contaminants in soil or groundwater. These processes include volatilization, dilution, sorption, biodegradation, dispersion, chemical or biological stabilization, transformation or abiotic degradation of contaminants.

Long-term monitoring and five-year reviews will continue under this alternative. The operation of the SVE will cease as the *in situ* remediation will address the residual contamination beneath the landfill cap. Under Alternative 2, existing institutional controls prohibit the use of the land and groundwater within the groundwater reclassification boundary. These institutional controls are considered adequate and no additional institutional controls are proposed.

Alternative 3: Area A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration *In Situ* Remedy, and Continued MNA in Area C

Alternative 3 would include a barrier system at the landfill compliance boundary to control contaminant migration from Area A, active *in situ* remediation for restoration of Area B (using ERD, ISCO, ISSM, or a combination), and a continuation of the 1998 selected remedy of MNA for Area C. Two barrier system technologies were considered under Alternative 3:

1. Groundwater collection trench with on-site treatment and on-site surface water discharge, and
2. Zero-valent iron permeable reactive barrier (PRB).

As shown in Figure 7, the barrier systems would extend to the southeast toe of the cap area, and extend across the toe of slope swale to capture and treat all VOCs migrating from Area A. The compliance boundary is located approximately along the downgradient limit of the capped area, and arcs in the northeast direction along the swale in the capped area. In the area of the swale where the cap has been installed, surface water is diverted to flow on top of the cap to avoid interaction with contaminated groundwater, and therefore there is no interaction between the clean surface water from the capped area and contaminated groundwater under the capped area.

A barrier system parallel to the toe of slope swale (following the alignment of the compliance boundary) would require excavation of the existing cap, and would be parallel to the direction of groundwater flow beneath the cap, which is not an effective placement. Therefore, an alternative barrier alignment that is effective and protective would be chosen. The alternative alignment, as shown in Figure 7, would place the barrier system along the edge of the cap in the southeast corner, and subsequently extend the cap over the barrier system to prevent the clean surface water from the capped area from entering the barrier system.

Pre-design studies would be conducted to determine whether a PRB would be more effective than a groundwater collection trench at the Site. If a PRB is chosen under this alternative for the landfill compliance boundary barrier, a groundwater collection trench would remain as a contingency remedy if the PRB does not effectively treat the contaminated groundwater flowing from beneath the landfill. Implementation of the contingency would occur if after adjustments to the PRB barrier (for example, widening the trench to allow for more iron particles or other enhancements) the PRB is still not meeting its design goal of meeting ICLs in groundwater passing through the PRB. Should the groundwater collection trench contingency barrier be implemented, it would be constructed adjacent to the PRB such that the Remedial Action

Objective of preventing (containing) the migration of contamination beyond the landfill compliance boundary is attained.

Active *in situ* remediation for Area B under this alternative includes the same technologies as those included in Alternative 2 (ERD, ISCO, ISSM, or a combination). Either a groundwater collection trench or a PRB system would stop migration of VOCs from Area A, and isolate Area B from the source upgradient of the compliance boundary. Implementation of active remediation in Area B will allow for the concentrations of contaminants downgradient of the compliance boundary to be reduced in a relatively short period of time and Area B restored.

MNA remains the remedy for Area C where total VOC concentrations are below 100 µg/L and approaching the ICLs.. In addition to stopping migration of VOCs from the Area A source, treated groundwater flowing from the remediated Area B will increase natural attenuation in Area C by dilution and flushing with treated groundwater.

Long-term monitoring will be expanded to assure that the selected barrier system is effectively containing contaminant flow from the landfill. Monitoring points will be located within the barrier to verify that the ICLs are being attained. If a PRB is selected for the barrier technology, additional monitoring points will be installed to verify that contaminated groundwater is not bypassing the barrier. Five-year reviews will continue under this alternative. The operation of the SVE will cease as the remediation will address the residual contamination beneath the landfill cap. Under Alternative 3, existing institutional controls prohibit the use of the land and groundwater within the groundwater reclassification boundary. These institutional controls are considered adequate and no additional institutional controls are proposed.

Alternative 4: Alternative 4: Areas A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy, a PRB System at the Downgradient Edge of Area B, and Continued MNA in Area C

Alternative 4 would include a barrier system at the landfill compliance boundary to contain the Area A source, a PRB system at the downgradient edge of Area B to and a continuation of the 1998 selected remedy of MNA for Area C. Technologies considered for the landfill compliance boundary barrier system under Alternative 4 are the same as those considered under Alternative 3: a groundwater collection trench with on-site treatment and on-site surface water discharge, and a zero-valent iron PRB. A potential optimization remedy included in Alternative 4 is active *in situ* remediation of Area B with the same technologies as those considered under Alternatives 2 and 3, ERD, ISCO, ISSM, or a combination.

As shown in Figure 8 and discussed under Alternative 3, the layout of the barrier at the compliance boundary would extend to the southeast toe of the capped area, and extend across the Toe of Slope Swale to capture and treat all VOCs migrating from Area A. Figure 8 also shows an approximate location for the second barrier system. The purpose of the second barrier system is to capture and treat VOCs migrating from Area B so that the Area C contamination can naturally attenuate. The sections of the toe of slope swale and the Unnamed Stream between the

two barrier systems will be lined to prevent potential interaction between contaminated groundwater and the clean surface water from the capped area.

Pre-design studies will be conducted to determine whether a PRB would be more effective than a groundwater collection trench at the Site. If a PRB is chosen for the landfill boundary barrier, a groundwater collection trench will remain as a contingency remedy if the PRB does not effectively treat the contaminated groundwater flowing from beneath the landfill. Implementation of the contingency would occur if after adjustments to the PRB barrier (for example, widening the trench to allow for more iron particles or other enhancements) the PRB is not meeting its design goal of meeting ICLs in groundwater passing through the PRB. Should the contingency barrier be implemented, it would be constructed adjacent to the PRB such that the Remedial Action Objective of preventing (containing) the migration of contamination beyond the landfill compliance boundary can be met.

Active *in situ* remediation of Area B is included as a remedy optimization element of Alternative 4. The optimization remedy may be implemented in the event that the estimated cleanup timeframe for Area B between the two barriers exceeds the expected zero-valent iron lifespan in the downgradient PRB. The goal of remedy optimization is to ensure the estimated cleanup timeframe for Area B is met or to avoid replacing the iron in the downgradient PRB. The cleanup timeframe estimates will be revised after the completion of the pre-design investigations, and re-evaluated as a part of the five year reviews until the Area B remedial goals are achieved. If the remedy optimization component is implemented, the design and implementation of an active remedy in Area B will be consistent with the active remedy discussions for Alternatives 2 and 3 above.

As noted below the projected timeframe for restoration of Area B with the construction and operation of the two barrier systems is estimated to be approximately 35 years. Therefore water quality data will be collected between the two barrier systems. This data will be compared with the concentrations projected in the timeframe calculations to assess whether the actual concentrations are consistent with the calculations. At a minimum these comparisons will be made during each five-year review. Should EPA determine that the projected timeframe of 35 years for restoration of Area B will not be met (allowing for some deviation of the timeframe), then data collected during the pre-design activities will be updated and an *in situ* technology described above will be selected and implemented. Should another technology beyond the three described above be considered, it will need to be compared with the nine criteria in Section E below and documented in another decision document.

MNA will remain as the remedy for Area C because with the destruction or mineralization of VOCs by the two barrier systems, RAOs in Area C can be achieved by MNA within a timeframe comparable to an engineering remedy. The two barriers, at the landfill compliance boundary and the downgradient edge of Area B, will stop migration of VOCs from Areas A and B, and isolate Area C from the contaminant sources.

Long-term monitoring will be expanded to assure that the selected barrier system is effectively containing contaminant flow from the landfill and from Area B. Five-year reviews will continue under this alternative. The operation of the SVE will cease as the remediation will address the residual contamination beneath the landfill cap. Under Alternative 4, existing institutional controls prohibit the use of the land and groundwater within the groundwater reclassification boundary. These institutional controls are considered adequate and no additional institutional controls are proposed.

Alternative 5: Area A Containment Remedy, PRB Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy by Excavation, and Continued MNA in Area C

Alternative 5 would include a PRB barrier system at the landfill compliance boundary, excavation of the saturated soils in Area B, and a continuation of the 1998 selected remedy of MNA for Area C. The barrier system would control contamination migration from Area A. The excavation and either treatment or removal of the saturated soils in Area B would quickly remove the elevated groundwater VOC concentrations and effectively remove the associated VOC mass partitioned onto the soils that have migrated beyond the landfill compliance boundary. Aeration of groundwater due to excavation may reduce the natural biological degradation of the VOCs in Area C; however, the positive effects of dilution and flushing with less impacted groundwater from Area B are expected to increase.

As shown in Figure 9 and discussed under Alternatives 3 and 4, the layout of the PRB barrier at the compliance boundary would extend to the southeast toe of the capped area, and extend across the Toe of Slope Swale to capture and treat all VOCs migrating from Area A. The PRB technology for the barrier system for this alternative is the same as that described under Alternative 3. The overburden (unsaturated) soils in Area B would be excavated, sampled and stockpiled so that they can be returned into the excavated area. The saturated soils in Area B would be excavated to remove the elevated groundwater VOC concentrations and associated mass partitioned onto the soils beyond the landfill compliance boundary. The PRB barrier system will be installed after the excavation in Area B to prevent potential structural damage to the PRB due to excavation.

The excavation would extend to the bottom of the overburden aquifer (bottom of ablation till, approximately 20 to 25 feet belowground surface). The downgradient extent of the excavation would be determined following pre-design sampling that would establish the soil clean-up levels to be attained and the sampling requirements to confirm that the excavation met the levels. The excavated soils would be allowed to drain to reduce moisture. Off-site disposal of the excavated soil is assumed; however, on-site treatment using thermal treatment technology may be evaluated during pre-design investigations based on the level of contamination detected in Area B soils. Further, dewatering of the excavation would be necessary, and because of the high groundwater concentrations detected in Area B, the water generated during the dewatering process and draining of the excavated soils would need to be appropriately handled and disposed. Similar to

the handling of the excavated soils, off-site disposal of the water to a waste water treatment plant is assumed. Area B would then be backfilled with clean fill.

The 1998 selected remedy of MNA would continue for Area C. Excavation in Area B will remove the impacted soil and groundwater, and groundwater flowing from the remediated Area B will increase natural attenuation in Area C by dilution and flushing with treated groundwater. However, backfilling of Area B with homogenized material may alter groundwater flow through Area B, which in turn may affect groundwater flow in Area C. The effects of post-excavation conditions in Area B on groundwater flow and MNA processes in Area C will require evaluation during the remedial design for Alternative 5.

Long-term monitoring will be expanded to assure that the selected barrier system is effectively containing contaminant flow from the landfill. Five-year reviews will continue under this alternative. The operation of the SVE will cease as the *in situ* PRB remediation will address the residual contamination beneath the landfill cap. Under Alternative 5, existing institutional controls prohibit the use of the land and groundwater within the groundwater reclassification boundary. These institutional controls are considered adequate and no additional institutional controls are proposed.

E. EVALUATION OF CLEANUP ALTERNATIVES

Section 121(b)(1) of CERCLA presents several factors that at a minimum EPA is required to consider in its assessment of remedial options. Building upon these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. The nine criteria are summarized as follows:

THRESHOLD CRITERIA:

The two threshold criteria described below must be met in order for the alternatives to be eligible for selection in accordance with the NCP:

1. **Overall protection of human health and the environment** addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

2. **Compliance with applicable or relevant and appropriate requirements (ARARs)** addresses whether or not a remedy will meet all Federal environmental and more stringent State environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked.

PRIMARY BALANCING CRITERIA:

The following five criteria are utilized to compare and evaluate the elements of one alternative to another that meet the threshold criteria:

3. **Long-term effectiveness and permanence** addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.

4. **Reduction of toxicity, mobility, or volume through treatment** addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the site.

5. **Short term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

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

7. **Cost** includes estimated capital and Operation Maintenance (O&M) costs, as well as present value costs.

MODIFYING CRITERIA:

The modifying criteria are used as the final evaluation of remedial alternatives, generally after EPA has received public comment on the RI/FS and Proposed Plan:

8. **State acceptance** addresses the State's position and key concerns related to the preferred alternative and other alternatives, and the State's comments on ARARs or the proposed use of waivers.

9. **Community acceptance** addresses the public's general response to the alternatives described in the Proposed Plan and RI/FS report.

Because this is an Amendment to the 1998 ROD, only the part of the remedial action that is proposed for modification will be evaluated in this section. Those portions of the 1998 ROD Remedy which are not being changed (i.e., capping of the landfill and Marshy Area, MNA for Area C, institutional controls, five-year reviews) remain in effect under the 1998 ROD.

1. COMPARATIVE ANALYSIS:

The following is a summary of the comparison of each of the five FFS alternatives' strengths and weaknesses with respect to the nine evaluation criteria noted above. Table 5-15 from the FFS and attached hereto in Appendix A is also provided to help summarize this comparative analysis.

Overall Protection of Human Health and the Environment

Site data has shown that high concentrations of groundwater contamination are moving farther away from the landfill compliance boundary toward the institutional control boundary. It is uncertain whether these concentrations will attenuate to ICLs prior to the institutional control boundary. Therefore, while all five alternatives would currently be protective of human health, it is uncertain whether Alternative 1 would provide long-term protection. Under Alternative 1, long-term monitoring would be performed to verify the continued protection of human health and the environment, identify then-current distribution of contamination, and document progress towards reaching remedial goals. As the existing institutional controls prohibit the use of the land and groundwater within the area containing the VOC plume, they are considered adequate in the short-term for protection of human health. Five-year reviews would identify the need for additional remedial action for continued protection of human health and the environment.

Alternative 2 would provide protection of human health and the environment through active remediation in Areas A and B followed by MNA, and continue the 1998 selected remedy of MNA for Area C. Compliance with existing institutional controls would be annually verified and monitoring would be performed to verify that the active remedy (ERD, ISCO, ISSM, or some combination of these) and MNA would provide continued protection of human health and the environment, evaluate the distribution of contamination, and document progress towards reaching remedial goals. The time to reach remedial goals in Areas A and B is estimated to be approximately 11.5 to 15 years. The timeframe to reach remedial goals in Area C is estimated to be approximately 23.5 to 27 years.

Alternative 3 would provide protection of human health and the environment through a barrier-type containment system at the compliance boundary for Area A, active remediation followed by MNA in Area B, and continue the 1998 selected remedy of MNA for Area C. Compliance with existing institutional controls would be annually verified and long-term monitoring would be performed to verify that the barrier system, active remedy, and MNA would provide continued protection of human health and the environment, evaluate the distribution of contamination, and document progress towards reaching remedial goals. The time to reach remedial goals at the compliance boundary is estimated to be 2.5 to 3.5 years, as a result of implementing the compliance boundary barrier system. Continued maintenance and operation of the barrier system will be necessary for an assumed period of 100 years to maintain the remediation goals. Significant reductions in VOC concentrations will occur during active remedy implementation in Area B (approximately 3.5 to 7 years). The timeframe for achieving remedial action objectives in Areas B and C is estimated to be 23.5 to 27 years.

Alternative 4 would provide protection of human health and the environment through two barrier-type containment systems (one near the compliance boundary and the other in Area B) and continue the 1998 selected remedy of MNA for Area C. Compliance with existing institutional controls would be annually verified and long-term monitoring would be performed to verify the continued protection of human health and the environment, evaluate the distribution of contamination, and document progress towards reaching remedial goals. The timeframe for implementing the barrier remedy in Areas A and B is approximately 2.5 years. The time to reach remedial goals at the compliance boundary is estimated to be 2.5 years, as a result of implementing the compliance boundary barrier system. Continued maintenance and operation of the compliance boundary barrier system will be necessary for an assumed period of 100 years to maintain the remediation goals. The estimated timeframe for O&M of the Area B barrier system is approximately 33 years. The timeframe for achieving remedial action objectives in Areas B and C is estimated to be 35.5 years.

Alternative 5 would provide protection of human health and the environment through a barrier-type containment system at the compliance boundary, excavation and off-site disposal of source soils in Area B, and continue the 1998 selected remedy of MNA for Area C. Compliance with existing institutional controls would be annually verified and long-term monitoring would be performed to verify the continued protection of human health and the environment, evaluate the distribution of contamination, and document progress towards reaching remedial goals. The timeframe for completing excavation in Area B and implementing the barrier remedy at the compliance boundary is approximately 2.5 years. The time to reach remedial goals at the compliance boundary is estimated to be 2.5 years, as a result of implementing the compliance boundary PRB system. Continued maintenance and operation of the compliance boundary barrier system will be necessary for an assumed period of 100 years to maintain the remediation goals. The timeframe for achieving remedial action objectives in Areas B and C is estimated to be 22 years.

Compliance with ARARs

Each remedial alternative would attain remedial goals, and comply with ARARs in the long term. However, under Alternative 1, it is uncertain whether VOCs would attenuate to ICLs within the limits of the Groundwater Reclassification boundary over the long term. Alternatives 2, 3, 4, and 5 would attain the chemical and location-specific ARARs more quickly in Areas B and C than Alternative 1. Alternative 5 would remove VOC mass from Area B more quickly than Alternatives 2, 3 and 4; however, post-excavation and post-remediation MNA timeframes for these alternatives are similar. Because Alternatives 3, 4, and 5 will affect a portion of the Unnamed Stream and potentially associated wetlands, mitigation efforts will be needed.

Long-Term Effectiveness and Permanence

Alternatives 2, 3, 4, and 5 would offer the highest degree of long-term effectiveness and permanence. These alternatives actively remediate and contain the contaminant sources upgradient and downgradient of the landfill compliance boundary, and continue to rely on MNA

for only the low concentration area of the Site (Area C). Alternative 2 achieves long term effectiveness and permanence in Area A more quickly than the other alternatives through active remediation upgradient of the landfill compliance boundary, and goes beyond the RAO of containing the remaining landfill source (as in Alternatives 3, 4, and 5).

The barrier systems in Alternatives 3, 4, and 5 provide treatment. The groundwater collection trench is an active treatment that pulls contaminated groundwater to it whereas the PRB is a passive treatment that relies on the existing groundwater flow velocity to transport the contamination to it. Whether a PRB or a collection trench is selected for the landfill compliance boundary, the capture or destruction of the contaminants is ensured at both barrier system locations. Alternatives 3 and 5 utilize active remediation and excavation, respectively, and achieve long-term effectiveness and permanence in Area B more quickly than Alternative 4. The permanence provided by continuing with MNA in Area C would be achieved in slightly less time under Alternatives 4 and 5 (approximately 22 years) compared to Alternatives 2 and 3 (approximately 23.5 to 27 years).

Under Alternatives 3, 4, and 5, routine maintenance and replacement of system components could be accomplished with little interruption of system operation and no adverse impact to human health or the environment. These three alternatives contain the contaminant source at the landfill compliance boundary. However, as the extent of residual contamination in the landfill is unknown, it is expected that the operation and maintenance of the barrier system at the compliance boundary will be necessary for an extended period of time.

Long-term monitoring of groundwater would be performed under all five alternatives to monitor the quality of groundwater, assess potential impacts to downgradient receptors, determine whether additional remedial actions are necessary, and determine when remedial actions are complete. No difficulties or uncertainties are anticipated in performing the long-term monitoring. Groundwater monitoring wells may require replacement if sedimentation or vandalism occurs; the wells would be readily replaceable.

With the exception of Alternative 2, the alternatives all assume that contaminants will remain in the subsurface upgradient of the landfill compliance boundary for an extended period of time. Accordingly, a review of site conditions and risks would be conducted every five years, as required by CERCLA.

Reduction of Toxicity, Mobility, or Volume Through Treatment

All five alternatives would reduce the toxicity and volume of contamination through natural attenuation processes. In addition to natural attenuation processes, Alternatives 2 and 3 provide *in situ* treatment of groundwater contamination. Alternatives 3 and 4, if a collection trench is selected for the landfill compliance boundary barrier, and 5 provide active containment and treatment of contaminated groundwater, which would reduce the mobility, volume and toxicity of contaminants in portions of the aquifer. Alternatives 3, 4, and 5 provide passive contaminant

containment if a PRB is selected for the landfill compliance boundary barrier. The excavation of Area B in Alternative 5 would further decrease the mobility and volume of contaminants.

Short-Term Effectiveness

No impact on the community or site workers is expected with Alternative 1. Under Alternatives 3, 4, and 5, construction and operation of the barrier system would not have significant impacts on the local community or site workers. The remote location of the Site will minimize any effects from Alternative 5 excavation of Area B on the community but there will be a temporary increase in truck traffic associated with the off-site transport of the excavated soils. Standard procedures appropriate with the excavation of source soils will be implemented to minimize impacts on site workers.

No environmental impacts are expected with Alternative 1. Adverse environmental impacts could occur from the barrier system trenching adjacent to the toe of slope swale with Alternatives 3, 4, and 5. Therefore appropriate safeguards would need to be followed to prevent potential adverse environmental effects from the construction of the barrier systems. Alternative 5 would require additional measures as it would involve more excavation and thereby potentially impact a longer reach of the toe of slope swale and possibly the Unnamed Stream. ARARs pertaining to wetlands and the Unnamed Stream will be followed. Any potential unavoidable impact will be evaluated and minimized where possible to reduce negative effects and mitigation will be done if applicable.

Under Alternative 1, shallow groundwater would continue to discharge to the toe of slope swale and Unnamed Stream downgradient of the landfill. Modeling predicts minimal VOC impact to surface water, and the data show that surface water quality is improving. Under Alternatives 2 and 3, groundwater would continue to discharge to surface water downgradient of the landfill, but groundwater VOC concentrations would be reduced significantly by *in situ* treatment. Lining of the stream in Alternative 4 and excavation of Area B under Alternative 5 would reduce the discharge of contaminated groundwater to surface water more quickly than Alternatives 2 and 3.

Alternatives 2, 3, and 5 would achieve remedial goals for Area B the quickest. Alternatives 4 and 5, by containing or excavating the Area B contaminants, would achieve the remedial goals for Area C more quickly than Alternatives 2 and 3.

Implementability

Work (i.e., SVE operation, cap maintenance, and monitoring) proposed under Alternative 1 is ongoing at the Site, and therefore, Alternative 1 requires no further implementation. Alternatives 2, 3, 4, and 5 would require some or all of the following steps prior to full-scale implementation: pre-design investigation, bench-scale/treatability testing, development of an active remedial

approach, field pilot testing, and remedial design. Alternatives 3, 4, and 5 would require long-term operation of the barrier system(s) to maintain compliance with ARARs.

Cost

Alternative 1 (No Further Additional Action) is the least costly alternative with a net present cost of $1,192,700. Alternative 4 (Area A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy, a PRB System at the Downgradient Edge of Area B, and Continued MNA in Area C) with net present cost ranging from $3,481,400 to $3,957,200 is more costly than Alternative 1, however, is the least costly of the alternatives that include engineering technologies for attainment of the remedial action objectives. Alternative 3 (Area A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration *In Situ* Remedy, and Continued MNA in Area C) with net present cost ranging from $4,655,200 to $6,797,000 is more costly than Alternatives 1 and 4. Alternative 2 (Areas A and B *In Situ* Remedy, and Continued MNA in Area C) with net present worth ranging from $5,399,400 to $10,315,100 is more costly than Alternatives 1, 3, and 4. Alternative 5 (Area A Containment Remedy, PRB Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy by Excavation, and Continued MNA in Areas B and C) is the most costly alternative with a net present cost of $12,375,700.

If optimization of Alternative 4 is necessary, additional cost for the optimization remedy implementation ranges from $1,919,300 to $3,682,400. For Alternative 2, if additional source area requiring treatment is identified, the incremental cost for the *in-situ* treatment of the additional area ranges from $1,822,600 to $2,789,500.

Table 3: Remedial Alternatives Cost Summary

Alternative	Cost Summary (NPV)
Alternative 1: No Further Additional Action	$1,192,700
Alternative 2: Areas A and B *In-Situ* Remedy, and Continued MNA in Area C	Ranges from $5,399,400 to $10,315,100 (Incremental Cost for Potential Additional Area Treatment ranges from $1,822,600 to $2,789,500)
Alternative 3: Area A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration *In Situ* Remedy, and Continued MNA in Area C	Ranges from $4,655,200 to $6,797,000
Alternative 4: Areas A Containment Remedy, Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy, a PRB System at the Downgradient Edge of Area B, and Continued MNA in Area C	Ranges from $3,481,400 to $3,957,200 (Incremental Cost for Potential Optimization ranges from $1,919,300 to $3,682,400)
Alternative 5: Area A Containment Remedy, PRB Barrier System at the Landfill Compliance Boundary, Area B Restoration Remedy by Excavation, and Continued MNA in Areas B and C	$12,375,700

Note:

NPV = net present value calculated at a discount rate of 7 percent before tax and without inflation

State/Lead Agency Acceptance

VTDEC has been involved with the Site since its discovery. VTDEC concurred with the 1998 ROD Remedy and concurs with this ROD Amendment. See Appendix C for the State's concurrence letter.

Community Acceptance

Community acceptance is a modifying criterion that allows for final evaluation and modification of the selected remedial approach following community review. EPA offered briefings on the Proposed Plan to the municipal offices of both Bennington and Woodford each responded that the Proposed Plan was sufficient.

EPA mailed the Proposed Plan for this ROD Amendment on July 22, 2011, and received a few calls from community members regarding the proposed remedy. In general, these callers had some questions about the proposed remedy and whether contamination from the Site had reached Barney Brook, but expressed no opinions or concerns as to the Proposed Plan. The Proposed Plan mailing was followed by notice of a public hearing that was published in the Bennington Banner on August 6, 2011. On August 16, 2011, EPA held a combined public information meeting and then public hearing at the Bennington Free Library, which also serves as the repository for the Site. The meeting was lightly attended. Members of the public asked questions during the information meeting, but no oral or written comments were offered during the hearing.

F. RATIONALE FOR REMEDY SELECTED IN THE 2010 ROD AMENDMENT

EPA has selected Alternative 4 (Area A Containment Remedy, Barrier System at the Compliance Boundary, Area B Restoration Remedy, a PRB System at the Downgradient Edge of Area B, and Continued MNA in Area C) because EPA believes it achieves the best balance among EPA's nine criteria used to evaluate various alternatives. The selected ROD Amendment remedy is protective of both human health and the environment while, at the same time, is cost effective. The selected ROD Amendment remedy provides both short and long-term protection of human health and the environment; attains Federal and State ARARs; and utilizes permanent solutions and institutional controls to prevent unacceptable exposures.

While Alternatives 2 and 3 are protective of human health and the environment, comply with ARARs, the short-term effectiveness and implementability are more problematic for these alternatives. Current conditions beneath the landfill and Marshy Area cap are unknown and consequently could require extensive pre-design efforts and multiple injection periods. Similarly, the Site geology in Area B could limit the effectiveness of the *in situ* activities for Alternatives 2 and 3 (and also the optimization component of Alternative 4). Alternative 5 is

also protective of human health and the environment but its costs are potentially three times greater than Alternative 4.

The total present value cost (2011 dollars) for the selected ROD Amendment remedy is $3,481,400, with a further breakdown of this total cost estimate as follows:

Table 4: Alternative 4 Cost Summary

Cost Category	Amended Remedy (PRB selected for Compliance Boundary)	Amended Remedy (Collection Trench selected for Compliance Boundary)
Capital Costs	$ 1,790,100	$1,363,200
O&M Costs	$1,691,300	$2,594,000
Total Present Value 30 yrs @ 7% Discount Rate	$3,481,400	$3,957,200
Optimization Costs	$1,919,300 – $3,682,400	NA
Total Present Value with Optimization (30 yrs @ 7% Discount Rate)	$5,400,700 $7,163,800	NA

G. DESCRIPTION OF FUNDAMENTAL CHANGES BETWEEN ORIGINAL (1998) ROD REMEDY AND 2011 ROD AMENDMENT SELECTED REMEDY

1. ORIGINAL (1998) ROD REMEDY:

The remedy selected in the 1998 ROD included source control and management of migration components. For source control, the 1998 ROD selected capping of the landfill and Marshy Area and hot spot treatment of the former lagoons with SVE/AS. Because these source control activities were expected to prevent further migration of contaminated groundwater from the landfill, the selected remedy for management of migration was natural attenuation. These activities were expected to restore groundwater to ICLs within seven years after implementation of the source control components and institutional controls were included in the 1998 selected remedy to prevent exposure to the contaminated groundwater until the ICLs were reached. The components of the 1998 selected remedy were described previously in Section B of this ROD Amendment.

The capping of the landfill and Marshy Area, MNA in Area C, institutional controls, and five-year review components of the 1998 ROD remain unchanged by this ROD Amendment.

2. 2011 ROD AMENDMENT SELECTED REMEDY:

This ROD Amendment adds further source control and management of migration components to the remedy selected in the 1998 ROD. This ROD Amendment adds a containment barrier at the landfill compliance boundary to provide source control and a PRB barrier to provide management of migration for the highly contaminated groundwater beyond the landfill compliance boundary.

A barrier system would extend to the southeast toe of the cap area, and extend across the toe of slope swale to capture and treat all VOCs migrating from Area A. The cap would be extended over the barrier system to prevent the clean surface water from the capped area from entering the barrier system.

Pre-design studies would be conducted to determine whether a PRB would be more effective than a groundwater collection trench for the landfill compliance boundary barrier system. If a PRB is chosen under this alternative for the landfill boundary barrier, a groundwater collection trench would remain as a contingency remedy if the PRB does not effectively treat the contaminated groundwater flowing from beneath the landfill. Implementation of the contingency would occur if after adjustments to the PRB barrier (for example, widening the trench to allow for more iron particles or other enhancements) the PRB is still not meeting its design goal of meeting drinking water standards in groundwater passing through the PRB.

In determining whether the contingency remedy is to be implemented, the following factors will be assessed. Review of the groundwater data has indicated that intermittently highly contaminated groundwater has moved through the overburden. Therefore the design of the PRB, if a PRB is chosen for the landfill compliance boundary barrier system as a result of the pre-design studies, will be developed to effectively address these maximum levels.

The FFS projected that ICLs would be attained in the downgradient portion of the PRB at the landfill compliance boundary in approximately two and a half years after construction. Given that this projection was based on available data that will be supplemented with data collected as part of the pre-design activities, initial modifications to the PRB, if necessary, will be completed within five years after construction. If ICLs are not attained and maintained within five years after construction, the groundwater collection trench contingency remedy will be implemented.

In order to assess the effectiveness of the PRB at the landfill compliance boundary, a series of monitoring points will be installed within the PRB near the downgradient edge of the PRB. The spacing of these monitoring points will be determined during the pre-design phase when the three-dimensional configuration of the plume and the geology will be refined. (The landfill and Marshy Area cap have been in place since 1999, and since no further releases are known to have occurred, it is assumed that the plume configuration has reached steady state conditions. The

kame sand and ablation till are heterogeneous and therefore groundwater flow is expected to be variable.) It is anticipated that the spacing of the monitoring points will be variable with more closely spaced points in the core of the plume.

In addition to these monitoring points located within the PRB, other monitoring points will be installed to demonstrate that the plume is not bypassing the PRB. Groundwater samples will continue to be collected from monitoring wells located upgradient of the PRB so that contaminant load can be estimated

Given the known average flow rate through the overburden, the initial monitoring frequency will be semi-annual. As data are collected, similar to monitoring of the vapor-phase carbon in the existing SVE system, it is anticipated that the expenditure rate of the zero-valent iron can be developed that may allow both for the reduction in sampling frequency and the replacement of sections of the barrier. As understanding of the contaminant load as well as the actual site-specific expenditure rate is developed, it is expected that frequency of sampling may be reduced first to annual and finally to every five years (to coincide with the five-year reviews). Further, it is expected that upon attainment of ICLs by the PRB at the compliance boundary then the ICLs will continue to be attained. Failure to maintain the ICLs will be the indication that the zero-valent iron has been expended and change-out is needed. As the volume of the remaining contaminant mass beneath the landfill is unknown, the FFS used 100 years as a timeframe for operating and maintaining the landfill compliance boundary. With that assumption, four cleanings of the zero-valent iron and three change-outs were included in the cost calculations.

Active *in situ* remediation of Area B is included as a remedy optimization component. The optimization remedy may be implemented in the event that the estimated cleanup timeframe for Area B between the two barriers exceeds the expected zero-valent iron lifespan in the downgradient PRB. The goal of remedy optimization is to ensure the estimated cleanup timeframe for Area B is met or to avoid replacing the iron in the downgradient PRB. The cleanup timeframe estimates will be revised after the completion of the pre-design investigations, and re-evaluated as a part of the five year reviews until the Area B remedial goals are achieved. If the remedy optimization component is implemented, the design and implementation of an active remedy in Area B will be consistent with the active remedy discussions for Alternatives 2 and 3 above. Should another technology beyond the three described above be considered, it will need to be compared with the nine criteria in Section E below and documented in another decision document.

MNA continues to be the remedy for Area C because with the Area A source control containment of VOCs by the landfill compliance boundary barrier system, and the Area B restoration of the groundwater by the PRB at the downgradient edge of Area B, RAOs in Area C can be achieved by MNA within a timeframe comparable to an engineering remedy. Both the groundwater collection trench and PRB system will stop migration of VOCs from Areas A and B, and isolate Area C from the contaminant sources.

Long-term monitoring will be expanded to assure that the selected barrier system is effectively containing contaminant flow from the landfill. Five-year reviews will continue under this alternative. The operation of the SVE will cease as the Area A remediation will address the residual contamination beneath the landfill cap. The existing institutional controls prohibit the use of the land and groundwater within the groundwater reclassification boundary. These institutional controls are considered adequate and no additional institutional controls are proposed.

3. REMEDIAL ACTION OBJECTIVES:

a. 1998 ROD RAOs

Remedial action objectives (RAOs) included in the 1998 ROD were as follows:

Landfill

- Prevent, to the extent practicable, the potential for water to contact or infiltrate through the debris mass and lagoon.
- Prevent, to the extent practicable, the generation of landfill seeps and the migration of landfill impacted surface water into the unnamed streams adjacent to the landfill (Marshy Area).
- Control landfill gas emissions so methane gas does not present an explosion hazard; prevent, to the extent practicable, the inhalation of landfill gas containing hazardous substances, pollutants or contaminants and meet state and federal air standards.
- Prevent, to the extent practicable, the migration of contaminated groundwater/leachate beyond the points of compliance by controlling the source of the contamination.
- Minimize the potential for slope failure of the debris mass associated with the landfill cap.
- Prevent, to the extent practicable, direct contact with and ingestion of soil/debris within the landfill and beneath the landfill.
- Control, to the extent practicable, surface water runoff to minimize erosion.
- Prevent, to the extent practicable, the migration of contamination from the lagoon area.
- Prevent, to the extent practicable, the saturation of the landfill debris mass from upgradient groundwater.

Groundwater:

- Prevent, to the extent practicable, the ingestion of landfill impacted bedrock groundwater exceeding MCLs, Vermont Primary Groundwater Quality Standards, or in their absence, the more stringent of an excess cancer risk of 1×10^{-6} for each compound or a hazard quotient of unity for each noncarcinogenic compound by any individual who may use the bedrock groundwater or within an area that the groundwater could become impacted as a result of pumping activities.

- Restore the bedrock groundwater at the edge of the Waste Management Unit to: MCLs, Vermont Primary Groundwater Quality Standards, or in their absence, the more stringent of an excess cancer risk of 1×10^{-6} for each compound or a hazard quotient of unity for each noncarcinogenic compound.

Surface Water:

- Protect off-site surface water by preventing the occurrence of landfill impacted seeps.
- Prevent, to the extent practicable, ecological impacts from contaminants in the Marshy Area.
- Meet federal and state applicable or relevant and appropriate requirements (ARARs) for any surface water discharge.

Ecological:

- Protect surface water, to the extent practicable, from exceedances of the Ambient Water Quality Criteria (AWQC) Acute and Chronic Standards.
- Protect sediments, to the extent practicable, from exceedances of the Aquatic Sediment Quality Guidelines of the Ontario Ministry of the Environment.

These RAOs remain unchanged by the ROD Amendment.

b. 2011 ROD AMENDMENT RAO

One RAO has been added for this ROD Amendment. The 1998 ROD did not include an RAO for overburden groundwater because it was expected that the capping and hot spot actions would meet the landfill RAO of preventing migration of contaminated groundwater beyond the points of compliance by controlling the source of the contamination. This in turn was to have allowed the groundwater to be restored by natural attenuation in seven years. Therefore, a separate RAO for overburden groundwater was not included. However, as migration has not been prevented, an RAO for overburden groundwater is now added.

- Restore the overburden groundwater at the edge of the Waste Management Unit (capped area of landfill/marshy area) and beyond to MCLs, Vermont Primary Ground Water Quality Standards, or in their absence, the more stringent of excess cancer risk of 1×10^{-6} for each compound or a hazard quotient of unity for each noncarcinogenic compound.

4. CHANGES IN EXPECTED OUTCOMES:

Both the 1998 ROD and this ROD Amendment address contaminated groundwater at the Site. The expected outcome of the 1998 ROD, as supplemented by this ROD Amendment, remains the

same: control the source of contamination at the landfill compliance boundary and restore the groundwater beyond the landfill to safe levels. This ROD Amendment ensures that the remedy is protective in the interim until groundwater cleanup levels are met by continuing the institutional controls for the Site.

H. SUPPORT AGENCY COMMENTS

VTDEC concurs with this ROD Amendment. See Appendix C for the State's concurrence letter.

I. STATUTORY DETERMINATIONS

CERCLA Section 121, 42 U.S.C. § 9621 and the NCP, 40 C.F.R. § 300.430 require that remedies selected for Superfund sites are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), be cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as a principal element. The following sections discuss how this ROD Amendment meets these legal requirements. Installation of the barrier systems is consistent with CERCLA and, to the extent practicable, the NCP. This ROD Amendment is protective of human health and the environment, attains ARARs, and is cost effective.

1. The Amended Remedy is Protective of Human Health and the Environment

This ROD Amendment for the Site will adequately protect human health and the environment through two barrier systems (one at the landfill compliance boundary and the other at the downgradient edge of Area B) and continued MNA in Area C. Compliance with existing institutional controls would be verified and long-term monitoring would be performed to verify the continued protection of human health and the environment.

This ROD Amendment will ensure that potential human health risks do not exceed EPA's acceptable risk range of 10^{-4} to 10^{-6} for incremental carcinogenic risk and that the non-carcinogenic hazard is below a level of concern because the calculated HI will not exceed 1.

Implementation of this ROD Amendment will not pose any unacceptable short-term risks or cause any cross-media impacts.

2. The Amended Remedy Complies With ARARs

This ROD Amendment will comply with all applicable or relevant and appropriate federal and state requirements that apply to it. Tables 5-19 of the FFS (see Appendix A) identify which

requirements are applicable or relevant and appropriate to this ROD Amendment. The ARARs that are required by this ROD Amendment replace those similar requirements identified in the 1998 ROD. All other ARARs identified in the 1998 ROD remain unchanged by this ROD Amendment.

3. The Amended Remedy is Cost-Effective

In EPA's judgment, the selected remedy, as amended, is cost effective because the remedy's costs are proportional to its overall effectiveness (see 40 CFR 300.430(f)(1)(ii)(D)). This determination is made by evaluating the overall effectiveness of the selected remedy that satisfied the threshold criteria (i.e., protective of human health and the environment and comply with all federal and any more stringent state ARARs). EPA has determined that this ROD Amendment is cost effective as it meets both threshold criteria and is reasonable given the relationship between the overall effectiveness afforded by the other alternatives and costs.

4. The Amended Remedy Utilizes Permanent Solutions and Alternative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

This ROD Amendment supplements the 1998 ROD source control component by adding a containment barrier at the landfill compliance boundary and the management of migration component by adding a barrier at the downgradient edge of Area B. The requirements of this ROD Amendment utilize permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. Groundwater trench containment barrier will provide permanent destruction through above-ground treatment. The PRB containment barrier will provide permanent destruction of groundwater contaminants through treatment by the interaction of the zero-valent iron with the contaminants. Institutional controls will continue to be in effect to prevent exposure to contaminated groundwater while the ICLs are being reached. Monitoring will be conducted to confirm that the groundwater contamination is not migrating beyond the barriers.

EPA has assessed the trade-offs among remedial alternatives considered in the FFS in terms of: (1) long-term effectiveness and permanence; (2) reduction of toxicity, mobility or volume through treatment; (3) short-term effectiveness; (4) implementability; and (5) cost. Based on this assessment, EPA finds that the Amended Remedy (Alternative 4 as described here and in the FFS) provides the best balance of trade-offs between the alternatives. This Amended Remedy provides comparable long-term effectiveness with similar permanence and fewer implementability issues than the other alternatives. In balancing these factors, EPA has also considered the strong support of the State for the alternative selected by this ROD Amendment. Based upon this evaluation, EPA finds that the Amended Remedy uses permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable.

5. The Amended Remedy Satisfies the Preference for Treatment as a Principal Element

Because this ROD Amendment selects barriers that will treat the contaminated groundwater, it meets the preference for treatment as a principle element.

6. Five-Year Reviews

Because contaminants will remain onsite above levels that allow for unlimited use and unrestricted exposure, EPA will continue to review the Site every five years to ensure that the remedy continues to provide adequate protection of human health and the environment.

J. PUBLIC PARTICIPATION

Public participation for this Site has been minimal since it was listed on the NPL. EPA contacted town officials in Bennington and Woodford for the 2005 and 2010 five-year reviews; in both review periods there was minimal interest in the Site.

EPA mailed the Proposed Plan for this ROD Amendment on July 22, 2011 and received a few calls from community members regarding the proposed remedy. The Proposed Plan was followed with a public notice that was published in the Bennington Banner on August 6, 2011. On August 16, 2011 EPA held a combined public information and then public hearing at the Bennington Free Library, which also serves as the repository for the Site. The meeting was lightly attended; questions were asked during the information meeting but no oral or written comments were offered during the hearing.

The public outreach efforts identified above satisfy the public participation requirements of §300.435(c)(2)(ii) of the NCP.

K. DOCUMENTATION OF NO SIGNIFICANT CHANGES FROM THE PREFERRED ALTERNATIVE IN THE PROPOSED PLAN

The Proposed Plan to amend the 1998 ROD was released for public comment on July 22, 2011. No comments on the Proposed Plan were received during the public comment period that concluded on August 29, 2011. Based also on its review of all comments received throughout the Focused Feasibility Study, EPA has determined that no significant change is needed to the Proposed Plan, and the selected remedy remains unchanged from the preferred alternative in the Proposed Plan. EPA has prepared a Responsiveness Summary, which is included as Part 3 to this ROD Amendment.

Two clarifications to the description of the preferred alternative in the Proposed Plan have been made in this ROD Amendment. First, it is reiterated that the goals of the preferred alternative are containment of the contaminant source beneath Area A and restoration of the groundwater in Area B. The Proposed Plan did not specifically state that restoration is the goal for Area B but elsewhere stated that long-term monitoring would continue until the drinking water standards

(ICLs) were attained. Therefore, the selected remedy, Alternative 4, in this ROD Amendment is consistent with the description in the Proposed Plan.

The second clarification pertains to the use of MNA for Area C. The Proposed Plan stated that MNA was selected as part of the Amended Remedy. However, as the 1998 ROD already had selected MNA for all groundwater beyond the landfill compliance boundary (thereby including the portion of the Site identified as Area C in this ROD Amendment), therefore the description of the preferred alternative recognizes that MNA is a continuation of the 1998 remedy and not a new component of the Amended Remedy.

These two clarifications do not constitute significant changes from the preferred alternative presented in the Proposed Plan.

BURGESS BROTHERS LANDFILL SUPERFUND SITE RECORD OF DECISION AMENDMENT
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Appendix A: Tables

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TABLE 1: INTERIM GROUNDWATER CLEANUP LEVELS

Carcinogenic Contaminants	Interim Cleanup Level (µg/l)	Basis
1,1-Dichloroethene	7	MCLG
1,2-Dichloroethane	5	MCL
Benzene	5	MCL
Chloroform	80	MCL
Methylene Chloride	5	MCL
Tetrachloroethene	5	MCL
Trichloroethene	5	MCL
Vinyl Chloride	2	MCL
1,4-Dichlorobenzene	75	MCLG
Bis(2-Ethylhexyl)Phthalate	6	MCL
Arsenic	10	MCL
Lead	15	NIPDWR[*1]

TABLE 1: INTERIM GROUNDWATER CLEANUP LEVELS (continued)

Noncarcinogenic Contaminants	Interim Cleanup Level (µg/l)	Basis
1,1-Dichloroethene	7	MCL
1,2-Dichloroethane	5	MCL
1,2-Dichloroethene - cis	70	MCLG
1,2-Dichloroethene - trans	100	MCLG
Benzene	5	MCL
Chlorobenzene	100	VPGQS*2
Chloroform	80	VPGQS*2
Methylene Chloride	5	MCL
Tetrachloroethene	5	MCL
Trichloroethene	5	MCL
Vinyl Chloride	2	MCL
1,4-Dichlorobenzene	75	MCL
Bis(2-Ethylhexyl)Phthalate	6	MCL
Arsenic	10	MCL
Lead	15	NIPDWR*1
Manganese	300	Hazard Potential
Thallium	2	MCL

*1 National Interim Primary Drinking Water Regulation (NIPDWR)

*2 Vermont Primary Groundwater Quality Standard - Enforcement Standard, Vermont Groundwater Protection Rule and Strategy, Subchapter 7, 12-702

Table 5-15 Comparative Analysis of Remedial Alternatives

Evaluation Criteria		Alternative 1: No Further Additional Action	Alternative 2: Areas A and B in situ Remedy, and MNA in Area C	Alternative 3: Area A Containment Remedy, Barrier System at the Compliance Boundary, Area B in situ Remedy, and MNA in Area C	Alternative 4: Areas A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B, and MNA in Area C (Remedy Optimization: Area B in situ Remedy)	Alternative 5: Area A Containment remedy, PRB Barrier at the Compliance Boundary, Excavation in Area B, and MNA in Area C
Threshold Criteria	Overall Protection of Human Health and the Environment	Protective of human health and the environment at this time. Existing institutional controls would continue to prohibit groundwater use at the site until remedial goals are met. VOC plume remains defined and within the groundwater reclassification boundary. However, it is uncertain whether VOCs would continue to attenuate within the Groundwater reclassification Boundary over the long term. Shallow groundwater continues to discharge to the unnamed stream downgradient of the landfill. However, modeling predicts minimal VOC impact to surface water, and the data show that surface water quality is improving. *Additional evaluation during the next 5-year review* would be conducted in 2008-09.	Protection of human health and the environment by attainment of remedial goals through active remediation (ERD and/or ISCO) of Areas A and B, followed by MNA in Areas A and B and C. In the short-term, existing institutional controls would continue to prohibit groundwater use at the site until remedial goals are met, and are protective of human health. Shallow groundwater continues to discharge to the Unnamed Stream downgradient of the landfill. Modeling predicts minimal VOC impact to surface water, and the data show that surface water quality is improving. An active remedy would enhance the rate of surface water quality improvement. Long-term monitoring to evaluate risk to human health and the environment.	Protection of human health and the environment by attainment of remedial goals through a barrier system near the compliance boundary, active remediation followed by MNA in Area B, and MNA in Area C. In the short-term, existing institutional controls would continue to prohibit groundwater use at the site until remedial goals are met, and are protective of human health. Shallow groundwater continues to discharge to the Unnamed Stream downgradient of the landfill. Modeling predicts minimal VOC impact to surface water, and the data show that surface water quality is improving. The barrier system and active remediation in Area B would further enhance the rate of surface water quality improvement. Long-term monitoring to evaluate risk to human health and the environment.	Protection of human health and the environment would be achieved by attainment of remedial goals through two barrier systems (one near the compliance boundary and the second in Area B) and MNA in Area C. In the short-term, existing institutional controls would continue to prohibit groundwater use at the site until remedial goals are met, and are protective of human health. Shallow groundwater continues to discharge to the Unnamed Stream downgradient of the landfill. Modeling predicts minimal VOC impact to surface water, and the data show that surface water quality is improving. The barrier systems and lining of the unnamed stream and swale between the barriers would result in rapid improvement in surface water quality. Long-term monitoring to evaluate risk to human health and the environment.	Protection of human health and the environment would be achieved by attainment of remedial goals through a barrier system at the compliance boundary, excavation in Area B and MNA in Area C. In the short-term, existing institutional controls would continue to prohibit groundwater use at the site until remedial goals are met, and are protective of human health. Shallow groundwater discharges to the Unnamed Stream downgradient of the landfill. Excavation in Area B, in conjunction with the barrier system at the compliance boundary, would improve the surface water quality. Long-term monitoring would be performed to evaluate risk to human health and the environment.
	Compliance with ARARs	Over time, natural attenuation processes would reduce contaminant concentrations to remedial goals. Long-term monitoring would be performed to ensure attainment of ARARs. Would comply with location and action-specific ARARs.	Would comply with chemical-specific ARAR when all phases of remedy are completed (including MNA). Monitoring would be performed to ensure attainment of ARARs. Active remedy to be designed to comply with location- and action-specific ARARs.	Would comply with chemical-specific ARAR when all phases of remedy are completed (including MNA) with the following exception. Under the alternative barrier system alignment, the area located between the existing compliance boundary and the proposed barrier system alignment would not meet chemical-specific ARARs (i.e., achieve ICLs). To achieve the ARARs using the alternative barrier system alignment, the compliance boundary will need to be modified to follow the proposed barrier system alignment. Monitoring would be performed to ensure attainment of ARARs. Barrier system and the contingency remedy (if implemented) to be designed to comply with location- and action-specific ARARs.	Would comply with chemical-specific ARAR when all phases of remedy are completed (including MNA) with the following exception. Under the alternative barrier system alignment for the compliance boundary system, the area located between the existing compliance boundary and the proposed barrier system alignment would not meet chemical-specific ARARs (i.e., achieve ICLs). To achieve the ARARs using the alternative barrier system alignment, the compliance boundary will need to be modified to follow the proposed barrier system alignment. Monitoring would be performed to ensure attainment of ARARs. In addition to the two barrier systems and MNA, the option for remedial optimization through active in-situ remediation in Area B (ERD, ISCO, ISSM, or combination) is also included in this alternative. The optimization remedy would be implemented in the event that the estimated timeframe for Area B is expected to exceed the operational life of the first reactive media bed in the Area B PRB o the estimated timeframe will not be met. Barrier systems to be designed to comply with location- and action-specific ARARs.	Would comply with chemical-specific ARAR when all phases of remedy are completed (including MNA) with the following exception. Under the alternative barrier system alignment, the area located between the existing compliance boundary and the proposed barrier system alignment would not meet chemical-specific ARARs (i.e., achieve ICLs). To achieve the ARARs using the alternative barrier system alignment, the compliance boundary will need to be modified to follow the proposed barrier system alignment. Monitoring would be performed to ensure attainment of ARARs. Barrier system and excavation to be designed to comply with location- and action-specific ARARs.

Table 5-15 Continued (Page 2 of 2)

Evaluation Criteria		Alternative 1: No Further Additional Action	Alternative 2: Areas A and B in situ Remedy, and MNA in Area C	Alternative 3: Area A Containment Remedy, Barrier System at the Compliance Boundary, Area B in situ Remedy, and with MNA in Area C	Alternative 4: Areas A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B, and MNA in Area C (Remedy Optimization: Area B in situ Remedy)	Alternative 5: Area A Containment remedy, PRB Barrier at the Compliance Boundary, Excavation in Area B, and MNA in Area C
Balancing Criteria	Long-Term Effectiveness and Permanence	Natural attenuation processes would reduce contaminant concentrations to remedial goals, at which point there would be no residual risk outside the landfill. Existing institutional controls limit the potential for exposure to contaminated groundwater. The long-term effectiveness of institutional controls would depend on enforcement. Long-term monitoring and five year reviews would allow for re-evaluation of remedial alternatives in future.	The goal of the active remedy (ERD, ISCO, and/or ISSM) and natural attenuation processes would be to reduce contaminant concentrations to remedial goals (ICLs), at which point there would be no residual risk outside the landfill. If the active remedy fails to achieve target concentrations due to one or both of the failure mechanisms identified in the ARARs section of this table, the remedy may need to be modified. Monitoring and five year reviews would confirm this alternative remains protective in future.	The barrier system, active remedy, and natural attenuation processes would reduce contaminant concentrations to remedial goals at and beyond the compliance boundary at which point there would be no residual risk outside the landfill. If the remedies fail to achieve target concentrations due to the individual failure mechanisms identified in the Implementability section of this table, the remedy may need to be modified. Long-term monitoring and five year reviews would confirm this alternative remains protective in future.	The barrier system and natural attenuation processes would reduce contaminant concentrations to remedial goals at and beyond the compliance boundary at which point there would be no residual risk outside the landfill. The exception to this reduction in concentration is the area between the Compliance Boundary and the Alternative Barrier System Alignment where contaminant concentrations would be reduced by MNA alone, and require a longer time frame. If the remedies fail to achieve target concentrations due to the individual failure mechanisms identified in the Implementability section of this table, the remedy may need to be modified. Long-term monitoring and five year reviews would confirm this alternative remains protective in future.	The barrier system, excavation and natural attenuation processes would reduce contaminant concentrations to remedial goals at and beyond the compliance boundary at which point there would be no residual risk outside the landfill. If the remedy fails to achieve target concentrations due to the individual failure mechanisms identified in the Implementability section of this table, the remedy may need to be modified. *Long-term monitoring and five year reviews would* confirm this alternative remains protective in future.
	Reduction of Toxicity, Mobility, or Volume	By natural attenuation processes only.	Active remedy would treat groundwater contaminants in-situ with non-toxic treatment residuals.	Active containment and treatment of contaminated groundwater would reduce the mobility, toxicity, and volume of contaminants.	Active containment and treatment of contaminated groundwater would reduce the mobility, toxicity, and volume of contaminants.	Active containment and excavation of contaminants would reduce the mobility, toxicity, and volume of contaminants.
	Short-Term Effectiveness	Existing institutional controls limit exposure to contaminants.	Significant reductions in VOC concentrations will occur during remedy implementation in Areas A and B (approximately 3.5 to 7 years). The timeframe for achieving remedial action objectives is estimated to be 23.5 to 27 years. Implementation of the active remedy would not have significant impacts on the local community and the environment. Existing institutional controls, fences, and gates limit exposure to contaminants.	The timeframe for implementing the barrier remedy in Area A is approximately 3 years, with an assumed O&M timeframe of.100 years. Significant reductions in VOC concentrations will occur during remedy implementation in Area B (approximately 3.5 to 7 years). The timeframe for achieving remedial action objectives is estimated to be 23.5 to 27 years. Implementation of the barrier/MNA remedy or contingent active remedy would not have significant impacts on the local community and the environment. Existing institutional controls, fences, and gates limit exposure to contaminants.	The timeframe for implementing the barrier remedy in Areas A and B is approximately 2.5 years, with an assumed O&M timeframe of.100 years for the Compliance Boundary barrier. The estimated timeframe for O&M of the Area B barrier system is approximately 33 years. The timeframe for achieving remedial action objectives in Area C is estimated to be 22.5 years. Implementation of the barrier systems/MNA remedy would not have significant impacts on the local community and the environment. Existing institutional controls, fences, and gates limit exposure to contaminants.	The timeframe for excavation in Area B and construction of the barrier system in Area A is 2.5 years. The Area A barrier has an assumed O&M timeframe of 100 years. The timeframe for achieving remedial action objectives in Areas B and C is estimated to be 22 years.
	Implementability	Readily implementable and least intrusive.	ERD, ISCO, ISSM, and MNA are feasible *technologies for remediation of chlorinated ethenes.* Construction and operation of the active remedies are standard approaches posing no special problems. Pre-design study and active remedy implementation would require penetration of existing cap in Area A. Two potential failure mechanisms for the active remedy to achieve target concentrations, which may extend the remedial timeframe and increase costs: 1) inadequate distribution of amendments required for remedy to proceed, and 2) presence of unidentified VOC sources in the Landfill Area outside Area A contributing to groundwater VOC concentrations at the compliance boundary.	Standard remedy that is implementable. *If the collection trench alternative is selected, the ex-*situ treatment of collected groundwater would incur higher long-term O&M costs than other remedies. Potential failure mechanisms for the barrier system remedy to meet remedial goals at the compliance boundary are inadequate design criteria or improper installation methods, which can be minimized by pre-design studies and construction quality control. A potential failure mechanism for the active remedy (ERD, ISCO, ISSM, or a combination) to meet remedial goals in Area B is inadequate distribution of amendments required for the remedy to proceed. If target concentrations are not achieved, additional time would be needed for revising the approach, with possible multiple reapplication of the active remedy and intensifying the spacing of the injection points.	Standard remedy that is implementable. *If the collection trench alternative is selected, the ex-*situ treatment of collected groundwater would incur higher long-term O&M costs than other remedies. Potential failure mechanisms for the barrier system remedy to meet remedial goals at the compliance boundary are inadequate design criteria or improper installation methods, which can be minimized by pre-design studies and construction quality control.	Standard remedy that is implementable. *Potential failure mechanisms* for the barrier system remedy to meet remedial goals at the compliance boundary are inadequate design criteria or improper installation methods. These potential failure mechanisms can be minimized by pre-design studies and construction quality control. A potential failure mechanism for MNA in Area C is the potential for changes in groundwater flow following excavation in Area B. Backfilling of Area B with homogenized material may alter the groundwater flow paths through Area B, which in turn may affect groundwater flow in Area C.
	Cost	Net present worth: $1,192,700	Net present worth: $5,399,400 to $10.315.100	Net present worth: $4,655,200 to $6,797,000	Net present worth: $3,481,400 to $3,957,200	Net present worth: $12,375,700

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
Chemical - Specific	Groundwater	Vermont Groundwater Protection Rule and Strategy (EPR 12-702)	Applicable	Establish primary groundwater quality standards. Enforcement standards are applicable. Preventative action limits are not an ARAR.	Groundwater quality would improve in Areas B due to the barrier system at the compliance boundary (and in situ treatment if optimization implemented) and in Area C due to MNA and would reduce contaminant concentrations to below MCLs or MCLGs as the case may be.
		Vermont Health Advisories	To Be Considered	Vermont developed health advisories as guidance criteria for drinking water in the absence of Federal Maximum Contaminant Levels.	Considered in selection of remedial alternative, and will be used in the absence of numerical standards.
		Federal Safe Drinking Water Act - Maximum Contaminated Levels (MCLs) for Organic and Inorganic Chemicals (40 CFR 141 Subparts B, G and I)	Relevant and Appropriate	MCLs have been promulgated for a number of common organic and inorganic chemicals and action levels for lead and copper. These levels regulate the concentration of contaminants in public drinking water supplies, but may also be considered appropriate for groundwater aquifers potentially used for drinking water.	Groundwater quality would improve in Areas B due to the barrier system at the compliance boundary (and in situ treatment if optimization implemented) and in Area C due to MNA and would reduce contaminant concentrations to below MCLs or MCLGs as the case may be.
		Federal Safe Drinking Water Act - Maximum Contaminant Level Goals (MCLGs) for Organic and Inorganic Chemicals (40 CFR 151 Subpart F)	Relevant and Appropriate, if non-zero	Establishes MCLGs for organic and inorganic contaminants. MCLGs that are non-zero will be relevant and appropriate.	Groundwater quality would improve in Areas B due to the barrier system at the compliance boundary (and in situ treatment if optimization implemented) and in Area C due to MNA and would reduce contaminant concentrations to below MCLGs.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		EPA Reference Doses (RfDs) and EPA Carcinogen Assessment Group Potency Factors	To Be Considered	RfDs are dose levels EPA has developed for use in risk characterization due to non-carcinogens in various media. The Potency Factors are used to evaluate an acceptable risk from a carcinogen. EPA used the Potency Factors and RfDs in the human health component of the Risk Assessment, and they both may be used to establish criteria in the absence of pre-established numerical ARARs.	Considered in selection of remedial alternative, and will be used in the absence of numerical standards.
		EPA Health Advisories	To Be Considered	EPA publishes contaminant-specific health advisories that indicate the non-carcinogenic risks associated with consuming contaminated drinking water. EPA may use Health Advisories to establish criteria in the absence of pre-established numerical ARARs.	Considered in selection of remedial alternative, and will be used in the absence of numerical standards.
Location Specific	Wetlands	Federal Fish and Wildlife Coordination Act (16 USC 661 et. seq.) 40 CFR Part 6	Applicable	Establishes requirements for a consultation with U.S. Fish and Wildlife Service and state wildlife agencies to mitigate losses of fish and wildlife that result from modification of a water body.	Fish and Wildlife Service will be consulted regarding potential impacts to water bodies.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		Vermont Wetlands Act, 10 VSA §905 Vermont Wetlands Rules	Applicable	These standards establish criteria for delineating Class One and Class Two wetlands, which are considered significant wetlands, and set forth allowed and conditional uses for these wetlands. The uses must not have undue adverse impacts on the significant functions of the wetland. Class Three wetlands are defined, but are not protected under these rules (they are addressed under Title 10 VSA. Chapter 151, below).	No delineated Class One or Class Two wetlands are present in the area to be impacted by this alternative.
		Vermont's Land Use and Development Law (Act 250), 10 VSA Chapter 151	Applicable	Issues to be addressed in assessing compliance with Act 250 include substantive environmental and facility siting requirements concerning: • will not result in undue water and air pollution (including construction-related dust) (criterion 1) • protection of headwaters (criterion 1(A)) • streams (criterion 1(E)) • impact on state-regulated wetlands (Class One, Two and Three (criterion 1(G)) • erosion control (criterion 4) • extraction of earth resources (criterion 9(E))	The activities at the Site under this alternative would be designed to comply with the substantive requirements of Act 250 and will include measures to assess, minimize and mitigate impacts on wetlands from any monitoring or other remedial activity.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		Clean Water Act (33 USC § 1344); Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Parts 230 and 231 and 33 CFR Part 320-323)	Applicable	These regulations outline the requirements for the discharge of dredged or fill materials into surface waters including Federal jurisdictional wetlands. No activity that impacts waters of the United States shall be permitted if a practicable alternative that has less adverse impact exists. If there is no other practicable alternative, the impacts must be mitigated.	Construction of the barrier wall (and in situ treatment systems if optimization is implemented) would be designed to minimize impacts to nearby receptors including wetlands and compensatory habitat mitigation will be performed, if necessary, to comply with this ARAR.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		Floodplain Management and Protection of Wetlands, 44 CFR 9	Relevant and Appropriate	Remedial alternatives that may cause alteration within a federally-designated 500-year floodplain/cause negative impacts to downstream floodplain or that will cause alteration of federal jurisdictional wetlands/aquatic habitats will be implemented in compliance with these relevant and appropriate FEMA standards which promulgate requirements under Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands)). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires soliciting public comment on any disturbance of federally-designated floodplains or federally-regulated wetlands.	Proposed barrier systems (and if necessary optimization remedy in situ treatment options in Areas B, including injection wells) and monitoring locations, would be designed to minimize impacts to nearby receptors including wetlands and compensatory habitat mitigation will be performed, if necessary, to comply with this ARAR.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		Vermont Obstruction of Streams (10 VSA Chapter 111 §4607)	Applicable	Regulation of obstructions that prevent the passing of fish in a stream or the outlet or inlet of a natural or artificial pond on a public stream, by means of a rack, screen, weir or other obstruction.	This requirement would be considered in the design of the barrier systems and it is believed that any obstruction would be unnecessary because the construction design would be to re-direct the stream and any unavoidable obstruction would be of very limited duration.
		Regulation of Stream Flow (10 VSA Chapter 41)	Applicable	Provides regulations for interruption or modification of natural stream flow.	These regulations will be applicable for lining of the Unnamed Stream between the two barrier systems.
Action Specific	Air	Vermont Air Pollution Control Regulations (10 VSA Section 551 et. Seq. EPR 5-101, 5-211, 5-231 to 5-252, 5-253.20, 5-261, 5-301 to 5-311, 5-501 to 5-502, and 5-1010)	Applicable	Establishes air quality standards and allowable discharges.	Groundwater treatment system would be designed to satisfy discharge limits.
		Federal RCRA Air Emission Standards for Equipment Leaks, 40 CFR Part 264, Subpart BB	Applicable, if threshold limits are exceeded	Standards for air emissions for equipment that contains or contacts RCRA wastes with organic concentrations of at least 10% by weight.	Groundwater treatment system would be designed to satisfy emission standards if threshold limits are exceeded.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		Federal RCRA Air Emission Standards for Process Vents, 40 CPR Part 264, Subpart AA	Applicable, if threshold limits are exceeded	Standards for air emissions from process vents associated with distillation, fractionation, thin film evaporation, column extraction or air steam stripping operations that treat RCRA substances and have total organic concentrations of 10 ppm or greater.	Groundwater treatment system would be designed to satisfy emission standards if threshold limits are exceeded.
		USEPA's "Control of Air Emissions from Superfund Air Strippers at Superfund Groundwater Sites" (OSWER Dir. 9355.0.28, 15 June 1989).	To Be Considered	Establishes guidance on control of air emissions from air strippers used at Superfund Sites for groundwater treatment and establishes procedures for implementation.	If collection trench is implemented with treatment of groundwater using air stripper system, this guidance document would be considered in the design of the system.
	Groundwater	Vermont Groundwater Protection Regulations (10 VSA Chapter 48)	Applicable	Establish standards and requirements for groundwater monitoring.	The groundwater monitoring program would be designed to satisfy these requirements.
		Environmental Protection Regulations Chapter 11 Underground Injection Control Rule 1984	Applicable if considering infiltration of effluent	Establishes permits and standards required for discharges into wells	Infiltration of effluent from collection trench, if considered, will comply with these requirements.
		Federal Underground Injection Control Program (40 CFR 144, 146 and 147, subpart UU)	Applicable if considering infiltration of effluent	Establishes permits and standards required for discharges into wells	Infiltration of effluent from collection trench, if considered, will comply with these requirements.
	Surface Water	Vermont Water Quality Standards (10 VSA Chapter 47)	Relevant and Appropriate	Outlines criteria for discharging to surface waters, such as dissolved oxygen, temperature, nutrients, pH, and alkalinity, and outlines water quality criteria for protection of aquatic biota.	Groundwater treatment would control contaminant migration and thereby improve surface water quality over time. Water Quality Criteria will be used to measure the effectiveness of groundwater treatment.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
		Vermont National Pollution Discharge Elimination System (NPDES) Permit Program (EPR Chapter 13)	Relevant and Appropriate	Specifies the procedures required to obtain a NPDES permit to discharge any waste into the waters of Vermont and the terms and conditions of permits.	Groundwater treatment system would be designed to satisfy discharge criteria.
		Clean Water Act - National Recommended Water Quality Criteria	Relevant and Appropriate	Pursuant to Section 304(a)(1) of the Clean Water Act, the EPA establishes National Recommended Water Quality Criteria. These criteria present scientific data and guidance on the environmental effects of pollutants. The criteria can contribute to establishing regulatory requirements that govern impacts to water quality.	Groundwater treatment would control contaminant migration and thereby improve surface water quality over time. Water Quality Criteria will be used to measure the effectiveness of groundwater treatment.
		NPDES Permit Program (40 CFR 122)	Relevant and Appropriate	Regulates the discharge of water into public surface waters. A permit is typically required; however, in accordance with Section 121(e) of CERCLA, only the substantive requirements apply to Superfund sites.	Groundwater treatment system would be designed to satisfy discharge criteria.
	Sediment	Ontario Ministry of the Environment Sediment Quality Guidelines	To Be Considered	The Sediment Quality Guidelines present scientific data and guidance on the environmental effects of pollutants. The criteria can contribute to establishing requirements that govern impacts to sediment quality.	Sediment Quality Guidelines will be used to measure the effectiveness of in situ and barrier system measures.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
	Excavated Materials (soil and groundwater)	Identification and Listing of Hazardous Waste (40 CFR Part 261)*	Applicable if materials are categorized as hazardous waste	Regulates identification of wastes subject to regulations as hazardous wastes, including characteristic and listed wastes	Materials identified as regulated or hazardous wastes will be handled in accordance with this regulation
		Hazardous Waste Determination (40 CFR Part 262.11)*	Applicable if materials are categorized as hazardous waste	Establishes standards for generators of hazardous wastes and requires materials to be identified as hazardous or non-hazardous waste prior to on-site storage or disposal.	Excavated materials will be identified and handled in accordance with this regulation
		Federal RCRA Hazardous and Solid Waste Amendments of 1984 (42 USC §6901 et seq.)*	Applicable if materials are categorized as hazardous waste	Regulates management of hazardous wastes, including hazardous waste disposal and recovery.	Excavated material, including groundwater and soil, will be managed in accordance with these requirements.
		Department of Transportation (DOT) Regulations (49 CFR Parts 172-174 and 177-179)*	Applicable if materials are categorized as hazardous waste	Regulates transportation of hazardous materials.	Excavated material identified as hazardous or listed will be transported to a disposal facility in accordance with these requirements.

TABLE 5-19
ARAR Compliance Alternative 4 - Area A and B Containment Remedy, Barrier System at the Compliance Boundary, a Second Barrier System for Area B Containment, and MNA in Area C, (Potential Optimization Remedy: Area B In situ Remedy, ERD, ISCO, ISSM, or a Combination)
Feasibility Study

Burgess Brothers Superfund Site
Bennington and Woodford, Vermont

Feasibility Study	Medium	Requirements	Status	Synopsis of Requirements	Action to be Taken to Attain ARAR
	Landfill Material	Federal RCRA Subtitle C Regulations, 40 CFR Part 264 Subpart F - Releases from Solid Waste Management Units, Sections 264.95, 264.96(a) and (c), 264.97, 264.98 and 264.99*	Relevant and Appropriate	Groundwater monitoring requirements and compliance points for determining the need for additional monitoring and corrective action.	The groundwater monitoring program would be designed to satisfy these requirements.
		Federal RCRA Subtitle C Regulations, 40 CFR Part 264 Subpart G - Closure and Post Closure, Section 264.114	Relevant and Appropriate	Establishes the requirement to properly dispose or decontaminate any contaminated equipment, structures and soils.	Landfill closure requirements would be satisfied.

* RCRA requirements are made effective by the Vermont Hazardous Waste Regulations (EPR 7-502)

Appendix B: Figures

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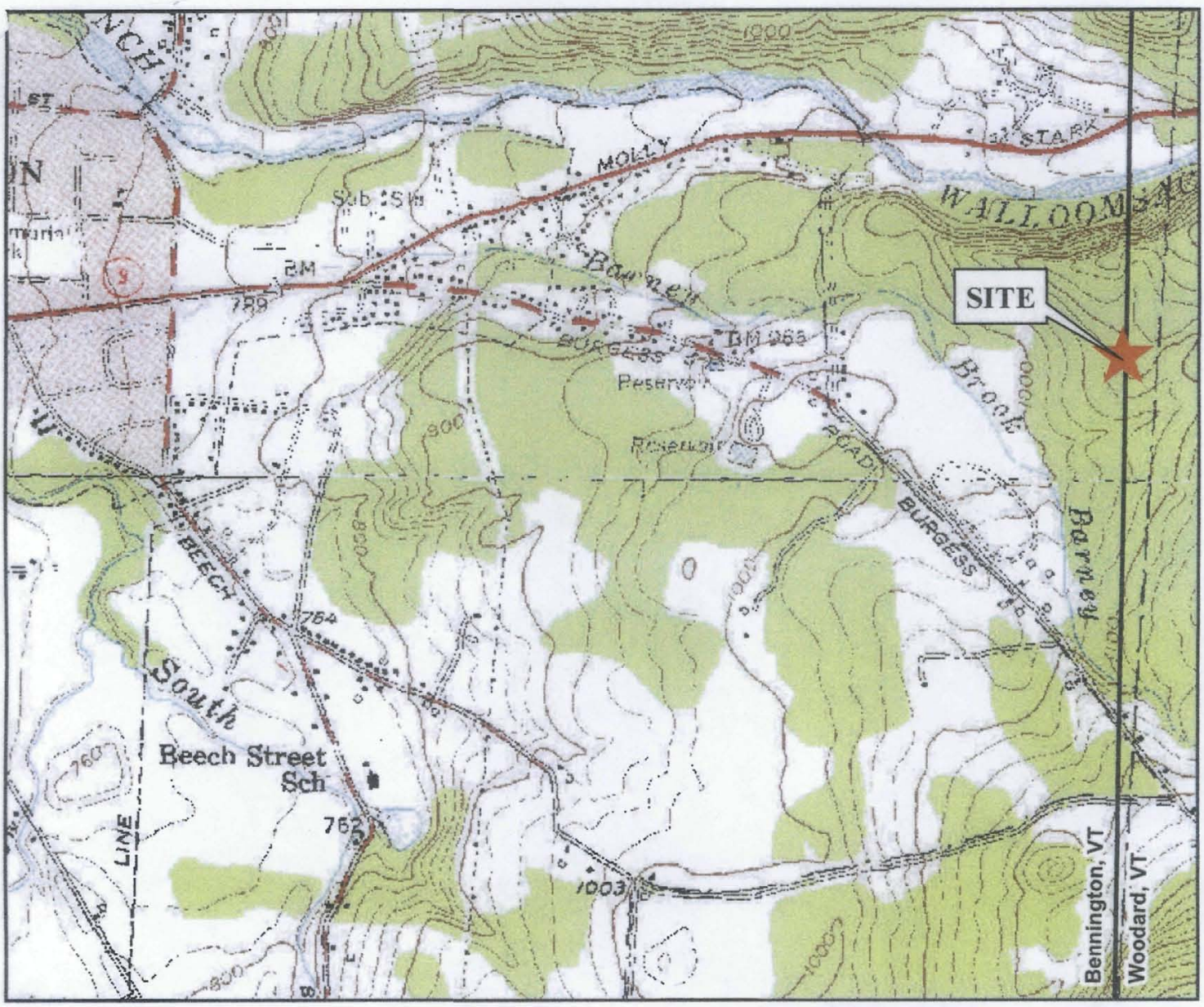
Figure 1: Site Location Map



Burgess Brothers Superfund Site
Woodard and Bennington, VT

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A partnership for engineering solutions.
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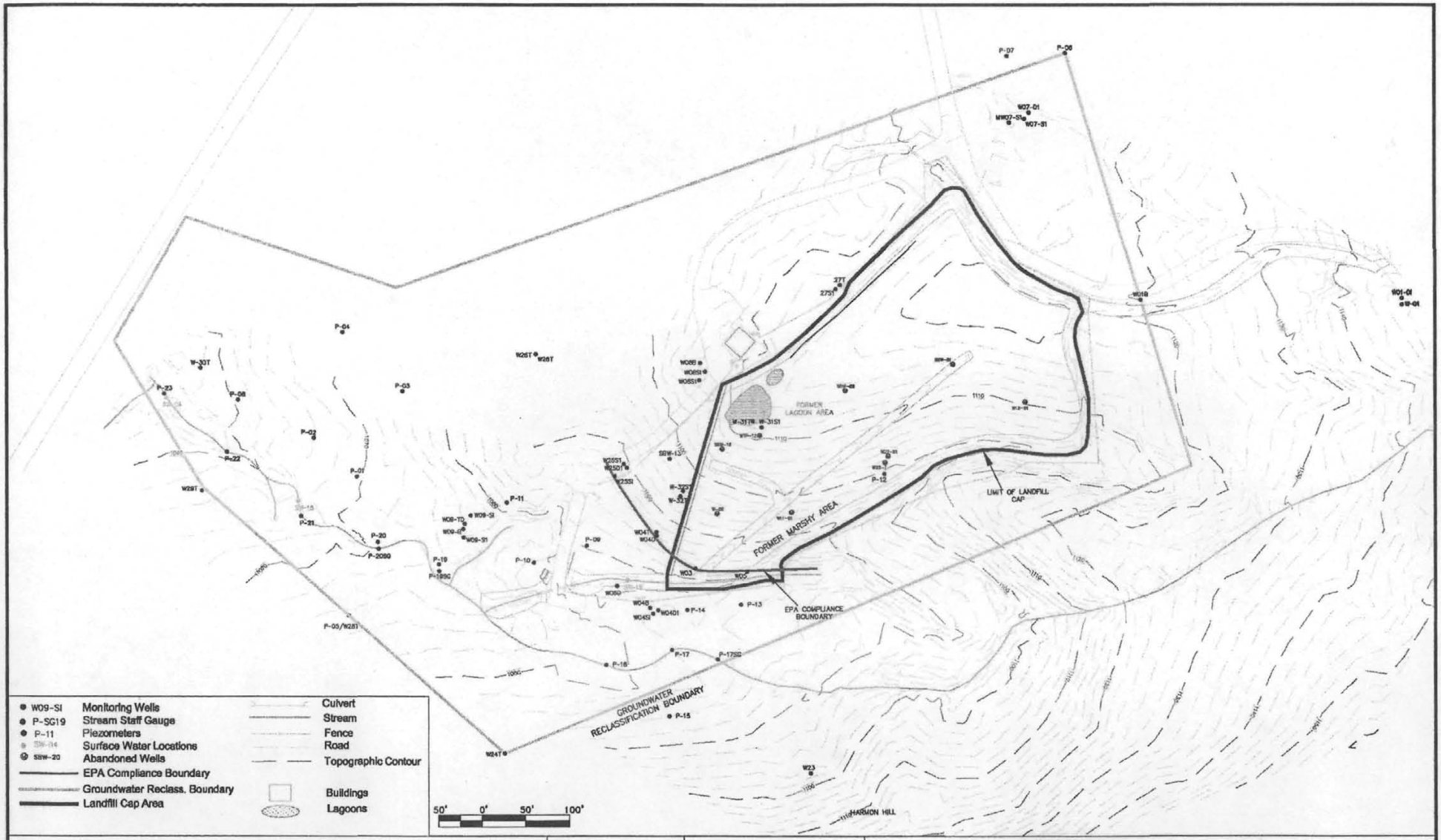
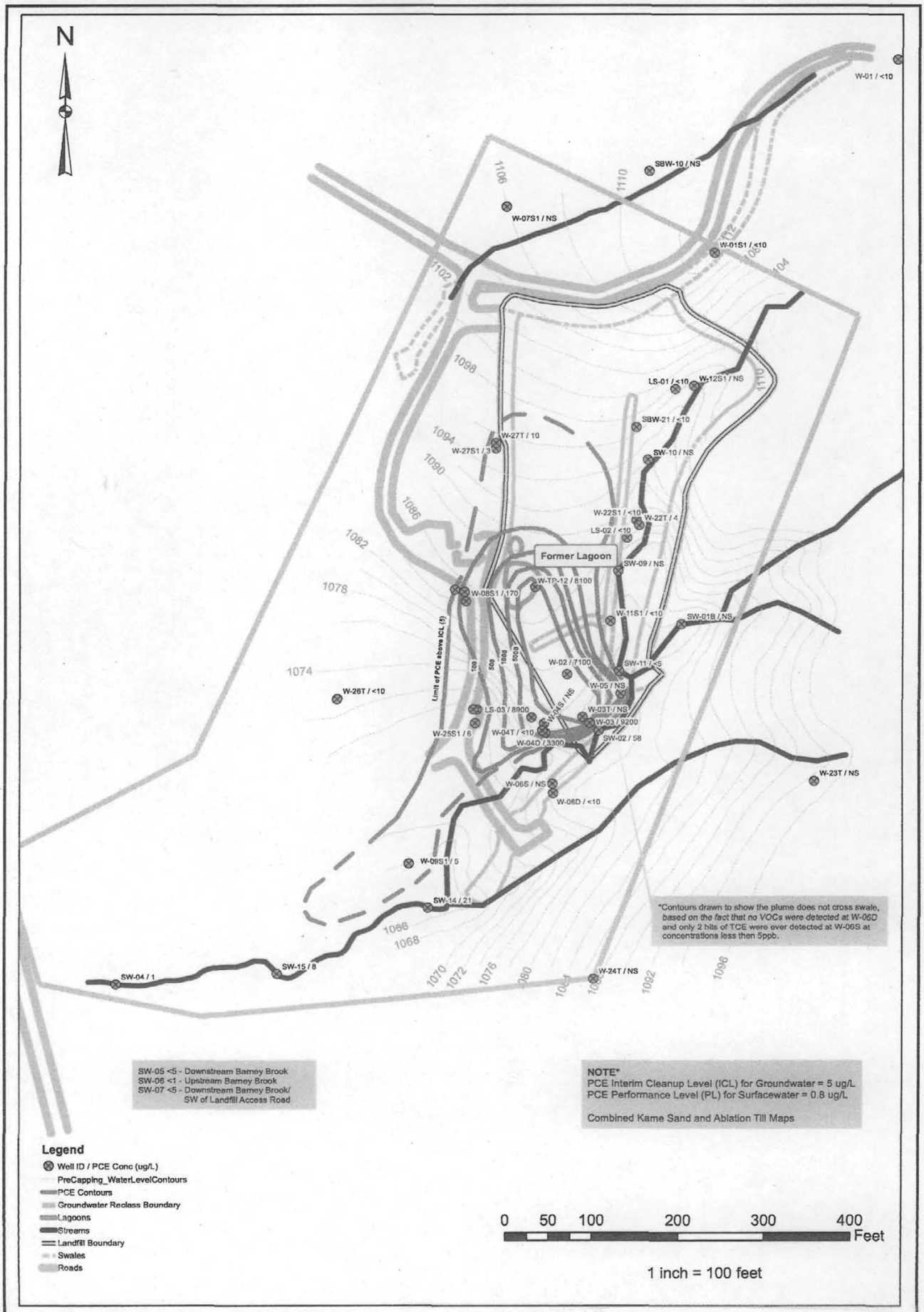


Environmental Partners GROUP
A partnership for engineering solutions.
Quincy & Hyannis, MA www.envpartners.com

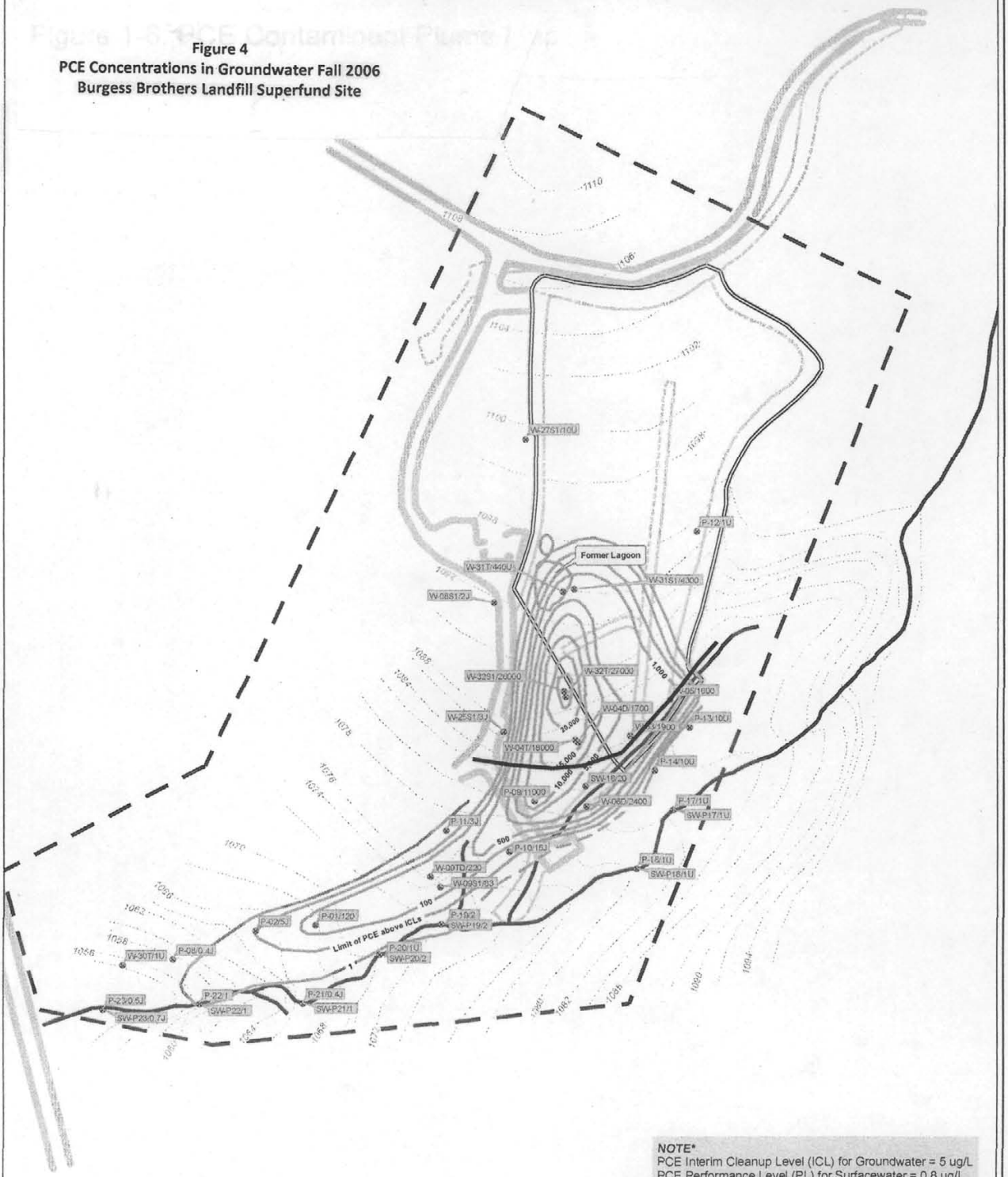
April 8, 2011	Figure 2: Site Base Map
106-0901	Burgess Brothers Superfund Site, Bennington, VT
Scale As Shown	



Environmental Partners GROUP
A partnership for engineering solutions.
Quincy, MA www.envpartners.com

Figure 3
PCE Concentrations in Groundwater at 1998 Record of Decision
Burgess Brothers Landfill Superfund Site

Figure 4
PCE Concentrations in Groundwater Fall 2006
Burgess Brothers Landfill Superfund Site



*NOTE**
PCE Interim Cleanup Level (ICL) for Groundwater = 5 ug/L
PCE Performance Level (PL) for Surfacewater = 0.8 ug/L

Reporting Limit = 10 ug/L
Combined Kame Sand and Ablation Till Maps

EPA Compliance Boundary

- PCE_FALL_06 Events
- PCE Contours
- Streams
- Groundwater Reclass Boundary
- Lagoons
- Landfill Boundary
- Swales
- Roads
- WaterLevel Contours

0 80 160 320
Scale in Feet

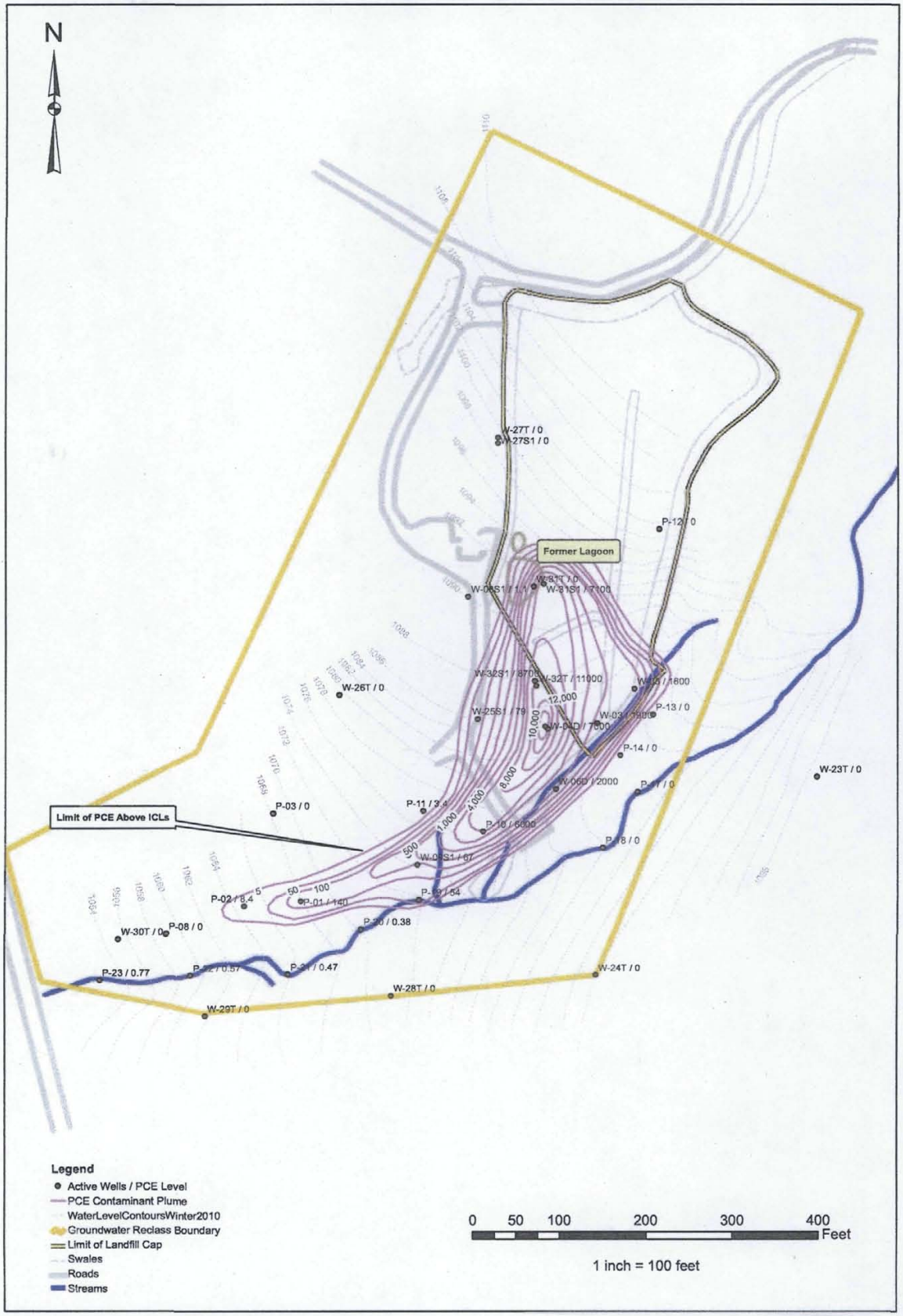
N

PCE Concentration, Fall 2006

Burgess Brothers Superfund Site
Woodard and Bennington, VT

Printing Date:
January 11, 2007
By: McLane Env

McLANE ENVIRONMENTAL, LLC
707 Alexander Road, Suite 206
Princeton, NJ 08540
609.919.1400
www.McLaneEnv.com



Environmental Partners GROUP
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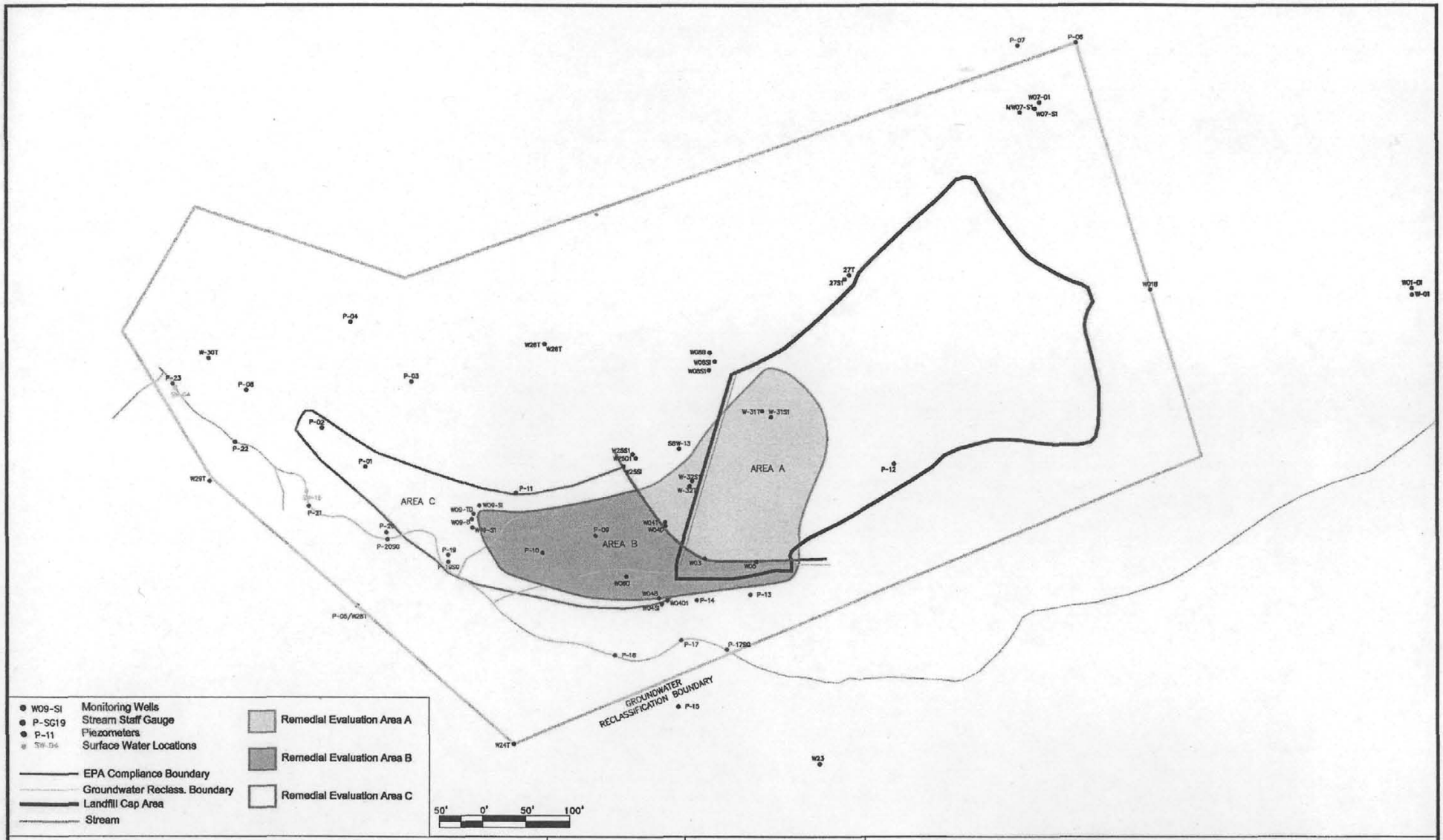
Quincy, MA www.envpartners.com

Figure 5
PCE Concentrations in Groundwater Fall 2010
Burgess Brothers Landfill Superfund Site



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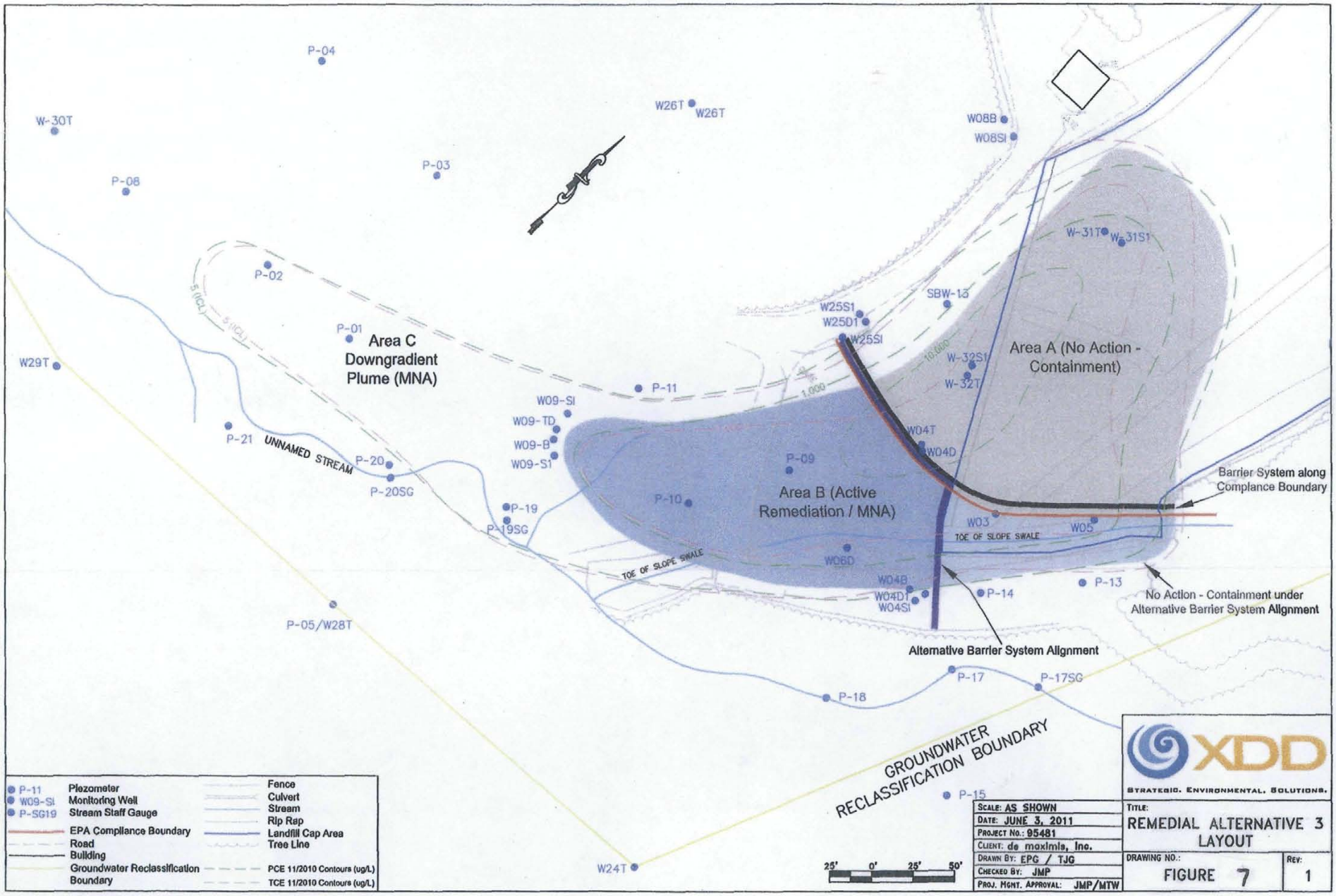
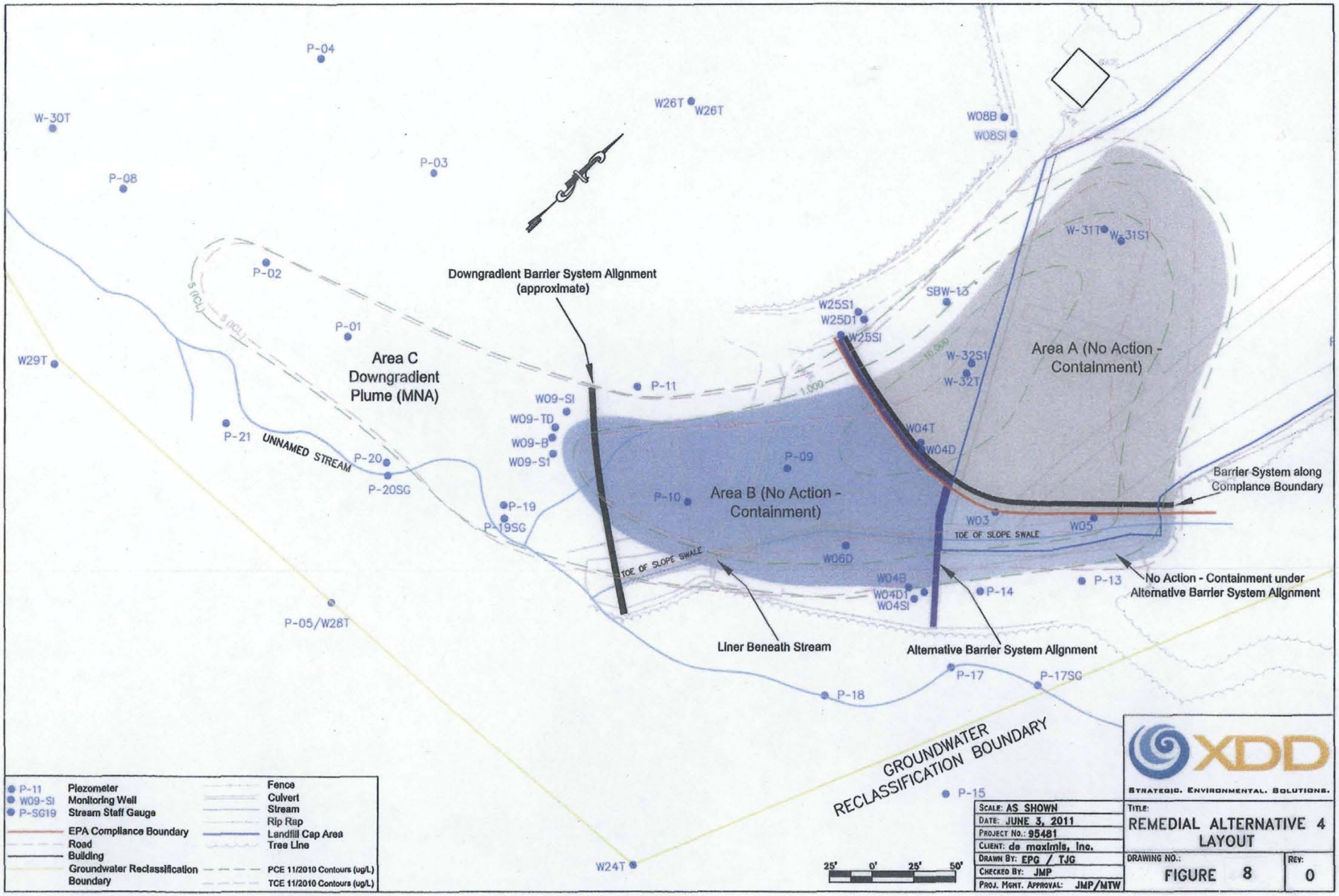
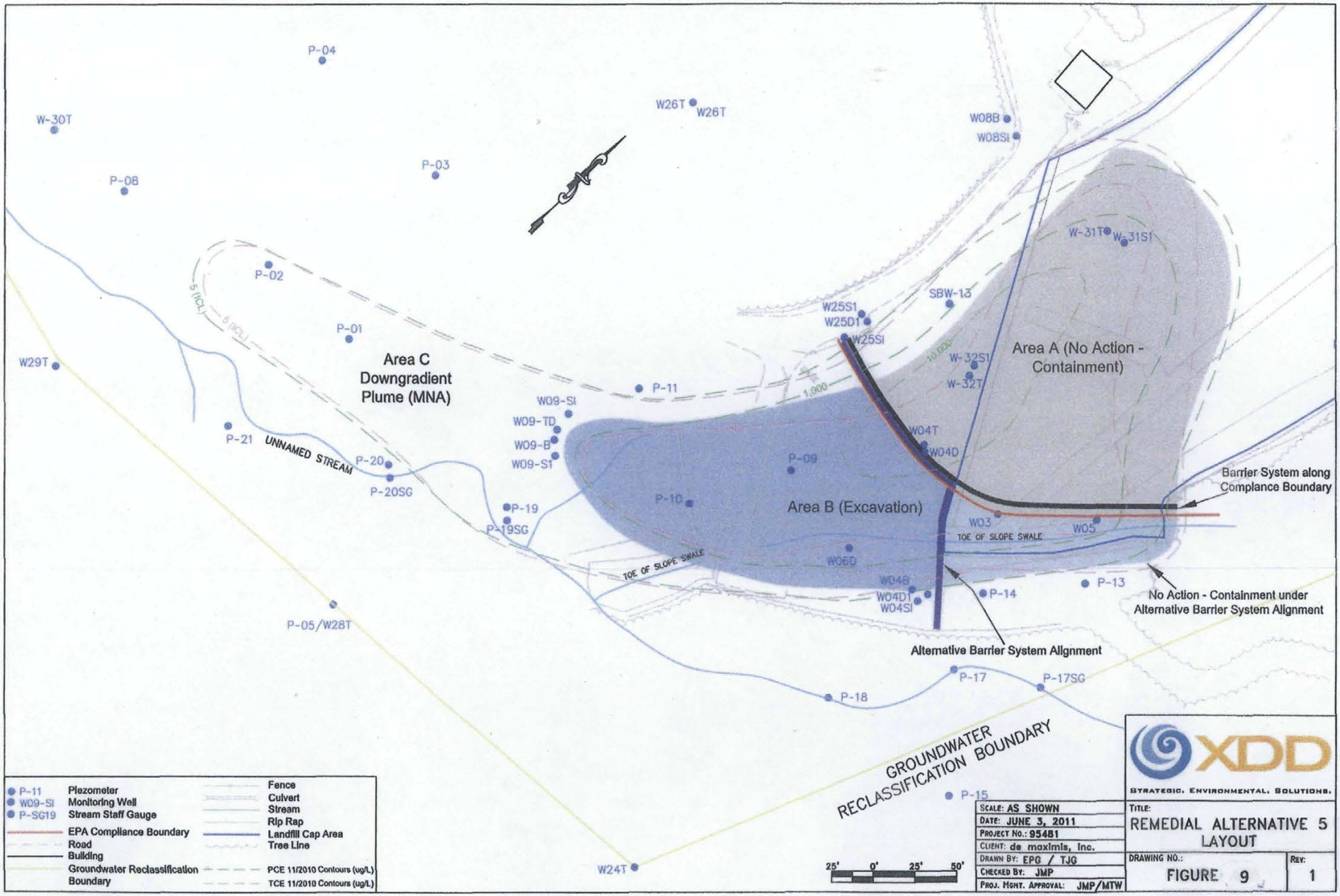
April 8, 2011
106-0901
Scale As Shown

Figure 6: Remedial Evaluation Areas

Burgess Brothers Superfund Site, Bennington, VT


P-04
W-30T
W26T
W26T
W08B
W08SI
P-03
P-08
W-31T
W-31S1
P-02
SBW-13
W25S1
W25D1
W25SI
P-01
Area C
Downgradient
Plume (MNA)
Area A (No Action - Containment)
W-32S1
W-32T
W29T
P-11
W09-SI
W09-TD
W09-B
W09-S1
W04T
W04D
P-21
UNNAMED STREAM
P-20
P-20SG
P-09
Barrier System along Compliance Boundary
P-19
P-19SG
P-10
Area B (Active Remediation / MNA)
W03
W05
TOE OF SLOPE SWALE
W06D
TOE OF SLOPE SWALE
W04B
W04D1
W04SI
P-14
P-13
No Action - Containment under Alternative Barrier System Alignment
P-05/W28T
Alternative Barrier System Alignment
P-17
P-17SG
P-18
GROUNDWATER RECLASSIFICATION BOUNDARY
P-15
W24T
25' 0' 25' 50'
P-11 Piezometer
W09-SI Monitoring Well
P-SG19 Stream Staff Gauge
EPA Compliance Boundary
Road
Building
Groundwater Reclassification Boundary
Fence
Culvert
Stream
Rip Rap
Landfill Cap Area
Tree Line
PCE 11/2010 Contours (ug/L)
TCE 11/2010 Contours (ug/L)
XDD
STRATEGIC. ENVIRONMENTAL. SOLUTIONS.
SCALE: AS SHOWN
DATE: JUNE 3, 2011
PROJECT NO.: 95481
CLIENT: de maximis, Inc.
DRAWN BY: EPG / TJG
CHECKED BY: JMP
PROJ. MGMT. APPROVAL: JMP/MTW
TITLE:
REMEDIAL ALTERNATIVE 3 LAYOUT
DRAWING NO.:
FIGURE 7
REV: 1


P-04
W-30T
P-08
P-03
W26T
W26T
W08B
W08SI
W-31T
W-31S1
P-02
Downgradient Barrier System Alignment (approximate)
SBW-13
W25S1
W25D1
W25SI
P-01
Area C Downgradient Plume (MNA)
W-32S1
W-32T
Area A (No Action - Containment)
W29T
P-11
W09-SI
W09-TD
W09-B
W09-S1
W04T
W04D
P-21
UNNAMED STREAM
P-20
P-20SG
P-09
Barrier System along Compliance Boundary
P-10
Area B (No Action - Containment)
P-19
P-19SG
W03
W05
TOE OF SLOPE SWALE
W06D
TOE OF SLOPE SWALE
W04B
W04D1
W04SI
P-14
P-13
No Action - Containment under Alternative Barrier System Alignment
P-05/W28T
Liner Beneath Stream
Alternative Barrier System Alignment
P-17
P-17SG
P-18
GROUNDWATER RECLASSIFICATION BOUNDARY
P-15
W24T
P-11 Piezometer
W09-SI Monitoring Well
P-SG19 Stream Staff Gauge
EPA Compliance Boundary
Road
Building
Groundwater Reclassification Boundary
Fence
Culvert
Stream
Rip Rap
Landfill Cap Area
Tree Line
PCE 11/2010 Contours (ug/L)
TCE 11/2010 Contours (ug/L)
25' 0' 25' 50'
XDD
STRATEGIC. ENVIRONMENTAL. SOLUTIONS.
SCALE: AS SHOWN
DATE: JUNE 3, 2011
PROJECT NO.: 95481
CLIENT: de maximis, Inc.
DRAWN BY: EPG / TJG
CHECKED BY: JMP
PROJ. MGMT. APPROVAL: JMP/MTW
TITLE: REMEDIAL ALTERNATIVE 4 LAYOUT
DRAWING NO.: FIGURE 8
REV: 0


P-04
W-30T
P-08
P-03
W26T
W26T
W08B
W08SI
W-31T
W-31SI
P-02
SBW-13
W25S1
W25D1
W25SI
P-01
Area C
Downgradient
Plume (MNA)
W29T
W-32SI
W-32T
Area A (No Action - Containment)
P-11
W09-SI
W09-TD
W09-B
W09-S1
W04T
W04D
P-21
UNNAMED STREAM
P-20
P-20SG
P-09
P-10
Area B (Excavation)
P-19
P-19SG
W03
W05
TOE OF SLOPE SWALE
Barrier System along Complance Boundary
TOE OF SLOPE SWALE
W06D
W04B
W04D1
W04SI
P-14
P-13
No Action - Containment under Alternative Barrier System Alignment
P-05/W28T
Alternative Barrier System Alignment
P-17
P-17SG
P-18
GROUNDWATER RECLASSIFICATION BOUNDARY
P-15
W24T
P-11 Piezometer
W09-SI Monitoring Well
P-SG19 Stream Staff Gauge
EPA Compliance Boundary
Road
Building
Groundwater Reclassification Boundary
Fence
Culvert
Stream
Rip Rap
Landfill Cap Area
Tree Line
PCE 11/2010 Contours (ug/L)
TCE 11/2010 Contours (ug/L)
25' 0' 25' 50'
XDD
STRATEGIC. ENVIRONMENTAL. SOLUTIONS.
SCALE: AS SHOWN
DATE: JUNE 3, 2011
PROJECT NO.: 95481
CLIENT: de maximis, Inc.
DRAWN BY: EPG / TJG
CHECKED BY: JMP
PROJ. MGMT. APPROVAL: JMP/MTW
TITLE:
REMEDIAL ALTERNATIVE 5 LAYOUT
DRAWING NO.:
FIGURE 9
REV:
1

Appendix C: State Concurrence Letter

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VERMONT

State of Vermont
Department of Environmental Conservation
Office of the Commissioner
103 South Main Street/Building 1 South
Waterbury, VT 05671-0401
(802) 241-3808
FAX (802) 241-5141

AGENCY OF NATURAL RESOURCES

September 27, 2011

Larry Brill, Chief, R & R1 Branch
Office of Site Remediation and Restoration
US Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: Concurrence with Record of Decision Amendment for Burgess Brothers Superfund Site
Bennington, Vermont (Site #77-0007)

Dear Mr. Brill:

The State of Vermont, Department of Environmental Conservation (VTDEC) concurs with the Record of Decision Amendment (ROD A) proposed by the Environmental Protection Agency (EPA) for the Burgess Brothers Superfund Site. The VTDEC concurs with the response actions outlined in the *Record of Decision Amendment Part 1: Declaration and Part 2: Decision Summary* drafts dated September 19, 2011. The ROD A is in addition to the actions already performed in the original ROD dated August 26, 1998. They consist of the following:

ROD

- Multi-barrier cap over the landfill area,
- Cap over the soils in the Marshy area,
- SVE/Air sparging in the former lagoon area (to be discontinued with the implementation of the ROD A)
- Institutional controls – deed restriction, access control, and VTDEC groundwater reclassification,
- Long-term monitoring,
- Five-Year Reviews, and
- Contingency for alternative response action

ROD A

- Containment barrier system at the landfill compliance boundary,
- Containment barrier system at the down gradient edge of the highly contaminated groundwater, and
- Monitored natural attenuation down gradient of the second barrier.

The State believes that the selected remedy is protective of human health and the environment, meets all state requirements that are applicable to remedial action, and is cost effective. We look forward to working with the EPA during the remedial design, pilot testing and remedial action phases of the amended remedy.

The VT DEC looks forward to its continued partnership with EPA and the successful implementation of this project. If you need additional information on the State's position concerning the ROD A, please do not hesitate to contact me, Chuck Schwer, or Gerold Noyes of my staff.

Please feel free to contact me if I can be of assistance.

Sincerely,

David K. Mears
VTDEC Commissioner

CC: Chuck Schwer, VTDEC
Gerold Noyes, VTDEC

Appendix D: Administrative Record Index

Burgess Brothers

Superfund Site

Administrative Record Index
for the Record of Decision (ROD)
Amendment
Operable Unit 1

ROD Signed: September 2011
Released: October 2011

Prepared by

EPA New England
Office of Site Remediation and Restoration

With Assistance from
ASRC Management Services
6301 Ivy Lane, Suite 300
Greenbelt, MD 20770

Introduction to the Collection

This is the administrative record file for the Burgess Brothers Superfund Site, Woodford and Bennington, Vermont, Operable Unit 1 – (Entire Site), Record of Decision (ROD) Amendment, released on October 2011. The file contains site-specific documents and a list of guidance documents used by EPA staff in selecting a response action at the site.

This record includes, by reference, the Administrative Record (AR) for the Burgess Brothers, Operable Unit 1 (OU1) Record of Decision (ROD), issued September 25, 1998.

The administrative record file is available for review at:

EPA New England Office of
Site Remediation & Restoration
5 Post Office Square - Suite 100 (OSRR02-3)
Boston, MA 02109-3912
(By appointment)
617-918-1440 (phone)
617-918-0440 (fax)
www.epa.gov/region01/superfund/resource/records.htm

Bennington Public Library
101 Silver Street
Bennington, VT 05201
(802) 442-9051 (phone)
http://benningtonfreelibrary.org/

An administrative record file is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

Please note that the compact disc(s) (CD) containing this Administrative Record may include index data and other metadata (hereinafter collectively referred to as metadata) to allow the user to conduct index searches and key word searches across all the files contained on the CD. All the information that appears in the metadata, including any dates associated with creation of the indexing data, is not part of the Administrative Record for the Site under CERCLA and shall not be construed as relevant to the documents that comprise the Administrative Record. This metadata is provided as a convenience for the user and is not part of the Administrative Record.

Questions about this administrative record file should be directed to the EPA New England site manager.

Phase 04: FEASIBILITY STUDY (FS)

490443 **FOCUSED FEASIBILITY STUDY (FS) REPORT, BURGESS BROTHERS SUPERFUND SITE, OPERABLE UNIT (OU) 1 - WOODFORD AND BENNINGTON**

# of Pages: 498
Doc Date: 07/26/2011

Author: -ENVIRONMENTAL PARTNERS GROUP INC

Addressee: BURGESS BROTHERS STEERING COMMITTEE

Doc Type: FEASIBILITY STUDY (FS) REPORT

File Break: 04.06

Access Type(s): REL

Phase 05: RECORD OF DECISION (ROD)

4063 **RECORD OF DECISION (ROD)**

# of Pages: 129
Doc Date: 09/25/1998

Author: -US EPA REGION 1
Addressee:
Doc Type: DECISION DOCUMENT
RECORD OF DECISION (ROD)
REPORT
File Break: 05.04
Access Type(s): REL

489977 **PROPOSED PLAN TO AMEND THE 1998 ROD**

# of Pages: 14
Doc Date: 07/01/2011

Author: -US EPA REGION 1
Addressee:
Doc Type: PROPOSED PLAN
PUBLIC INFORMATION
REPORT
File Break: 05.03
Access Type(s): REL

495553 **STATE COMMENTS ON FOCUSED FEASIBILITY STUDY (FS)**

# of Pages: 2
Doc Date: 08/09/2011

Author: GEROLD NOYES-VT DEPT OF ENVIRONMENTAL CONSERVATION
Addressee: TERRENCE R CONNELLY US EPA REGION 1
Doc Type: CORRESPONDENCE
LETTER
PUBLIC (AND OTHER) COMME
File Break: 05.03
Access Type(s): REL

Phase 05: RECORD OF DECISION (ROD)

495554 RESPONSE TO STATE COMMENTS ON FOCUSED FEASIBILITY STUDY (FS)

# of Pages: 2
Doc Date: 09/29/2011

Author: TERRENCE R CONNELLY-US EPA REGION 1
Addressee: GEROLD NOYES VT DEPT OF ENVIRONMENTAL CONSERVATION
Doc Type: CORRESPONDENCE
LETTER
File Break: 05.03
Access Type(s): REL

495555 US FISH AND WILDLIFE SERVICE COMMENTS ON PROPOSED PLAN

# of Pages: 2
Doc Date: 09/01/2011

Author: THOMAS R CHAPMAN-US DEPT OF INTERIOR - FISH & WILDLIFE SERVICE
Addressee: TERRENCE R CONNELLY US EPA REGION 1
Doc Type: CORRESPONDENCE
LETTER
PUBLIC (AND OTHER) COMME
File Break: 05.03
Access Type(s): REL

495556 RESPONSE TO US FISH AND WILDLIFE SERVICE COMMENTS ON PROPOSED PLAN

# of Pages: 1
Doc Date: 09/29/2011

Author: TERRENCE R CONNELLY-US EPA REGION 1
Addressee: KENNETH MUNNEY US DOI/US FISH & WILDLIFE SERVICE
Doc Type: CORRESPONDENCE
LETTER
File Break: 05.03
Access Type(s): REL

Phase 06: REMEDIAL DESIGN (RD)

277978 FINAL REMEDIAL DESIGN (RD) REPORT

# of Pages: 976
Doc Date: 04/28/2000

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: REMEDIAL DESIGN REPORT
REPORT
File Break: 06.04
Access Type(s): REL

476974 FINAL DEMONSTRATION OF COMPLIANCE PLAN

# of Pages: 51
Doc Date: 04/28/2000

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: REMEDIAL DESIGN REPORT
REPORT
File Break: 06.04
Access Type(s): REL

486531 REVISED TABLE SHOWING PROJECTED CONCENTRATIONS OF TCE IN GROUNDWATER AT THE COMPLIANCE BOUNDARY OVER TIME (FAX TRANSMITTAL COVER SHEET ATTACHED)

# of Pages: 2
Doc Date: 12/11/1997

Author: -ENVIRONMENTAL RESOURCES MANAGEMENT
Addressee:
Doc Type: SAMPLING DATA
File Break: 06.04
Access Type(s): REL

Phase 06: REMEDIAL DESIGN (RD)

486537 **FINAL APPROVAL OF REMEDIAL DESIGN (RD) REPORT AND DEMONSTRATION OF COMPLIANCE PLAN**

# of Pages: 2
Doc Date: 05/12/2000

Author: RONALD JENNINGS-US EPA REGION 1
Addressee: GEOFFREY SEIBEL DE MAXIMIS INC
Doc Type: CORRESPONDENCE
LETTER
File Break: 06.04
Access Type(s): REL

486540 **FINAL REMEDIAL DESIGN (RD) REVISED APPENDICES J AND J-2 (TRANSMITTAL ATTACHED)**

# of Pages: 83
Doc Date: 03/16/2000

Author: -DE MAXIMIS INC
Addressee:
Doc Type: REPORT
File Break: 06.04
Access Type(s): REL

486541 **MAPS: LANDFILL CAP REMEDIAL ACTION APRIL 1999 (REVISED 06/07/1999)**

# of Pages: 8
Doc Date: 06/07/1999

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: MAP
File Break: 06.04
Access Type(s): REL

Phase 07: REMEDIAL ACTION (RA)

485946 FINAL REMEDIAL CONSTRUCTION REPORT

# of Pages: 808
Doc Date: 02/13/2001

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: REPORT
File Break: 07.05
Access Type(s): REL

486532 REMEDIAL CONSTRUCTION REPORT DATED 02/13/2001 APPROVAL WITH CONDITIONS (COMMENTS ATTACHED)

# of Pages: 3
Doc Date: 05/04/2001

Author: RONALD JENNINGS-US EPA REGION 1
Addressee: GEOFFREY SEIBEL DE MAXIMIS INC
Doc Type: CORRESPONDENCE
LETTER
File Break: 07.05
Access Type(s): REL

486533 FINAL APPROVAL FOR REMEDIAL CONSTRUCTION REPORT

# of Pages: 1
Doc Date: 09/25/2001

Author: RONALD JENNINGS-US EPA REGION 1
Addressee: GEOFFREY SEIBEL DE MAXIMIS INC
Doc Type: CORRESPONDENCE
LETTER
File Break: 07.05
Access Type(s): REL

Phase 07: REMEDIAL ACTION (RA)

486534 FINAL APPROVAL FOR WETLAND IMPACTS ASSESSMENTS REPORT

# of Pages: 1
Doc Date: 10/03/2001

Author: RONALD JENNINGS-US EPA REGION 1
Addressee: GEOFFREY SEIBEL DE MAXIMIS INC
Doc Type: CORRESPONDENCE
LETTER
File Break: 07.05
Access Type(s): REL

486535 COMMENT LETTER REGARDING FINAL CONSTRUCTION COMPLETION PHASE

# of Pages: 2
Doc Date: 01/18/2001

Author: KENNETH CARR-US FISH AND WILD LIFE SERVICE
Addressee: RONALD JENNINGS US EPA REGION 1
Doc Type: CORRESPONDENCE
LETTER
File Break: 07.05
Access Type(s): REL

486536 FINAL CONSTRUCTION INSPECTION

# of Pages: 2
Doc Date: 01/03/2001

Author: PETER W DELANO-NOBIS ENGINEERING INC
Addressee: RONALD JENNINGS US EPA REGION 1
Doc Type: CORRESPONDENCE
LETTER
File Break: 07.05
Access Type(s): REL

Phase 07: REMEDIAL ACTION (RA)

486538 **RESPONSE TO EPA CONDITIONAL APPROVAL LETTER DATED MAY 04, 2001 REGARDING REMEDIAL CONSTRUCTION REPORT**

# of Pages: 8
Doc Date: 06/12/2001

Author: MARK N WHITE-ENVIRONMENTAL PARTNERS GROUP INC

Addressee: RONALD JENNINGS US EPA REGION 1

Doc Type: REPORT

File Break: 07.05

Access Type(s): REL

486539 **FINAL WETLAND IMPACTS ASSESSMENT REPORT**

# of Pages: 23
Doc Date: 09/28/2001

Author: -ENVIRONMENTAL PARTNERS GROUP INC

Addressee:

Doc Type: REPORT

File Break: 07.05

Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

204908 FIRST FIVE-YEAR REPORT

# of Pages: 54
Doc Date: 03/31/2005

Author: -US EPA REGION 1

Addressee:

Doc Type: FIVE YEAR REVIEW RPT & AP REPORT

File Break: 08.03

Access Type(s): REL

262770 FINDINGS OF FACT AND RECLASSIFICATION ORDER (GROUNDWATER RECLASSIFICATION) (02/28/2003 TRANSMITTAL LETTER FROM DENNIS NEALON IS ATTACHED)

# of Pages: 10
Doc Date: 09/29/2003

Author: -VT AGENCY OF NATURAL RESOURCES
-VT GROUNDWATER COORDINATING COMMITTEE

Addressee:

Doc Type: INSTITUTIONAL CONTROL(S) REPORT

File Break: 08.07

Access Type(s): REL

274543 SOIL VAPOR EXTRACTION (SVE) / AIR SPARGE SYSTEM OPERATIONS SUMMARY

# of Pages: 64
Doc Date: 07/24/2007

Author: -ENVIRONMENTAL PARTNERS GROUP INC

Addressee:

Doc Type: REPORT

File Break: 08.03

Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

470151 SECOND FIVE-YEAR REVIEW REPORT

# of Pages: 65
Doc Date: 09/27/2010

Author: -US EPA REGION 1
Addressee:
Doc Type: FIVE YEAR REVIEW RPT & AP REPORT
File Break: 08.03
Access Type(s): REL

476977 POST-CLOSURE OPERATION AND MAINTENANCE PLAN (VOLUME 1 OF 2)

# of Pages: 798
Doc Date: 01/25/2001

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: WORK PLAN
File Break: 08.03
Access Type(s): REL

476984 POST-CLOSURE OPERATION AND MAINTENANCE PLAN (VOLUME 2 OF 2), APPENDIX B: QUALITY ASSURANCE PROJECT PLAN (QAPP)

# of Pages: 804
Doc Date: 01/25/2001

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: WORK PLAN
File Break: 08.03
Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

488229 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, SPRING 2004 (ROUND 8)**
# of Pages: 211
Doc Date: 06/14/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488230 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, FALL 2004 (ROUND 9)**
# of Pages: 48
Doc Date: 06/14/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488231 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, SPRING 2005 (ROUND 10)**
# of Pages: 156
Doc Date: 06/14/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

488232 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, FALL 2005 (ROUND 11)**

# of Pages: 325
Doc Date: 06/14/2007

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488233 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, SPRING 2006 (ROUND 12)**

# of Pages: 285
Doc Date: 06/01/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488234 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, FALL 2006 (ROUND 13)**

# of Pages: 148
Doc Date: 06/01/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

488235 POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, SPRING 2007 (ROUND 14)

# of Pages: 105
Doc Date: 06/01/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488236 POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, FALL 2007 (ROUND 15)

# of Pages: 88
Doc Date: 06/01/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488237 POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, SPRING 2008 (ROUND 16)

# of Pages: 199
Doc Date: 11/01/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

488238 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, FALL 2008 (ROUND 17)**

# of Pages: 117
Doc Date: 12/01/2008

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

488239 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT, SPRING 2009 (ROUND 18)**

# of Pages: 103
Doc Date: 06/01/2009

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

490429 **RESPONSE TO EPA COMMENTS ON THE REPORT RESPONSE TO USEPA'S FIVE-YEAR REVIEW FOLLOW-UP REQUIREMENTS FOR THE BURGESS BROTHERS SUPERFUND SITE, DATED OCTOBER 2005 (TRANSMITTAL LETTER ATTACHED)**

# of Pages: 54
Doc Date: 12/09/2005

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: REPORT
File Break: 08.03
Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

490430 **RESPONSE TO USEPA'S FIVE-YEAR REVIEW FOLLOW-UP REQUIREMENTS FOR THE BURGESS BROTHERS SUPERFUND SITE, DATED OCTOBER 2005 (09/30/2005 TRANSMITTAL LETTER ATTACHED)**

# of Pages: 110
Doc Date: 10/03/2005

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee:
Doc Type: REPORT
File Break: 08.03
Access Type(s): REL

490431 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT (ROUND 19) - FALL 2009**

# of Pages: 116
Doc Date: 02/01/2010

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

490432 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT (ROUND 20) - SPRING 2010**

# of Pages: 153
Doc Date: 02/01/2011

Author: -ENVIRONMENTAL PARTNERS GROUP INC
Addressee: BURGESS BROTHERS STEERING COMMITTEE
Doc Type: REPORT
SAMPLING DATA
File Break: 08.04
Access Type(s): REL

Phase 08: POST REMEDIAL ACTION

490433 **POST-CLOSURE ENVIRONMENTAL MONITORING REPORT (ROUND 21) - FALL 2010**

# of Pages: 111
Doc Date: 02/01/2011

Author: -ENVIRONMENTAL PARTNERS GROUP INC

Addressee: BURGESS BROTHERS STEERING COMMITTEE

Doc Type: REPORT
SAMPLING DATA

File Break: 08.04

Access Type(s): REL

Phase 10: ENFORCEMENT/NEGOTIATION

25859 **PLAINTIFF'S UNOPPOSED MOTION TO ENTER CONSENT DECREE, UNITED STATES V BURGESS BROTHER INC, EVEREDY BATTERY COMPANY INC AND CLYDE BURGESS JR, CIVIL ACTION NO 2:99-CV-194**

# of Pages: 52
Doc Date: 09/10/1999

Author:
Addressee:
Doc Type: ENFORCEMENT & SETTLEMEI
File Break: 10.08
Access Type(s): REL

490442 **APPENDIX B: REMEDIAL DESIGN / REMEDIAL ACTION (RD/RA) STATEMENT OF WORK (SOW)**

# of Pages: 37
Doc Date: 01/01/1111

Author: -US EPA REGION 1
Addressee:
Doc Type: REPORT
File Break: 10.08
Access Type(s): REL

Phase 13: COMMUNITY RELATIONS

487365 **NEWS RELEASE: PUBLIC MEETING AND HEARING ON CHANGES TO THE CLEANUP PLAN FOR THE BURGESS BROTHERS LANDFILL SUPERFUND SITE IN BENNINGTON, VT**

# of Pages: 1
Doc Date: 07/28/2011

Author: -US EPA REGION 1
Addressee:
Doc Type: PRESS RELEASE
PUBLIC INFORMATION
File Break: 13.03
Access Type(s): REL

493959 **TRANSCRIPT OF EPA PUBLIC COMMENTS HEARING OF THE BURGESS BROTHERS LANDFILL PROPOSED PLAN**

# of Pages: 6
Doc Date: 08/16/2011

Author: -OBRIEN REPORTING SERVICES
Addressee:
Doc Type: PUBLIC (AND OTHER) COMME
REPORT
File Break: 13.04
Access Type(s): REL

Number of Documents in Administrative Record: 47

Selected Key Guidance Documents

EPA Guidance Documents may be reviewed at the OSRR Records and Information Center in Boston, MA

DOCNUMBER	DOCDATE	TITLE	OSWEREPAID
2002	01-Oct-88	INTERIM FINAL GUIDANCE FOR CONDUCTING REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES UNDER CERCLA.	OSWER #9355.3-01
5009		INTEGRATED RISK INFORMATION SYSTEM (IRIS) [A COMPUTER-BASED HEALTH RISK INFORMATION SYSTEM AVAILABLE THROUGH E-MAIL--BROCHURE ON ACCESS IS INCLUDED]	
C018	17-Oct-86	COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980. AMENDED BY PL 99-499, 10/17/86.	
C063	01-Jan-92	NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN.	OSWER 9200.2-14
C145	01-Feb-90	CERCLA COMPLIANCE WITH OTHER LAWS MANUAL. CERCLA COMPLIANCE WITH THE CWA AND SDWA. DUPLICATE OF 3010.	OSWER 9234.2-06/FS
C147	01-Apr-90	CERCLA COMPLIANCE WITH OTHER LAWS MANUAL. SUMMARY OF PART II. CAA, TSCA, AND OTHER STATUTES. DUPLICATE OF 3012.	OSWER 9234.2-07/FS
C157	01-Sep-93	PRESUMPTIVE REMEDY FOR CERCLA MUNICIPAL LANDFILL SITES.	OSWER 9355.0-49FS
C515	21-Apr-99	USE OF MONITORED NATURAL ATTENTUATION AT SUPERFUND, RCRA CORRECTIVE ACTION, AND UNDERGROUND STORAGE TANK SITES	OSWER 9200.4-17P
C742	7/1/1999	A GUIDE TO PREPARING SUPERFUND PROPOSED PLANS, RECORD OF DECISION AND OTHER REMEDY SELECTION DECISION DOCUMENTS	OSWER 9200.1-23P

RECORD OF DECISION AMENDMENT

PART 3: RESPONSIVENESS SUMMARY

Burgess Brothers Landfill Superfund Site
Bennington and Woodford, VT

SEPTEMBER 2011

BURGESS BROTHERS LANDFILL SUPERFUND SITE - RECORD OF DECISION AMENDMENT
PART 3: THE RESPONSIVENESS SUMMARY

PREFACE

The purpose of this Responsiveness Summary is to document EPA's responses to those questions, comments and concerns raised during the public comment period on the July 2011 Proposed Cleanup Plan for the Burgess Brothers Superfund Site (the "Site"). This Responsiveness Summary is required by CERCLA § 117 and the NCP §§300.430(f)(3)(i)(F) and 300.430(f)(5)(iii)(B).

EPA mailed the Proposed Plan for this ROD Amendment on July 22, 2011, and received a few calls from community members regarding the proposed remedy. In general, these callers had some questions about the proposed remedy and whether contamination from the Site had reached Barney Brook, but expressed no opinions or concerns as to the Proposed Plan. The Proposed Plan mailing was followed by notice of a public hearing that was published in the Bennington Banner on August 6, 2011. On August 16, 2011, EPA held a combined public information and then public hearing at the Bennington Free Library, which also serves as the repository for the Site. The meeting was lightly attended. Members of the public asked questions during the information meeting, but no oral or written comments were offered during the hearing.

No comments on the Proposed Plan were received during the comment period. Following the close of the comment period, EPA received comments from the U.S. Fish and Wildlife Service ("FWS"), which is the designated Natural Resource Trustee for the Department of the Interior at the Site. FWS is supportive of the Proposed Plan. Also, EPA received comments on the Focused Feasibility Study from the State of Vermont, Department of Environmental Conservation. All of the comments provided were considered by EPA before selecting this ROD Amendment, and are included in the Administrative Record with EPA responses as appropriate. None of the oral or written comments received by EPA were in opposition to the proposed remedy change. The State of Vermont is supportive of this ROD Amendment for the Site.