



Superfund Records Center
SITE: Shpack Landfill
BREAK: 8.3
AGENCY 564556

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

Preliminary Close Out Report

Shpack Landfill Superfund Site

Town of Norton and City of Attleboro, Massachusetts

(MAD980503973)

September 2014

I INTRODUCTION

This Preliminary Close Out Report (PCOR) documents the completion of all physical remedial construction activities performed at the Shpack Landfill Superfund Site (the Site). This PCOR was prepared in accordance with *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-22 dated May 2011). EPA conducted a pre-final inspection of the Site on June 9, 2014. All components of the remedy were constructed in general accordance with EPA-approved plans and specifications, as confirmed during field oversight of remedial construction by EPA's contractor and during EPA's pre-final inspection. Several punch-list items associated with remedial construction identified during the pre-final inspection were completed in July 2014 (and are described below in Section II). A final inspection was conducted on September 17, 2014 and no additional remedial construction is needed at the Site due to completion of the punch-list items.

It is expected that vegetation in the restored wetlands and upland areas will become established and fully functional over a period of five to seven years. Long-term monitoring and maintenance of the restored areas, monitoring of institutional controls, inspection and maintenance of Site perimeter fencing, groundwater and surface water monitoring, and Five-Year Reviews will be performed to ensure that the remedy continues to be protective in accordance with the 2004 Record of Decision (ROD).



SDMS DocID 564556

II SUMMARY OF SITE CONDITIONS

This section of the PCOR provides a summary of Site background information, including: location, description, history, removal activities performed, description of the selected remedy, and a summary of remedial actions performed and institutional controls established.

1. Background and Description

The Site covers approximately 9.4 acres, with approximately 6 acres located within the Town of Norton, Massachusetts, and the remainder located in the City of Attleboro, Massachusetts (Figure 1). The Site was operated as a landfill from 1946 until the early 1970s, receiving domestic and industrial waste, including inorganic and organic chemicals and low-level radioactive waste.

The Site is bordered to the north and northwest by Peckham Street (Attleboro) and Union Road (Norton); to the west and southwest by an approximately 55-acre municipal and industrial landfill owned by Attleboro Landfill Inc. (ALI); and on the southeast, east, and northeast by the Chartley Swamp, a vegetated wetland area. An electrical utility easement with multiple overhead transmission lines traverses the site. The area of the Site where wastes were deposited is enclosed by a chain-link fence. Figure 2 provides a site layout.

Approximately 40,000 people live within a 3-mile radius of the Site. Municipal water supplies do not extend to the area around the Site. Residents in the area use private drinking water wells, most of which withdraw water from the bedrock aquifer. At the time of the ROD, the nearest residential well was located approximately 150 feet from the Site¹ and there were 27 private wells located within 1-mile of the Site serving 103 people. The municipal water supply well fields for Norton and Attleboro are situated in the shallow aquifer. The nearest well fields are located approximately 3 miles east and 2.3 miles west of the study area in Norton and Attleboro, respectively.

In 1978, the Nuclear Regulatory Commission (NRC) conducted radiological surveys at the Site, after being contacted by a concerned citizen who had detected elevated radiation levels in the area. The

¹ This well has now been decommissioned and the house in this location has been razed. The property is now zoned conservation land by the town of Norton.

NRC's investigation identified radioactive materials, primarily radium and uranium, within the landfill. In 1980, the Site was added to the Department of Energy's (DOE) Formerly Utilized Sites Remedial Action Program (FUSRAP), which dealt with the legacy of the nation's early atomic energy programs. In 1998, FUSRAP responsibility was transferred from DOE to the United States Army Corps of Engineers (USACE).

In 1982 and 1984, DOE conducted additional studies and identified chemical contamination (volatile organic compounds [VOCs] and metals) in groundwater at the Site. In 1984, EPA evaluated the Site to determine if it should be listed on the National Priorities List (NPL). The site was proposed to the NPL on October 15, 1984 (49 FR 40320). On June 14, 1986 (51 FR 21054), the Site was added to the NPL.

2. Removal Activities

In October 1981, a security fence was installed around the Site on behalf of DOE to prevent unauthorized access. Portions of the fence have been repaired or replaced and fencing was added around the Tongue Area portion of the Site; otherwise the 1981 fence remains at the Site today. The only portion of the Site not fenced is the outer portion of the Inner Rung area, abutting Chartley Swamp (Figure 2).

In 1990, a group of potentially responsible parties formed the Shpack Steering Committee (SSC) and the individual companies of the SSC entered into an Administrative Order on Consent (AOC) with EPA. The AOC required the SSC to conduct the Remedial Investigation/Feasibility Study (RI/FS) in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations.

Between 1993 and 2004, SSC and USACE conducted investigations to characterize chemical and radiological contamination at the Site and evaluate remedial options. The final RI and FS prepared on behalf of the SSC, and the final Human Health Risk Assessment prepared on behalf of EPA, were submitted for public comment in 2004.

3. Selected Remedy

In September 2004, EPA signed a ROD identifying the selected remedial action for the Site. The ROD encompasses two response actions: one managed by the USACE under FUSRAP and the other managed by EPA under CERCLA. Special legislation was passed in 2002 (Section 8143, subsection (a), of the U.S. Department of Defense (DOD) Appropriations Act) that authorized USACE to conduct the cleanup of the radiological contamination at the Site. EPA is responsible for remediation of the non-radiological contamination at the Site. A group of potentially responsible parties, referred to herein as the Performing Defendants, signed a Consent Decree with EPA in June 2008 under which they agreed to perform the Site-wide cleanup of non-radiological contaminants.

The ROD identified the following remedial action objectives (RAOs):

Source Control:

Soil

- Prevent ingestion/direct contact with soil having non-carcinogens in excess of a Hazard Index (HI) of 1 or with soil having carcinogens posing excess cancer risk above 10^{-4} to 10^{-6} and meet Applicable or Relevant and Appropriate Requirements (ARARs);
- Prevent inhalation of carcinogens posing excess cancer risk levels above 10^{-4} to 10^{-6} or a HI of 1.0 and meet ARARs; and
- Prevent exposure to contaminants in soil that present an unacceptable risk to the environment.

Sediment

- Prevent exposure to sediment having carcinogens posing excess cancer risk above 10^{-4} to 10^{-6} or a HI of 1.0; and
- Prevent exposure to contaminants in sediment that present an unacceptable risk to the environment.

Surface Water

- Prevent migration of contamination from site to surface water to reduce, to the extent practicable, the contribution of contamination from the site to surface waters of contamination that presents an unacceptable risk to human health and the environment.

Management of Migration:

Prevent ingestion of groundwater having carcinogens in excess of MCLs, non-zero MCLGs, and a total excess cancer risk for all contaminants in groundwater greater than 10^{-4} to 10^{-6} .

Prevent ingestion of groundwater having non-carcinogens in excess of MCLs or non-zero MCLGs or a HI of 1.0.

Prevent exposure to contaminants in groundwater that present an unacceptable risk to the environment.

The primary components of the selected remedy chosen to achieve the RAOs are:

- Relocation of existing power line structures, as needed, to implement necessary soil removal and backfill actions;
- Extension of the public water supply line and connecting two residences, located adjacent to the Site, to public water. The residences were identified as Union Road House 1 and Union Road House 2.
- Excavation and off-site disposal of soil and sediment with contaminant concentrations exceeding the cleanup levels specified in Tables L-1 through L-3 of the ROD found in Attachment 1 of this document.
- Placement of clean fill in excavated areas to grade and/or wetlands restoration/ replication, as appropriate;
- Preparation and implementation of a surface water, sediment, and groundwater monitoring program;
- Performance of 5-year reviews to monitor the effectiveness of the remedy;
- Implementation of any institutional controls necessary to restrict future use of property and groundwater, and monitoring compliance with institutional controls; and

- Development and implementation of a traffic control plan to manage the increased volume of truck traffic associated with transporting contaminated material off-site.

The ROD addresses groundwater contamination at and near the Site by addressing the risk of exposure to contaminated groundwater by requiring installation of a public water line to the two homes adjacent to the Site served by private wells and by mandating institutional controls to restrict future use of the property and groundwater. This decision was based on the commitment by Massachusetts Department of Environmental Protection (MassDEP) to no longer consider this portion of the aquifer as a current or future water supply under the Massachusetts Contingency Plan once the remedial action is implemented, the two private drinking water supply wells abandoned, and controls placed on the properties prohibiting the future use of groundwater. Since those conditions have been met, MassDEP revised its Groundwater Use and Value Determination to a low use and value, and EPA considers the groundwater not suitable as a drinking water source.

4. Remedial Action

Construction of the remedial action was implemented in two parts, with the FUSRAP remedial action to address the radiological contamination performed first, and the CERCLA remedial action to address non-radiological contamination following completion of the FUSRAP remedial action. The two remedial actions are described below.

FUSRAP Remedial Action

The FUSRAP Remedial Action was performed by USACE contractor, Conti Federal Services, Inc. (Conti), with management and oversight by USACE. FUSRAP wastes requiring excavation and disposal were all located within the Landfill Interior portion of the Site (Figure 2). The FUSRAP remedial action was performed in two phases.

Phase 1 operations began at the Site in August 2005. Activities included mobilization of equipment, personnel, and temporary facilities; construction of site infrastructure; excavation of test pits; installation of earth shoring; management of groundwater; excavation and characterization of wastes; post-excavation confirmatory sampling; backfilling with clean sand; and packaging, off-site transportation, and disposal of Low Level Radioactive Waste (LLRW). After excavation began, it was determined that

the horizontal and vertical extent of radiological contamination was more extensive than estimated in the ROD. Phase 1 cleanup operations were suspended in July 2006 based on insufficient funding to cover the increased volume of waste.

Phase 2 operations began at the Site in June 2007 and resumed the activities originally initiated during Phase 1. FUSRAP cleanup operations were completed in October 2011. A total of 57,805 cubic yards of material was excavated, of which 50,908 cubic yards were transported off-site for disposal. The primary waste class generated during the FUSRAP remedial action was LLRW.

Management of groundwater was performed during Phase 1 and Phase 2 utilizing a treatment system of settling tanks, sand filtration vessels and bag filters. With MassDEP concurrence, all extracted groundwater was sent through the treatment system for removal of entrained solids prior to on-site infiltration into site soils upgradient of the extraction area.

On-site waste management and transport of radioactive waste was performed in accordance with applicable local, state, and federal regulations for handling, labeling, storage, and transport of radioactive wastes. Truck traffic was managed during remedial activities in accordance with the traffic control plan developed by USACE with input from local and state authorities.

Department of Transportation (DOT) regulated wastes were shipped off-site packaged in lift liners or inter-modal containers and transferred to the appropriate rail cars at the railhead. Non-DOT regulated materials were loaded into trailers on-site and transferred into gondola rail cars at a railroad transfer facility using excavators and front end loaders. All wastes shipped off-site were ultimately transported by rail to the Energy Solutions disposal facility in Clive, Utah, a facility licensed for disposal of LLRW and/or mixed wastes.

FUSRAP Remedial Action – Final Inspection and Certification

In accordance with the requirements of the *Multi-Agency Radiation Survey and Site Investigation Manual, (MARSSIM), Revision 1* (August 2000), all excavated areas required independent verification to ensure that site-specific cleanup criteria for radiological contaminants were met. Cabrera Services

performed the MARSSIM-compliant Final Status Survey (FSS), which included collection of confirmation samples from excavation floors and sidewalls during the course of the project prior to backfill of each excavation area. Excavations were backfilled only after FSS sampling and on-site lab analytical results confirmed that radiological contaminants were below cleanup criteria.

Following completion of off-site disposal in September 2011, the USACE contractor generated a punch list, including items necessary for complete demobilization from the Site. Over the next month, USACE monitored punch list activities and upon completion, the USACE and its contractors demobilized from the Site in October 2011.

CERCLA Remedial Action

A Remedial Design/Remedial Action consent decree for the remainder of the site cleanup was signed by 14 parties and was lodged in the U.S. District Court in Boston on December 8, 2008, and entered on January 27, 2009. Under the terms of the consent decree, the defendants were required to perform the remainder of the site-wide cleanup of chemical wastes and other contaminants. The defendants signing the agreement include: the City of Attleboro, Mass.; Avnet Inc.; Bank of America N.A. (Trustee u/w of Lloyd G. Balfour); BASF Catalysts LLC (formerly known as Engelhard Corporation); Chevron Environmental Management Company (for itself and on behalf of Kewanee Industries Inc.); ConocoPhillips Co.; Handy & Harman; International Paper Co.; KIK Custom Products, Inc. (formerly known as CCL Custom Manufacturing Inc.); Town of Norton, Mass.; Swank Inc.; Teknor Apex Co.; Texas Instruments Inc.; and Waste Management of Massachusetts Inc. The CERCLA Remedial Action was performed by the Performing Defendants' contractor, Environmental Resource Management (ERM). EPA and MassDEP provided oversight and approval. EPA's contractor, Nobis Engineering, Inc. (Nobis), performed field oversight during remedial construction to ensure that work was performed in accordance with the approved design and Remedial Action Work Plan. CERCLA wastes requiring excavation and disposal were located within the Tongue Area, Inner Rung, and ALI Debris Area portions of the Site (Figure 2). Prior to the start of the CERCLA remedial action, EPA and MassDEP concurred that, based on the results of FUSRAP confirmation sampling and the Performing Defendants' subsequent pre-design investigation, further excavation of non-radiological wastes from the landfill interior was not required.

The CERCLA Remedial Action began at the Site in June 2013. Activities included mobilization of equipment, personnel, and temporary facilities; construction of site infrastructure; installation of earth shoring; management of groundwater; excavation and characterization of wastes; post-excavation confirmatory sampling; backfilling and grading; packaging, off-site transportation, and disposal of wastes; and planting, seeding, and otherwise restoring and/or replicating wetlands and uplands. Management of groundwater was performed utilizing a treatment system of settling tanks, sand filtration vessels and bag filters. With MassDEP concurrence, all pumped groundwater was sent through settling tanks for sediment settlement prior to on-site infiltration into upgradient site soils.

Initial wetland and upland plantings and seeding were completed in November and December 2013. Routine monitoring and maintenance of the wetland area is scheduled to continue for seven years following completion of construction to ensure the success of the restored wetland. Inspections, maintenance, and any required plant replacement and re-seeding will occur during the first year. The Final Operation and Maintenance Plan includes monitoring criteria with specific wetland restoration and creation performance goals keyed to a designated schedule.

CERCLA remedial construction was completed in December 2013. A total of 27,083 tons of waste material was transported off-site for disposal. The material included the following waste classifications: Special Nuclear Material (SNM) non-hazardous; hazardous waste (leachable cadmium); non-hazardous waste; asbestos in soil (AIS); and non-hazardous asbestos-containing building materials.

On-site waste management and transport of wastes was performed in accordance with applicable local, state, and federal regulations for handling, labeling, storage, and transport of wastes. Truck traffic was managed during remedial activities in accordance with the traffic control plan developed by USACE with input from local and state authorities.

A large fraction (approximately 43 percent) of the waste transported off-site for disposal during the CERCLA remedial action was classified as SNM because of very low levels of radiological materials, below both radiological cleanup criteria and LLRW classification levels. SNM-classified wastes were trucked off-site in lift liners or inter-modal containers, transferred to the appropriate rail cars at the railhead and shipped to the US Ecology disposal facility in Grand View, Idaho. All of the SNM wastes shipped from the Site under the CERCLA remedial action were classified as non-hazardous.

In addition to the SNM-classified material, soils classified as hazardous waste (leachable cadmium), non-hazardous, and asbestos in soil were also shipped by rail to the US Ecology facility because of radiation levels below the criteria for SNM classification, but above background levels. Overall, approximately 79 percent of the wastes removed from the Site were transported by rail to the Idaho facility for disposal. The US Ecology Idaho facility is licensed to accept RCRA hazardous wastes, low level radioactive wastes, low activity radioactive wastes, PCB-contaminated materials, and asbestos-containing materials for disposal.

Most of the remaining wastes (approximately 20 percent of the total) were classified as non-hazardous and were transported by truck to the Waste Management Turnkey Landfill in Rochester, New Hampshire (a facility licensed to accept non-hazardous waste, including CERCLA waste). The remaining wastes (less than 1 percent) were classified as asbestos in soil or as non-hazardous, asbestos-containing building materials. The asbestos-soils were trucked to the Waste Management, Crossroads Landfill in Norridgewock, Maine (a solid waste landfill); the asbestos-containing building materials were trucked to the Minerva Landfill in Waynesboro, Ohio (a construction and demolition-debris landfill licensed to accept asbestos).

The public water supply line extension was complete in October 2012, prior to on-site remedial construction activities. The Performing Defendants' contractor extended the City of Attleboro public water supply line approximately 2,600 feet along Peckham Street, to within 500 feet of the Site, to meet ROD and MassDEP requirements. Connections to Union Road Houses 1 and 2 were not made because both houses previously were razed and the two private water supply wells properly abandoned. On November 14, 2013, due to the installation of the water line to within 500 feet of the site, MassDEP revised its Groundwater Use and Value determination from "high" to "low" within the vicinity of the site.

Pre-Final Inspection of CERCLA Remedial Action

EPA conducted a pre-final inspection of the Site on June 9, 2014. Several punch list items were identified during the inspection and are summarized below.

- Side slopes around the southern vernal pool exceeded the 3:1 (horizontal : vertical) slope requirement. The design vegetation will not be capable of supporting this slope, resulting in long-term erosion into the wetlands.
- Varying levels of erosion were observed around the Site and require repair as part of maintenance activities.
- Final seeding in the uplands and majority of the wetlands is required.
- Although not directly related to the remedy, corrective actions are being made to address flooding on Union Road/Peckham Street exacerbated by remedial action activities. The corrective actions include construction of a stormwater management system to allow surface water to drain from the roadway through the management/treatment structures and into the restored wetland. This issue is being addressed by the PRP group with the concurrence of the town of Norton and the City of Attleboro.

The Performing Defendants' contractor addressed the punch list items above during the summer of 2014.

Final Inspection of CERCLA Remedial Action

The final inspection was completed on September 17, 2014. The final inspection confirmed that the side slopes that exceeded the 3:1 slope requirement and areas that had varying levels of erosion had been remedied; the final seeding of the upland and wetland areas was performed in July after the pre-final inspection. Corrective action to alleviate flooding on Union Road/Peckham Street will be conducted during Fall 2014.

Operation and Maintenance of the Remedy will be conducted by the City of Attleboro in accordance with the approved O&M Plan for the Site. Institutional Controls listed below will be implemented following completion of the Remedial Action.

5. Institutional Controls

Prior to completion of the Remedial Action, an interim set of Institutional Controls (ICs) in the form of easements, restrictions, and non-interference agreements consistent with the requirements of the Consent Decree (CD) and Statement of Work (SOW) were placed on five properties. The ICs also granted Site

access for the Performing Defendants to complete the Remedial Action and associated activities. The five properties where ICs were implemented are described below and identified on Figure 3 with the corresponding numerical designation.

1. The northwestern portion of the Site, situated in Attleboro, Massachusetts and owned by ALI.
2. The parcel that forms the majority of the Site, situated in Norton, Massachusetts and owned by the Town of Norton.
3. The parcel situated in Norton, Massachusetts and owned by the Estate of Harold L. Wetherell, on which a portion of the Inner Rung Area is located.
4. The land situated adjacent to and northeast of the Site, in Norton, Massachusetts, on which the Union Road House 2 was located. The house was razed and the well was abandoned in 2007 in conjunction with the FUSRAP Cleanup Action. The property is now owned by the Town of Norton. Union Road House 2 was also known as the former "Shpack Residence" or the former "McGinn Residence".
5. The land situated in Norton, Massachusetts, northeast of the Site, on which the Union Road House 1 was located. The house was razed in August 2012 and the well decommissioned in September 2012 by the Performing Defendants. The property is now owned by Rainbow Land, Inc.

Following completion of the Remedial Action, a Grant of Environmental Restriction and Easement (GERE) and/or other type of deed restriction will be recorded for each of the properties and the interim ICs will be terminated. The GERE prohibits activities and uses of the Site that may present an unacceptable risk to human health as well as providing Site access to the Performing Defendants for associated monitoring and O&M activities.

At a minimum, the ICs stipulated in the GERE will:

1. Prohibit residential, agricultural or other uses of the Site that may present an unacceptable risk to human health.
2. Prohibit construction of any structures at the Site, unless a study determines that vapor intrusion screening criteria are met and construction is designed to prevent vapor intrusion, as appropriate.

3. Prohibit extraction of groundwater at the Site and at Union Road House 1 and 2 for consumption or any other purpose, except groundwater monitoring. (These houses have now been razed and the wells abandoned, therefore this IC will be updated to reflect this)
4. Prohibit excavation at the Site and at Union Road House 1 and 2 below the seasonally-high water table.
5. Otherwise impose such restrictions necessary to protect human health and the environment and maintain the integrity of the remedy.
6. Ensure that the Performing Defendants and their agents are granted the access necessary to complete the operation, maintenance, and monitoring activities necessary to ensure the long-term protectiveness of the remedy.

Under the terms of the CD, the Performing Defendants are responsible for monitoring compliance with and enforcement of the ICs. The Performing Defendants have agreed that the City of Attleboro will perform the compliance monitoring, enforce the ICs as necessary, and prepare and submit annual reports to EPA and MassDEP regarding the status of the ICs.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE/QUALITY CONTROL

USACE's remedial project manager and engineering contractor were responsible for verifying the quality assurance and quality control (QA/QC) of the FUSRAP Remedial Action. This began with review and approval of the remedial design, remedial action work plan, and construction drawings and specifications. Verification that cleanup criteria for radiological contaminants were achieved in the excavations was performed by an independent contractor, in accordance with requirements of the MARSSIM. Quality control activities included confirmation sampling of excavation bottoms and sidewalls as necessary, use of electronic survey methods to record the limits of excavation, testing of excavation material for disposal characterization, and adherence to approved plans and standard operating procedures. Field oversight and weekly construction meetings verified that other remedial activities were performed in accordance with the approved plans. Based on the above, the construction

contractors performed the work in accordance with the USACE and EPA-approved remedial designs and remedial work plan.

The EPA and its oversight contractor were responsible for verifying the QA/QC of the CERCLA Remedial Action. This began with review and approval of the remedial design, remedial action work plan, and construction drawings and specifications. Verification that cleanup criteria for CERCLA contaminants were achieved in the excavations was performed via field oversight of confirmation sampling, excavation, and backfill activities and review of results. QC activities included confirmation sampling of excavation bottoms and sidewalls as necessary, use of electronic survey methods to record the limits of excavation, testing of excavation material for disposal characterization, and adherence to approved plans and standard operating procedures. Field oversight and weekly construction meetings verified that other remedial activities were performed in accordance with the approved plans. Based on the above, the Performing Defendants' construction contractors performed the work in accordance with the EPA and MassDEP-approved remedial designs and remedial action work plans. The only slight deviation from the ROD was that the selected remedy called for extension of the public water supply line and connection to two residences adjacent to the Site with private wells (Union Road Houses 1 and 2). However, prior to completion of the CERCLA remedial construction, both residences were demolished and the two private wells were properly abandoned. Additionally, ICs were placed on the properties that prevent groundwater extraction and prohibit future residential use of the two parcels. Due to the installation of the water line to within 500 feet of the site, MassDEP revised its Groundwater Use and Value determination from "high" to "low" within the vicinity of the site; however, the final connections were not made.

IV. SCHEDULE OF ACTIVITIES FOR SITE COMPLETION

The remaining activities associated with Site completion will be performed according to the schedule below.

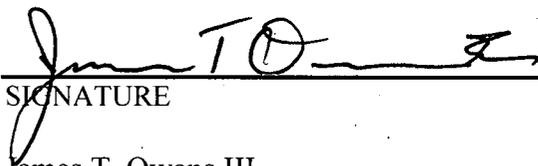
Task	Date	Responsible Organization
Final Inspection	September 2014	EPA, MassDEP
Institutional Controls Implemented	Winter 2015	Performing Defendants, Mass DEP

Final Remedial Action Report	Winter 2014-15	Performing Defendants
Operation, Maintenance and Monitoring (including fencing, groundwater and surface water, flood-abatement structures, institutional controls)	2014 - 2044	City of Attleboro
Wetland Monitoring and Maintenance	2014-2020	City of Attleboro
First Five Year Review	~ 2018 (and every 5 years thereafter)	EPA
NPL Site Deletion	TBD	EPA

V. Five-Year Reviews

Hazardous substances remain at this Site above levels which would allow for unlimited use and unrestricted exposure. Pursuant to CERCLA, Section 121(c) and 40 Code of Federal Regulations Part 340.430(f)(40(ii), as provided in the current guidance on Five Year Reviews (OSWER Directive 9355.7.03B-P), Comprehensive Five Year Review Guidance, EPA must conduct five-year reviews. The first Statutory Five-Year Review Report will be completed prior to June 12, 2018, which is five years from the initiation of construction of the remedy.

Approved by:



9/18/14

SIGNATURE

DATE

James T. Owens III

Director
Office of Site Remediation and Restoration

ATTACHMENT 1

ROD CLEANUP LEVELS

TABLES L-1 to L-3

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TABLE L-1 SOIL CLEANUP LEVELS, SHPACK SITE

Contaminant	Cleanup Level	Rationale
Dioxin (TEQ)	1.0 ppb*	EPA Directive 9200.4-26*
Radium 226	3.1 pCi/gm	10 ⁻⁵ excess cancer risk
Uranium 234	220 pCi/gm	"
Uranium 235	52 pCi/gm	"
Uranium 238	110 pCi/gm	"
Arsenic	12 ppm	"
Benzo(a)anthracene	28 ppm	"
Benzo(a)pyrene	2.8 ppm	"
Benzo(b)fluoranthene	28 ppm	"
Dibenz(a,h)anthracene	2.8 ppm	"
Lead	1400 ppm	Blood Level Modelling for an Adult Exposure
Nickel	7000 ppm	HI= 1
Total Uranium	1100 ppm	HI = 1

*In accordance with the April 13th, 1998 OSWER Directive 9200.4-26, "one ppb is to be generally used as a starting point for setting cleanup levels for CERCLA removal sites and as a cleanup level for remedial sites for dioxin in surface soil involving a residential exposure. The "adjacent resident, w/o groundwater exposure" scenario on which the remedy is based assumes approximately 150 days of exposure to site soils, which is essentially equivalent to an on-site exposure. Therefore, the cleanup goal for dioxin protective of human health is being set at 1 ppb TEQ.

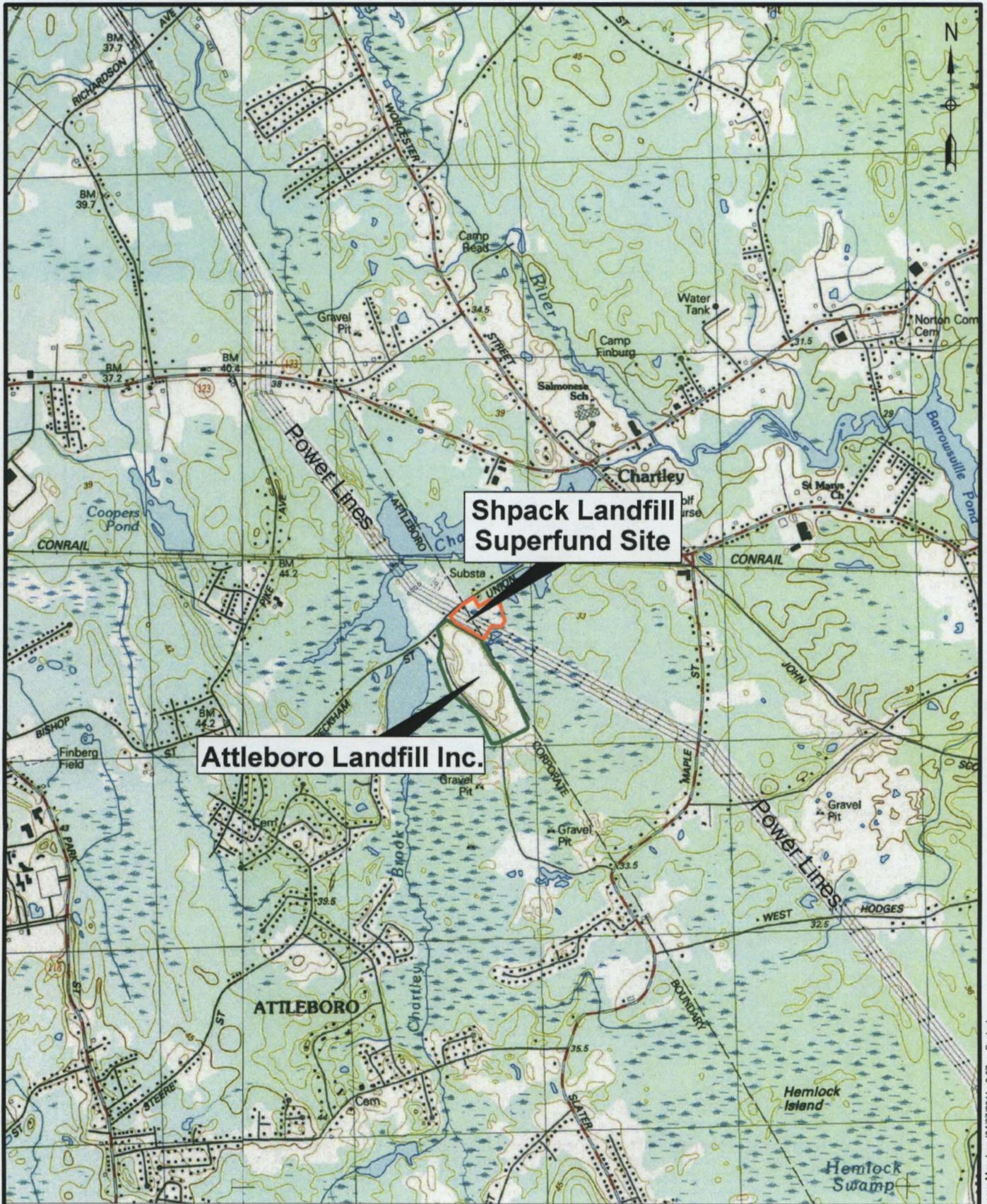
Table L-2: Cleanup Levels, Inner Rung, Chartley Swamp

Contaminant of Concern	Cleanup Level (mg/kg)	Basis
Arsenic	8.4	Food Chain model, LOED
Cadmium	6.2	"
Copper	41	"
Chromium	2,769	Food Chain, LOAEL
Lead	32	Food Chain model, LOED
Mercury	0.89	"
Silver	0.89	"
Beryllium	45	Food Chain Model, NOAEL
Zinc	1591	Food Chain Model, LOAEL

Table L-3: Cleanup Levels, Sediments in the On-Site Seasonal Wetlands

Contaminant of Concern	Cleanup Level (mg/kg)	Basis
Benzo(a)anthracene	1.2	Food Chain Model (LOAEL)
Benzo(a)pyrene	1.3	"
Benzo(b)fluoranthene	1.3	"
Benzo(k)fluoranthene	1.3	"
Chrysene	1.3	"
Dibenz(a,h)anthracene	1.3	"
Indeno(1,2,3)pyrene	1.3	"
Aroclor (1254)	0.27	"
Arsenic	188	"
Barium	853	Food Chain Model, NOAEL
Vanadium	448	Food Chain Model, LOAEL
DDT	0.027	"
Antimony	39	"
Beryllium	5	Food Chain Model, NOAEL
Cadmium	103	Food Chain Model, LOAEL
Chromium	427	"
Copper	122	"
Lead	551	"
Mercury	0.26	"
Nickel	7943	"
Silver	187	Food Chain Model, NOAEL
Zinc	437	Food Chain Model, LOAEL

FIGURES



Shpack Landfill Superfund Site

Attleboro Landfill Inc.

Scale 1:25,000

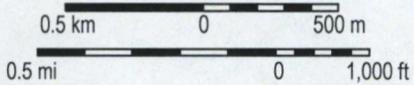
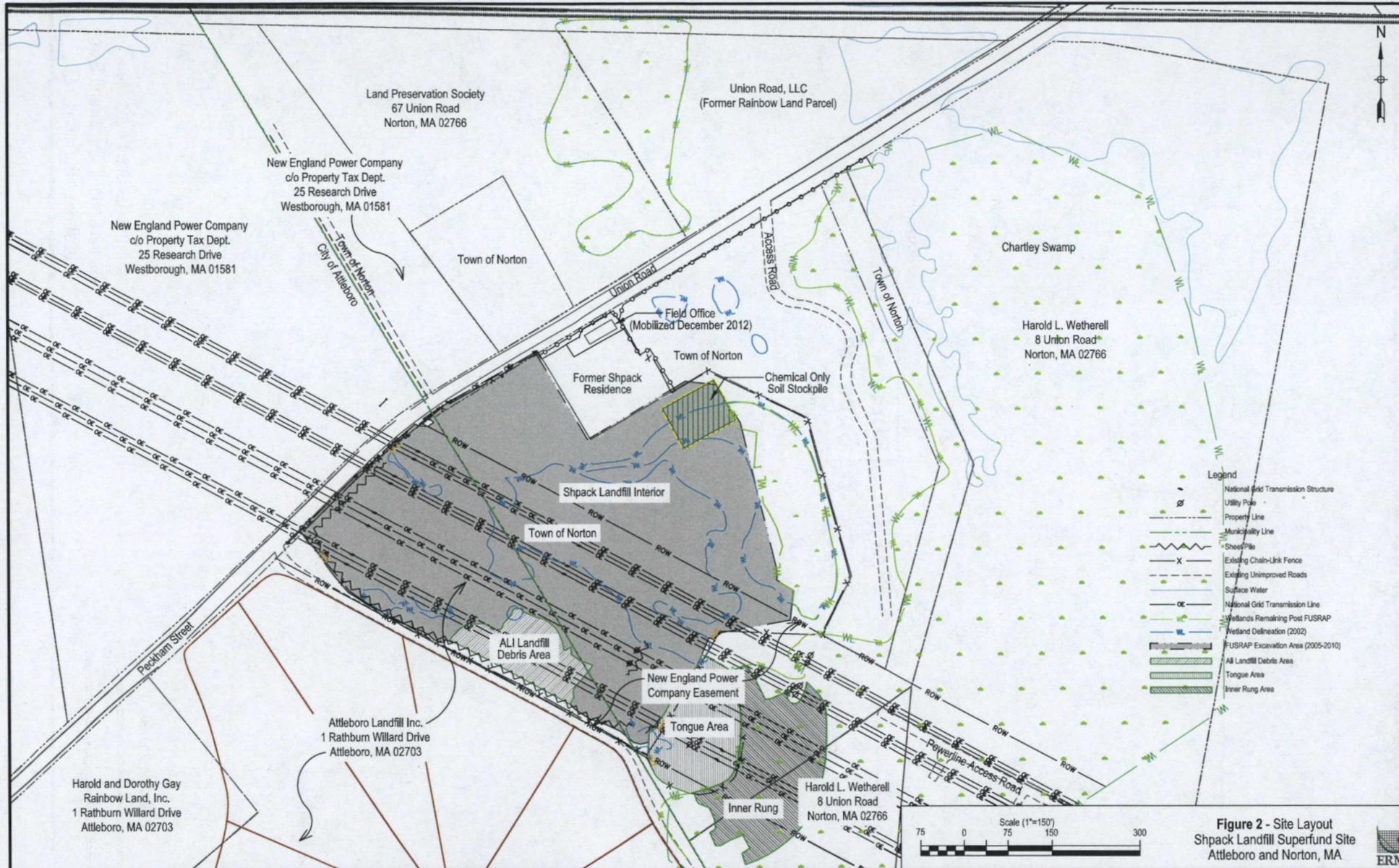


Figure 1 - Site Locus Map
 Shpack Landfill Superfund Site
 Attleboro and Norton, MA





Land Preservation Society
67 Union Road
Norton, MA 02766

Union Road, LLC
(Former Rainbow Land Parcel)

New England Power Company
c/o Property Tax Dept.
25 Research Drive
Westborough, MA 01581

New England Power Company
c/o Property Tax Dept.
25 Research Drive
Westborough, MA 01581

Town of Norton

Field Office
(Mobilized December 2012)

Former Shpack Residence
Chemical Only Soil Stockpile

Chartley Swamp

Harold L. Wetherell
8 Union Road
Norton, MA 02766

Shpack Landfill Interior

Town of Norton

ALI Landfill Debris Area

New England Power Company Easement
Tongue Area

Attleboro Landfill Inc.
1 Rathburn Willard Drive
Attleboro, MA 02703

Harold and Dorothy Gay
Rainbow Land, Inc.
1 Rathburn Willard Drive
Attleboro, MA 02703

Harold L. Wetherell
8 Union Road
Norton, MA 02766

Packham Street

Powerline Access Road

Inner Rung



FIGURE 3 - INSTITUTIONAL CONTROLS LOCATIONS

