EPA/ROD/R01-04/694
2004

EPA Superfund
Record of Decision:

SHPACK LANDFILL
EPA ID: MAD980503973
OU 01
NORTON/ATTLEBORO, MA
09/30/2004

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 1

SHPACK LANDFILL SUPERFUND SITE
RECORD OF DECISION SUMMARY
SEPTEMBER 2004

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DECLARATION FOR THE RECORD OF DECISION

A. SITE NAME AND LOCATION

Shpack Landfill Superfund Site
Norton/Attleboro, MA.
CERCLIS ID #MAD980503973

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Shpack Landfill Superfund Site, in **Norton/Attleboro, MA**, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 USC § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300 et seq.. as amended. The Director of the Office of Site Remediation and Restoration (OSRR) has been delegated the authority to approve this Record of Decision.

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 Norton Public Library and at the United States Environmental Protection Agency (EPA) Region 1 OSRR Records Center in Boston, Massachusetts. The Administrative Record Index (Appendix C) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

The Commonwealth of Massachusetts concurs with the Selected Remedy. The Commonwealth's letter of concurrence can be found in Appendix A.

C. ASSESSMENT OF THE SITE

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

D. DESCRIPTION OF THE SELECTED REMEDY

The selected remedy includes excavation and off-site disposal of material exceeding cleanup levels. This alternative eliminates the exposure pathways to soil and sediment.

The primary components of this alternative include:

- Coordination with local, state and federal agencies for excavating source area materials within a wetland and associated buffer zone;

- Preparation and implementation of a traffic control plan to adequately manage the increased volume of truck traffic associated with transportation of chemical and radiological impacted source material from the site;

- Preparation and implementation of a transportation and emergency spill contingency plan;

- Relocation of existing power line structures needed to implement the rest of the remedy in coordination with National Grid.

- Connecting two residences to public water. The two residences are identified as Union Road House 1 and Union Road House 2 in the Remedial Investigation;

- Mobilization/demobilization of all personnel and equipment to the site for construction activities;

- Clearing and grubbing areas of the site requiring excavation;

- Establishing a survey grid to conduct sequential consolidation of grid cells to minimize generation of large quantities of groundwater with one open excavation;

- Based on the selected risk scenario for the site (Adjacent Resident without Groundwater Consumption), excavation and off-site disposal of soil and sediment exceeding radiological and chemical Cleanup levels including dioxin and PCBs as identified in Tables L-l and L-3, estimated in the FS as approximately 34,445 yd^3;

- Excavation and off-site disposal of sediment from the Inner Rung and exceeding the cleanup levels listed in Table L-2, estimated by the FS to be approximately 1,111 yd^3 soil/sediment. The FS estimated this will take a period of one month;

- Dewatering of open areas as needed in each area of the Site;

- Transportation of all impacted soils via truck and rail to an approved offsite disposal facility;

- All excavated soil and sediments disposed of in accordance with TSCA and the TSCA determination included as part of this ROD;

- Placement of clean fill in open areas to backfill to grade and/or wetlands restoration/replication as appropriate;

- Vernal pools and spotted turtle habitat will be surveyed to focus on the spotted turtle and marbled salamander and evaluate the habitat for any other rare species or species of special concern that may be found on the Shpack Site;

- Vernal pools and areas containing rare or species of special concern will be protected if possible or restored/replicated if impacted - an impact minimization and habitat restoration plan prepared and followed in conjunction with this work;

- All work in wetlands areas conducted in accordance with the Wetland Determination included in this ROD. In addition, work in wetlands, including replication and restoration, must comply with the Wetlands Protection Act Regulations, 310 CMR 10 as well as all other ARARs identified for this component of the remedy.

- Installation of a temporary chainlink fence surrounding the entire site, with access gates to secure the site during the design and construction phases of the cleanup;

- Preparation and implementation of a surface water, sediment and groundwater monitoring program, including installation of additional wells around the perimeter of the Site;

- Performance of 5-year reviews to monitor effectiveness of the remedy;
- Implementation of institutional controls to restrict future use of property and groundwater.

The selected remedy is based upon a future scenario in which a resident living next to the Site (adjacent resident) is connected to a public water supply and does not drink the groundwater at the site. The excavation and off-site disposal of waste materials exceeding cleanup levels addresses the threat of exposure to human health and environmental receptors. The estimated time for construction is 9-16 months.

This Record of Decision does not address groundwater contamination at and near the site. It addresses the risk of exposure to contaminated groundwater by installing a public waterline to the two homes adjacent to the site that are currently on private wells.

The selected response action addresses principal and low-level threat wastes at the site by eliminating exposure to human and ecological receptors from contaminated groundwater, soil, and sediment. This is accomplished through excavation and off-site disposal of wastes in soils and sediments exceeding cleanup levels and installation of a waterline. Long term monitoring and institutional controls will ensure that the remedy remains protective in the future.

This is intended to be the final Record of Decision for this site. The selected remedy is a comprehensive approach for this site that addresses all current and potential future risks presented at the site. These remedial measures will prevent exposure that presents an unacceptable risk to human health and ecological receptors and meets ARARs.

E. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action (unless justified by a waiver), is cost-effective, and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable .

Based on the nature and extent of the waste materials at the site, EPA concluded that it was impracticable to excavate and treat all contaminated material in a cost-effective manner. Thus, the selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy.

Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review will be conducted within five years after initiation of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

F. SPECIAL FINDINGS

This ROD includes specific determinations made by EPA.

TSCA Determination

Under the Toxic Substances Control Act (TSCA), the Regional Administrator, EPA Region 1, finds that the remedial action selected meets the standards of 40 CFR 761.50 for remediation and that the selected remedy for excavation and offsite disposal of polychlorinated biphenyl (PCB) contaminated soil and sediment set out in this Record of Decision will not pose an unreasonable risk to human health or the environment pursuant to 40 CFR 761.61 ©).

Section 404 of the Clean Water Act and Executive Order 11990 Determinations

Under Section 404 of the Clean Water Act and Executive Order 11990 (Protection of Wetlands), EPA finds that the selected remedy, which involves excavating materials from wetland areas on the site, is appropriate as there is no practicable alternative to conducting work in the wetlands. The remedial action minimizes potential harm and avoids adverse effects to the extent practical. Best management practices will be used throughout the Site to minimize adverse impacts on the wetlands, wildlife, and its habitat. Damage to these wetlands will be mitigated though erosion control measures and proper re-grading and re-vegetation of the impacted area with indigenous species. Following excavation activities, wetlands will be restored or replicated consistent with the requirements of identified Federal and State wetlands protection laws.

G. AUTHORIZING SIGNATURE

This ROD documents the selected remedy for soils and sediments at the Shpack Landfill Superfund Site. This remedy was selected by EPA with concurrence of the Massachusetts Department of Environmental Protection.

In approval of the Toxic Substances Control Act finding only:

By: Robert W. Varney **Date:** September 28, 2004

Robert W. Varney
Regional Administrator
EPA-New England
Region 1

In approval of the Record of Decision:

By: Susan E. T. Studlien **Date:** 09/30/04

Susan E. T. Studlien, Director
Office of Site Remediation and Restoration

FIGURES

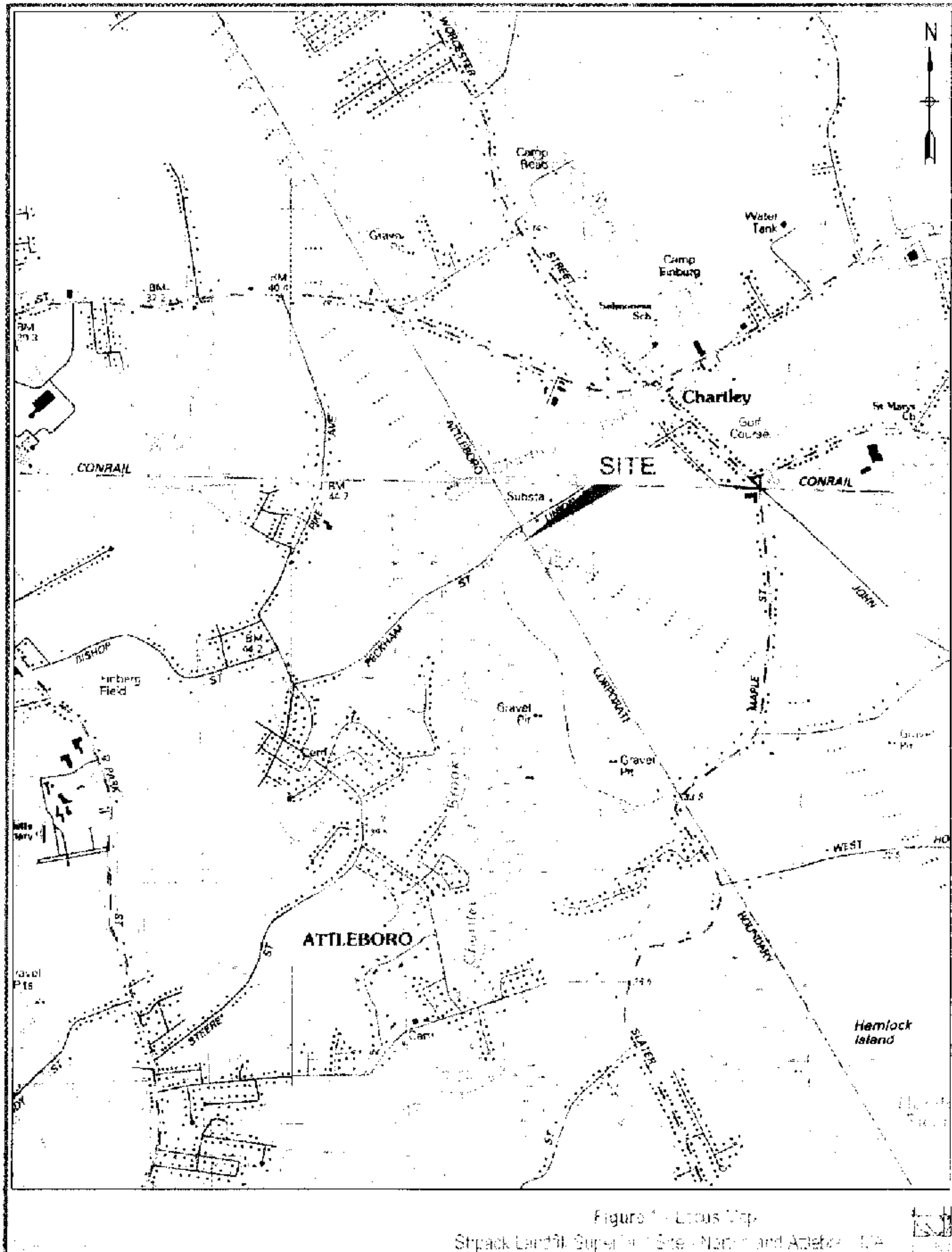


Figure 1 - Locus Map
Shpack Landfill Superfund Site - Norton and Attleboro, MA

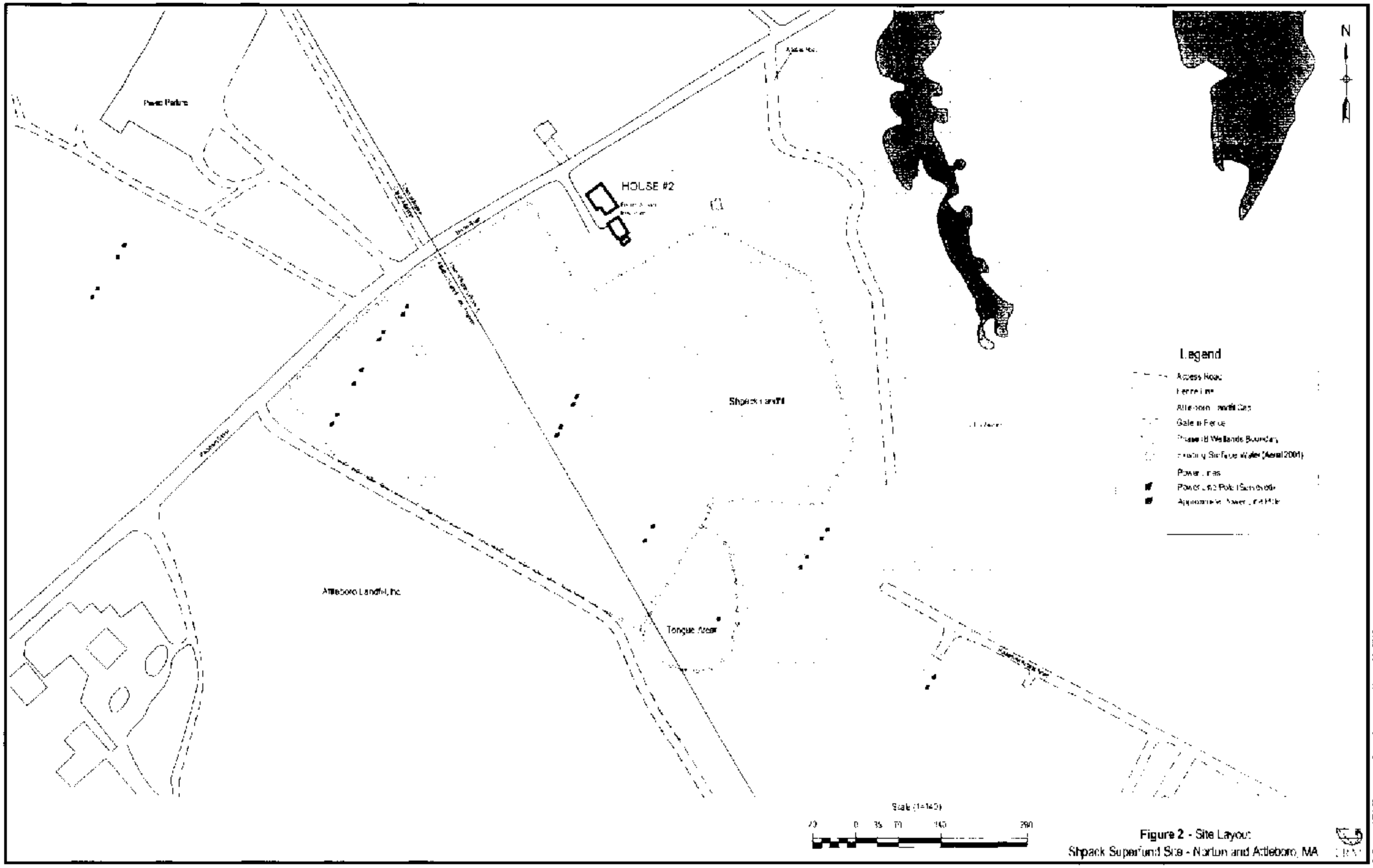
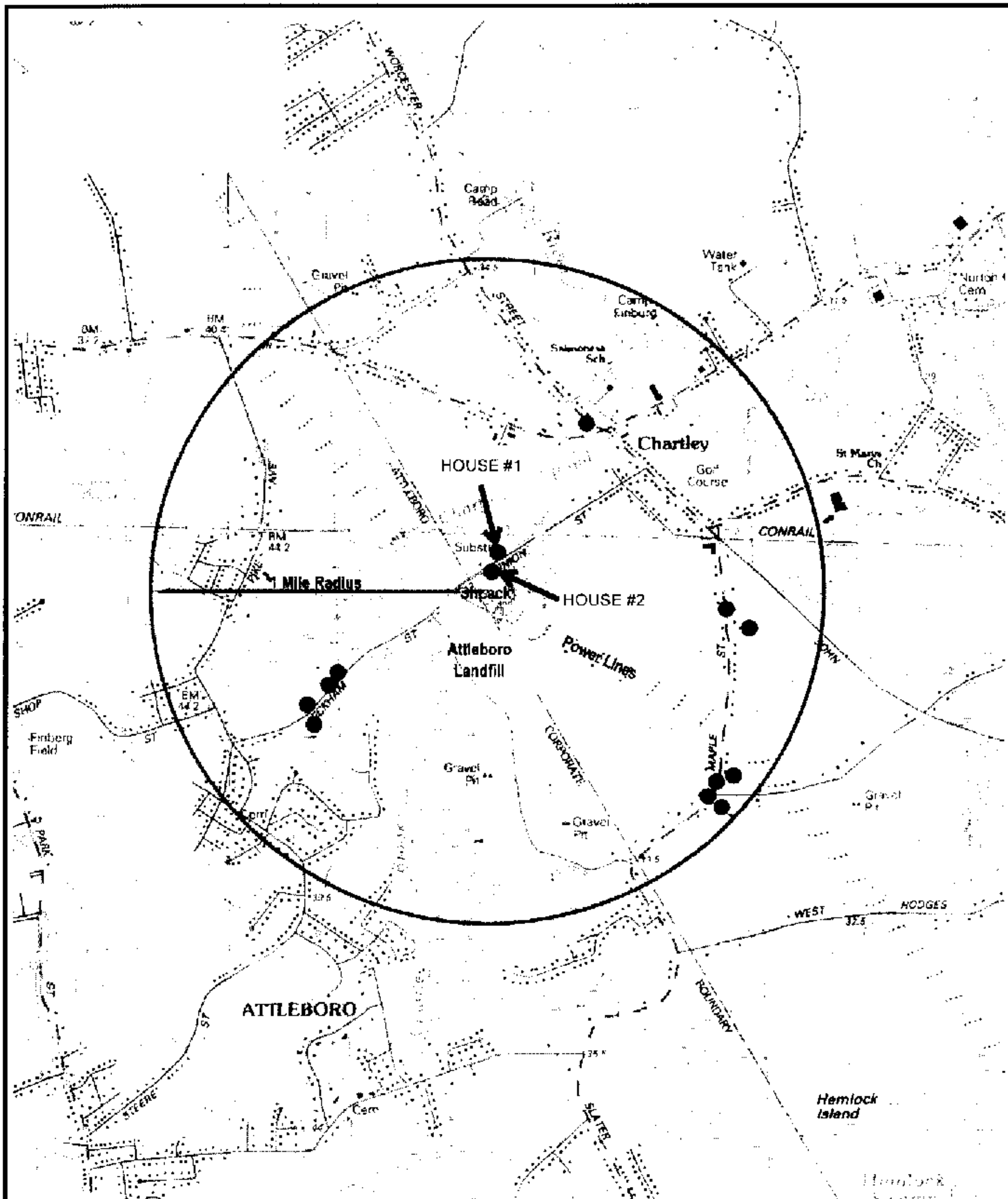


Figure 2 - Site Layout
Shpack Superfund Site - Norton and Attleboro, MA

Original includes color coding.



Legend

- Residential Drinking Water Well (Sampled)
- Fence Line
- Attleboro Landfill Cap

Scale (1"=1,800')

Figure 3 - Residential well Sampling Locations
Shpack Superfund Site - Norton and Attleboro, MA

R:\Shpack - 1551\Shpack Figures 8-28-03 v2.dwg (10/13/03 Boston)

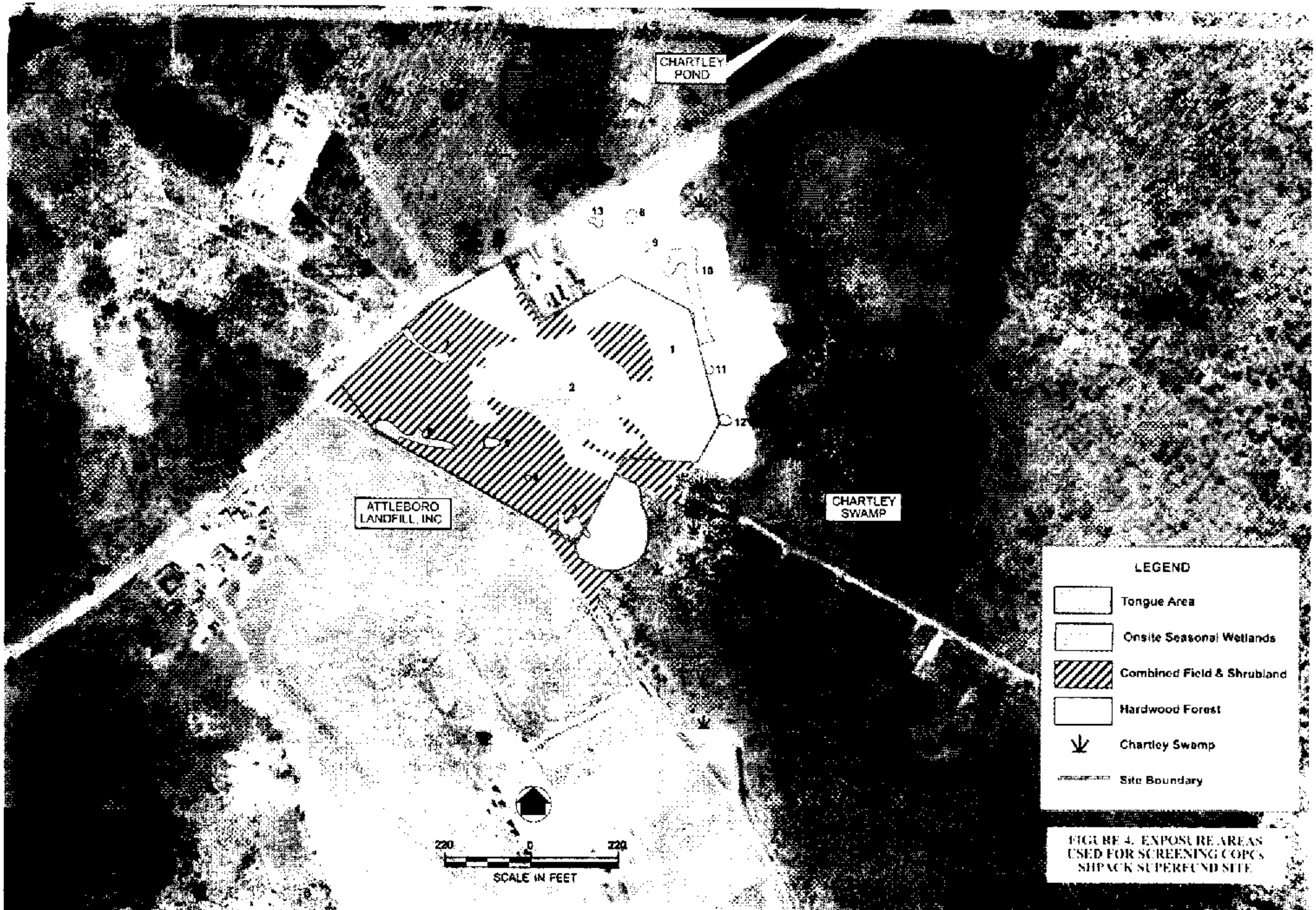
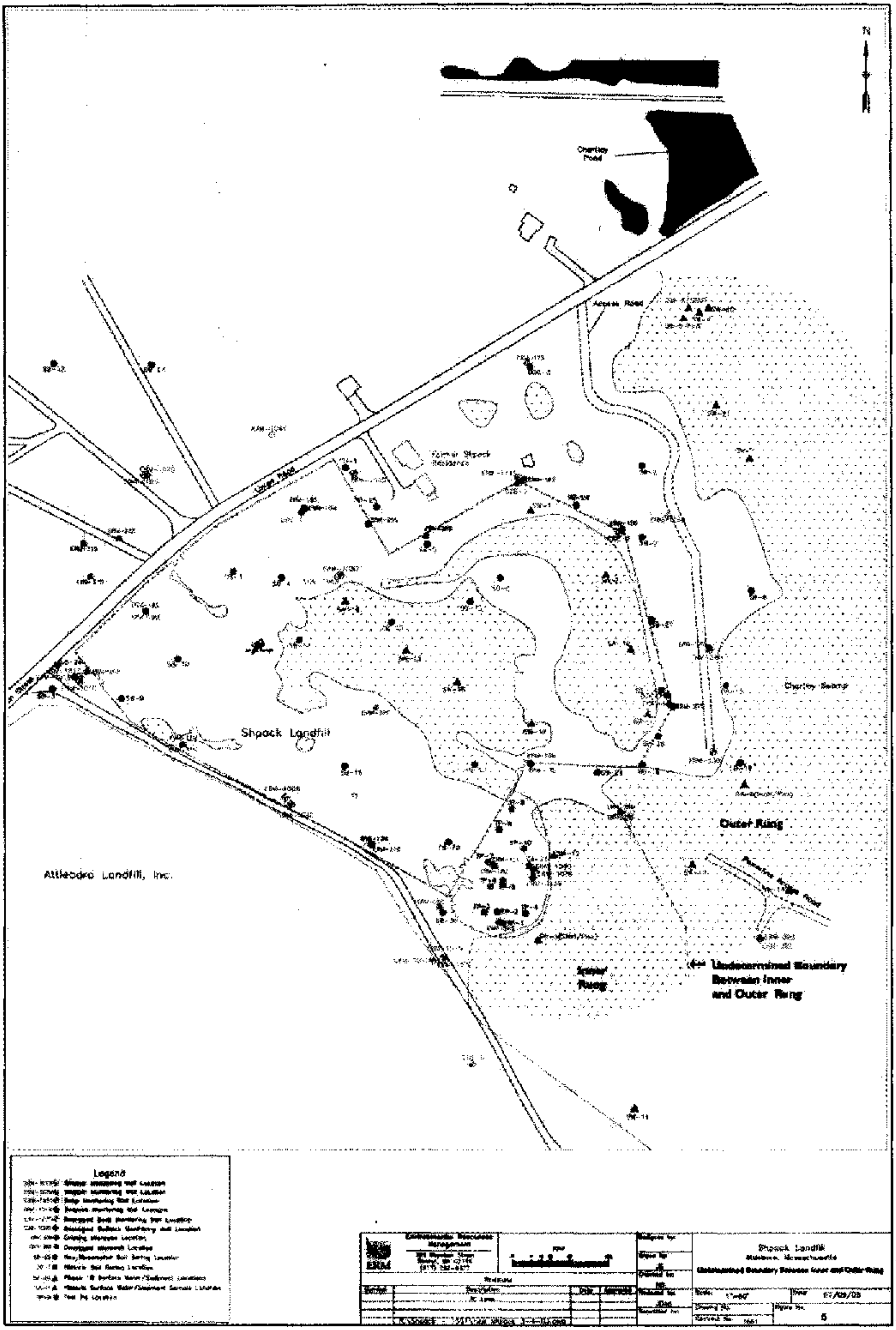


FIGURE 4. EXPOSURE AREAS USED FOR SCREENING COPCs SHPACK SUPERFUND SITE


N
Chartley Pond
Access Road
Former Shpock Residence
Shpock Landfill
Chartley Swamp
Outer Ring
Inner Ring
Undetermined Boundary Between Inner and Outer Ring
Attleboro Landfill, Inc.
Legend
ERM
Shpock Landfill
Figure No.
5

PART 2: THE DECISION SUMMARY

A. SITE NAME, LOCATION AND BRIEF DESCRIPTION

- Shpack Superfund Site, Norton/Attleboro, MA; Union Road/Peckham Street.
- National Superfund electronic database identification number, e.g., CERCLIS identification number: MAD090503973
- Lead Agency: U.S. Environmental Protection Agency, Region I
- Former site for disposal of industrial and municipal waste.

Site Description

The Shpack Site consists of 9.4 acres on the border between the Town of Norton, Massachusetts and the City of Attleboro, Massachusetts.; approximately 6.0 acres in Norton were owned by Isadore and Leah Shpack and operated as a dump. The Town of Norton now owns this portion of the Site. The adjacent 3.4 acres located in Attleboro are a small portion of the landfill currently owned by Attleboro Landfill Inc. (ALI). ALI's entire facility is approximately 55 acres in total and approximately 110 feet high and operated most recently as a landfill accepting municipal waste. With the exception of this 3.4-acre parcel that EPA is addressing, ALI Landfill is being regulated by the Massachusetts DEP's solid waste landfill program. In 1986, the United States Environmental Protection Agency (EPA) placed the Site on the National Priorities List (NPL). See Figure 1 for Locus Map of the immediate vicinity around the site.

A more complete description of the Site can be found in Section 1 of the RI Report (ERM-New England, June 2004).

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

1. History of Site Activities

Between 1946 and the 1970s, the Shpack Site received domestic and industrial wastes, including low-level radioactive waste. The filled areas where the wastes were dumped are overgrown and entirely enclosed by a chain link fence. The Site itself is relatively flat with vegetated minor depressions and knolls and was formerly a flat wetlands area. A powerline transmission corridor divides the Site into two portions. The ALI Landfill lies directly west of the site. The Site is bounded on two other sides by the Chartley Swamp that drains under Union Road to Chartley Pond. There are two homes on private drinking water wells within 500 feet of the Site. See Figure 2 for a map of site features, sampling points, and nearby landmarks

In 1980, the Shpack Site was added to the Department of Energy's (DOE) Formerly Utilized Remedial Action Program (FUSRAP), which dealt with the legacy of the nation's early atomic energy programs. The uranium discovered at the site in the late 1970's is thought to have originated from local businesses that constructed reactor cores for the early naval propulsion program from the early 1950's until the mid-sixties.

A more detailed description of the Site History can be found in Section 1.2.2 of the RI Report.

2. History of Federal and State Investigations and Removal and Remedial Actions

In 1978, a concerned citizen who had detected elevated radiation levels at the site contacted the Nuclear Regulatory Commission (NRC). The NRC conducted an investigation that confirmed the presence of radioactivity above background levels. The NRC determined that certain operations associated with government activities might have resulted in the deposition of radioactive materials within the Shpack Landfill. The primary constituents of concern found were radium and uranium. It is not known exactly when these radioactive materials were deposited at the site.

The NRC investigation concluded that the Shpack Landfill was a candidate for the FUSRAP program. On behalf of the NRC, Oak Ridge National Laboratory (ORNL) conducted a radiological survey in 1980 that identified metallic wastes containing uranium of various enrichments. The ORNL report confirmed the NRC preliminary findings and defined general areas of radiological contamination. In 1998, FUSRAP responsibility was transferred from DOE to the United States Army Corps of Engineers (US ACE) and a gamma walkover survey was performed to further delineate the radiological contamination.

In October of 1981, a security fence was installed around the site on behalf of DOE to prevent unauthorized access. With the exception of the area located in the section of the site known as the Tongue Area and an approximately 1,000-foot section of replacement fence, this fence is the same fence that currently is located on the Site. Additional studies conducted by DOE between 1982 and 1984 identified chemical contamination (volatile organic compounds (VOCs) and metals) in groundwater. In 1984, EPA evaluated the site to determine if it should be listed on the National Priority List (NPL). The site was added to the list in June 1986.

A summary of preliminary investigations performed at the Site prior to 1990 is included in Table 1 of the RI. These investigations included sampling of various environmental media and primarily focused on evaluating radiological impacts at the Site.

In 1990, a group of potential responsible parties formed the Shpack Steering Committee (SSC) and individual companies comprising the SSC entered into an Administrative Consent Order (AOC) with EPA (EPA Docket No. 1-90-1113, June 24, 1990) which required them to conduct the Remedial Investigation/ Feasibility Study (RI/FS) for the Site. In November 1991, the SSC prepared and submitted a Site Characterization Work Plan (SCWP) for the first phase of the RI, known as "Phase IA". Between 1991 and 1992, the SSC implemented Phase IA of the RI, which was a comprehensive investigation of potentially impacted media at the Site. The Phase IA identified chemical impacts in soil, groundwater, sediment and surface water at the site. Non-radioactive constituents of concern identified on Site during the Phase IA include:

- Volatile organic compounds (VOCs);
- Semi-volatile organic compounds (SVOCs);
- Polychlorinated biphenyls (PCBs);
- Pesticides;
- Dioxins/furans; and,
- Inorganics.

The results of the Phase IA RI activities were documented in ERM's 1993 Initial Site Characterization (ISC) Report. In addition, the Phase IA contains a detailed summary of the previous investigations listed in Table 1 of the RI. With the exception of residential well monitoring activities, no chemical investigation activities were performed at the Site after the Phase IA ISC Report.

In 1999, the SSC in conjunction with EPA, the Corps of Engineers FUSRAP program, and DEP began preparation of work plans to implement Phase IB of the RI. The Phase IB activities included the following:

- Monitoring well Installation;
- Groundwater sampling;
- Surface water and sediment sampling;
- Soil sampling;
- Tar area delineation;
- Well functionality and site survey;
- Site fence extension;
- Test pit excavation in Tongue Area;
- Groundwater gauging;
- Residential well sampling;
- Surface water drainage characterization

The Phase IB activities were completed in 2003. The Results of the Phase IB investigations, as well as the prior investigations are documented in the RI Report.

3. History of CERCLA Enforcement Activities

On June 7, 1990, EPA notified approximately 12 parties who either owned or operated the site property, generated wastes that were disposed of at the Site, arranged for the disposal of wastes at the Site, or transported wastes to the Site of their potential liability with respect to the Site. As a result of this notification, a group of PRPs formed a steering committee, called the Shpack Steering Committee (SSC). In 1990, EPA and the SSC entered into an Administrative Order on Consent (Docket No. 1-90-1113) which required those signing the AOC to conduct the RI/FS for the Site. The RI/FS was completed in June 2004.

On April 2, 2003, EPA notified DOE of its potential liability with regard to the Site. Beginning in 1998, as part of its FUSRAP responsibilities, USAGE has been conducting investigations of the radiological waste at the Site. Finally, a number of other parties have received "Potentially Interested Party" letters from EPA. Additional parties that have potential liability for the Site may be identified in the future.

C. COMMUNITY PARTICIPATION

Throughout the Site's history, community concern and involvement has been high. EPA has kept the community and other interested parties apprised of Site activities through informational meetings, fact sheets, press releases, and public meetings. Below is a brief chronology of public outreach efforts.

- Local residents formed the Citizen's Advisory Shpack Team (CAST) to monitor Site activities. CAST has been actively involved in organizing community review of activities conducted at the Site and providing input to the various government agencies involved at the Site.

- On numerous occasions during 2000-2004, EPA and DEP held informational meetings at the Solmonese School in Norton, Massachusetts to update the community on the results of the Remedial Investigation and Feasibility Study.

- On November 20, 2003, EPA held an informational meeting in Norton, Massachusetts to discuss the results of the Remedial Investigation.

- On June 18, 2004, EPA published a notice of Proposed Plan in the Attleboro Sun Chronicle. The plan was made available to the public on June 24, 2004 at the Norton Public Library (25^{th}) and the EPA office repository.

- The Proposed Plan contained a proposed determination with regard to offsite disposal of PCB-contaminated material pursuant to the Toxic Substances Control Act (TSCA). The Proposed Plan also contained a draft finding that there is no practical alternative to conducting work in the wetland areas of the Site under Section 404 of the Clean Water Act and Executive Order No. 11990. There were no proposed waivers of ARARs included in the Proposed Plan.

- On June 23, 2004, EPA held an informational meeting to discuss the results of the Remedial Investigation and the cleanup alternatives presented in the Feasibility Study and to present the Agency's Proposed Plan to a broader community audience than those that had previously been involved at the Site. At this meeting, representatives from EPA, MA DEP, and the US Army Corps of Engineers answered questions from the public.

- On June 24, 2004, EPA made the administrative record available for public review at EPA's offices in Boston and on June 25th at the Norton Public Library. This will be the primary information repository for local residents and will be kept up to date by EPA.

- From June 24, 2004, the Agency held a 30-day public comment period to accept public comment on the alternatives presented in the Feasibility Study and the Proposed Plan and on any other documents previously released to the public. An extension to the public comment period was requested and as a result, the comment period was extended to August 25, 2004.

- On July 21, 2004, EPA published a notice of the extension of the comment period as well as a rescheduled public hearing date (August 4, 2004) in the Attleboro Sun Chronicle.

- On August 4, 2004, the Agency held a public hearing to discuss the Proposed Plan and to accept any oral comments. A transcript of this meeting and the comments and the Agency's response to comments are included in the Responsiveness Summary, which is part of this Record of Decision.

D. SCOPE AND ROLE OF RESPONSE ACTION

The selected remedy was developed by combining components of different source control activities to obtain a comprehensive approach for Site remediation. In summary, the remedy provides elimination of the threat posed by exposure to contaminated soil and sediment exceeding cleanup levels through excavation and disposal off site. Groundwater threats are being addressed by connecting impacted residents to a public waterline and through the imposition of institutional controls.

The soil and sediment component of the selected remedy is based upon a future exposure scenario that envisions a resident that lives next to the landfill (adjacent resident) who is connected to a public water supply and therefore does not use site groundwater for drinking water, etc. EPA believes the adjacent resident scenario is the most realistic exposure scenario for this site. It is highly unlikely that the Site could be used for residential development given that most of the Site consists of wetlands and is bisected by high tension power lines. This cleanup plan is also protective for potential future passive recreation at the site.

The selected remedy does not address Site groundwater. This decision is based upon recent MADEP correspondence with EPA that indicates the State may revise the "use and value" of this aquifer downward from its current designation as "high" to a "low" or "medium" use and value should adjacent residents abandon their existing wells, connect to the public water supply system, and restrict the installation of future wells.

In its concurrence letter to EPA, Massachusetts stated that once the remedial action has been implemented and private drinking water wells eliminated, this portion of the aquifer would no longer be considered a current or future water supply under the Massachusetts Contingency Plan. At that point, MA DEP will revise its Groundwater Use and Value Determination to a low use and value provided these wells are decommissioned and controls placed on these properties that prohibit the future use of groundwater.

EPA understands that once the remedial action has been implemented and private drinking water wells eliminated as described above, MA DEP will send to EPA its revised use and value determination documenting this revision.

In these circumstances, given MA DEP's commitment to issue a revised use and value determination once the remedial action has been implemented, EPA, in selecting the remedy, believes it is appropriate to issue a low use and value determination for this portion of the aquifer. This determination is consistent with EPA's "Groundwater Use and Value Determination Guidance."

A "low" use and value determination here means that EPA does not consider this groundwater suitable as a drinking water source. As a result, the selected remedy does not address groundwater contamination.

E. SITE CHARACTERISTICS

Principal threat wastes are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. The manner in which principal threats are addressed generally will determine whether the statutory preference for treatment as a principal element is satisfied. Wastes generally considered to be principal threats are liquid, mobile and/or highly-toxic source material.

Low-level threat wastes are those source materials that generally can be reliably contained and that would present only a low risk in the event of exposure. Wastes that generally considered to be low-level threat wastes include non-mobile contaminated source material of low to moderate toxicity, surface soil containing chemicals of concern that are relatively immobile in air or ground water, low leachability contaminants or low toxicity source material.

Nature and Extent of Contamination

This section presents the nature and extent of impacts at the Site. The distribution of impacts is presented by media and class of compounds to document the location of areas of concern at the Shpack Site.

For the purposes of presenting the data in the RI, the Site was divided into two separate areas, as follows:

- ***Landfill Interior*** - This area includes all sampling locations inside the chain link fence surrounding the Site, including the Tongue Area and samples collected between Shpack and the ALI Landfill. (Now referred to as Site Interior)

- ***Outside the Fence*** - This area includes all sampling locations outside the chain link fence north and east of the Site.

In general, waste disposal practices at the Site have resulted in a highly variable distribution of constituents of concern in soil and groundwater across the Site Interior. Although hot spots exist, a discernable pattern of contaminant distribution was not observed (e.g. a discrete source area with a plume emanating from it). Although impacts have been identified Outside the Fence, they are generally located immediately adjacent to the Shpack Site interior. A description of the type and distribution of impacts identified at the Site is provided below.

Background Environmental Quality

Background reference samples for chemical constituents in soil, groundwater, sediment and surface water were collected as part of the RI The following samples were collected as part of the Phase IB field activities and were designated as background for the purposes of evaluating the data:

- Soil - SB-22, SB-23, ERM-102D, ERM-104S;
- Groundwater - ERM-102D, ERM-102S, ERM-104D, ERM-104S; and
- Surface Water and Sediment - SW-4 (D), SW-10 (D), SW-11 (D), SW-22 (D), and SW-23 (D).

In addition, in March 2004, additional background samples were collected in support of the Screening Level Environmental Risk Assessment or "SLERA" (M&E, 2003) and the Baseline Environmental Risk Assessment, or "BERA" (M&E, 2004). The following samples collected as part of this sampling event were identified as background samples:

- Soil - SB-32, SB-33, SB-34, SB-35, SB-36, SB-37, SB-38, and SB-39; and
- Surface Water and Sediment - SW-24, SW-25, SW-26, SW-27, SW-28, SW-29, and SW-30.

Analytical data for background samples are included in data tables for each media. Sampling locations are depicted on Figure 3 of the RI. In addition, data included in the 1981 ORNL *Radiological Survey of the Shpack Landfill* (ORNL, 1981) provided background data for radiological compounds detected at the Site.

Soil

Soil samples were collected during the RI from various locations and depths across the Site. The analytical program was designed to evaluate impacts from waste disposal activities across the entire Site; therefore, the majority of soil samples collected at the Site were analyzed for a broad suite of chemical parameters.

The following subsections present the distribution of contaminants of concern in Site soils to give a site-wide perspective on the occurrence and concentration of contaminants of concern. The soil data was divided into two segments, as follows:

- ***Shallow Soil*** - This data set represents soil samples collected from ground surface to a maximum depth of two feet below ground surface (bgs).

- ***Deep Soil*** - This data set represents soil samples collected deeper than two feet bgs.

Distribution of Volatile Organic Compounds (VOCs) in Soil

The distribution of volatile organic compounds (VOCs) in shallow and deep soil samples is displayed on Figures 11 and 12 of the RI, respectively. Analytical data for VOCs detected in soil are presented in Table 6A of the RI . VOCs were not detected in shallow or deep background soil sampling locations (SB-22, SB-23, and ERM-102D).

The type and distribution of VOCs in soil demonstrate the following:

- The highest VOC concentrations in shallow soil are located in the north-central portion of the Site.
- The highest VOCs concentrations in deep soil are located southwest of the Site, on the ALI Landfill.
- Chlorinated solvents, including trichloroethene (TCE), tetrachloroethene (PCE), 1,2-dichloroethene and cis-l, 2-dichloroethene (cis-l, 2-DCE) were the primary VOCs detected. These compounds were detected at one to two orders of magnitude above any other VOC compound in soil.

A detailed summary of the various classes of compounds detected in soil is provided below.

VOCs in Shallow Soil - Site Interior

A total of 20 samples from shallow soil in the Site Interior were analyzed for VOCs. The highest concentration of total VOCs detected in shallow soil in the Site Interior was 3,380 micrograms per kilogram (ug/kg) at location SB-4. The predominant compound detected in SB-4 was TCE, at a concentration of 3,300 ug/kg. Total VOCs were detected above 1,000 micrograms per kilogram (ug/kg) at two other locations, SB-6 (1,470 ug/kg) and SB-12 (2,340 ug/kg). The predominant compound detected in SB-6 was TCE (1,000 ug/kg) and in SB-12 was 1,2-DCE (2,100 ug/kg). All three sampling locations (SB-4, SB-6 and SB-12) were located in the north-central portion of the Site Interior, as shown on Figure 11 of the RI. The spatial distribution of these compounds does not indicate a distinct or localized source area.

VOCs were detected below 100 ug/kg at 14 of the 20 sample locations, and between 100 and 1,000 ug/kg at three locations.

VOCs in Shallow Soil - Outside the Fence

A total of 11 samples from shallow soil Outside the Fence were analyzed for VOCs (Figure 11 of the RI). VOCs were detected at three of the 11 sampling locations. The highest concentration of total VOCs detected in shallow soils Outside the Fence was 29 ug/kg at SB-25, located north of the Site on the Shpack Residence property. Acetone was the only compound detected at SB-25, which is not consistent with the predominant VOC impacts (e.g. chlorinated solvents) in shallow soil in the Site interior.

VOCs in Deep Soil - Site Interior

A total of 13 samples from deep soil in the Site Interior were analyzed for VOCs (Figure 12 of the RI). The highest concentration total VOCs in deep soil was 54,300 ug/kg at ERM-107M (10-12 feet bgs), located on the ALI Landfill. The predominant compounds detected in this sample included:

- PCE = 38,000 ug/kg; and
- TCE = 13,000 ug/kg.

As shown on Figures 7 through 9 of the RI, ERM-107M is located upgradient of Shpack. The second highest concentration of total VOCs detected in deep soil was 11,088 detected in TP-3 (4-6 feet bgs), located on the Tongue Area, immediately downgradient of ERM-107M. This sample contained cis-l, 2-dichloroethene (cis-l, 2-DCE) at a concentration of 11,000 ug/kg. Cis-l, 2-DCE is a degradation product of both PCE and TCE.

VOCs in Deep Soil - Outside the Landfill

A total of six deep soil samples were collected from Outside the Fence and analyzed for VOCs. VOCs were detected at one sampling location, SB-1, at a maximum concentration of 26 ug/kg total VOCs. SB-1 is located on the Shpack Residence property. PCE is the only compound detected in this sample, and is consistent with the type of VOCs (i.e. chlorinated solvents) detected in the Shpack Landfill.

Distribution of SVOCs in Soil

The distribution of semi-volatile organic compounds (SVOCs) in shallow and deep soil samples is displayed on Figures 11 and 12 of the RI, respectively. Analytical data for SVOCs detected in all soil samples is presented in Table 6B of the RI. SVOCs were detected in all shallow and two-thirds of the deep background soil sampling locations (SB-22, SB-23, and ERM-102D).

The type and distribution of SVOCs detected in soil samples collected at the Site demonstrate the following:

- SVOCs were detected in all areas of the Site Interior and the distribution of SVOCs does not indicate a distinct or localized source of SVOCs.
- The predominant type of SVOCs detected in soil at Shpack include both pyrogenic (i.e. combustion-based) and petrogenic (i.e. petroleum-based) polycyclic aromatic hydrocarbons (PAHs) and phenols. This is consistent with the nature of waste disposal activities with variable waste streams.
- The highest total SVOC concentration in soil is located on the ALI Landfill at ERM-101B.
- Where detected, SVOCs were generally detected at the detection limit or slightly above the detection limit Outside the Fence.

A detailed summary of the various classes of compounds detected in soil is provided below.

SVOCs in Shallow Soil - Site Interior

A total of 20 shallow soil samples were collected and analyzed for SVOCs in the Site Interior (Figure 11 of the Rf). SVOCs were detected at all sampling locations in the Site Interior. The highest total SVOC concentrations detected in shallow soil in the Site Interior are as follows:

- SB-4 (710,060 ug/kg) in the north central portion of the Shpack landfill; and
- SB-9 (396,860 ug/kg) in the western portion of the Shpack Landfill.

All samples collected from the Site Interior contained SVOC compounds. Co-located samples collected as part of the Phase IA and Phase IB at both SB-4 and SB-9 soil boring locations indicate significant variability between the two data sets. The samples collected at SB-4 and SB-9 during the Phase IA contained total SVOC concentrations two to three orders of magnitude higher than concentrations detected in the same location during the Phase IB (Figure 11 of the RI). The temporal heterogeneity displayed between data sets may be attributable to variability of waste materials.

Of the remaining 18 shallow soil samples collected from the Site Interior, seven contained total SVOC concentrations between 10,000 and 100,000 ug/kg, and the remaining 11 samples contained total SVOCs below 10,000 ug/kg.

In general, SVOCs were detected in all areas of the Site, with localized areas of elevated concentrations (e.g. hotspots), and do not display a discernable pattern of distribution, which is consistent with the waste disposal practices at the Site (e.g. no point source).

SVOCs in Shallow Soil - Outside the Landfill

A total of 12 shallow soil samples were collected and analyzed for SVOCS Outside the Fence. SVOCs were detected at seven of the 12 locations. Two locations (SB-1, and SB-26) contained total SVOCs above 100 ug/kg, with the highest concentration (354 ug/kg) detected at SB-1 located on the former Shpack Residence property.

In general, the concentrations of SVOCs in shallow soils Outside the Fence were highest immediately adjacent to Shpack and decrease moving east.

SVOCs in Deep Soil - Site Interior

A total of 13 deep soil samples were collected and analyzed for SVOCs. The highest concentration of total SVOCs was 2,686,000 ug/kg, detected at ERM-101B (6-8 feet bgs) located on the ALI Landfill (Figure 12 of the RI). Only two other locations in the Site Interior contained total SVOCS at concentrations exceeding 100,000 ug/kg, including:

- SB-4 (193,680 ug/kg) in the north-central portion of Shpack;
- SB-9 (167,550 ug/kg) in the western portion of the Shpack;

Two locations contained total SVOCs between 10,000 ug/kg and 100,000 ug/kg, including:

- SB-16 (16,834 ug/kg) in the central portion of Shpack; and
- TP-3 (83,100 ug/kg) located in the Tongue Area.

All other deep sampling locations in the Site Interior contained total SVOCs below 10,000 ug/kg.

The distribution of SVOCs in deep soil in the Site Interior is varied and does not display a discernable pattern, although localized areas with elevated concentrations exist.

SVOCs in Deep Soil - Outside the Fence

A total of three deep soil samples from Outside the Fence were analyzed for SVOCs. SVOCs were detected in one (SB-1) at a concentration of 5 ug/kg. This concentration is below the background concentration of 185 ug/kg.

Distribution of Pesticides and PCBs in Soil

The distribution of pesticides and polychlorinated biphenyls (PCBs) in shallow and deep soil samples is displayed on Figures 11 and 12 of the RI, respectively. Analytical data for pesticides and PCBs detected in all soil samples are presented in Table 6C of the RI. Pesticides and PCBs were not detected in shallow or deep background soil sampling locations (SB-22, SB-23, and ERM-102D).

The type and distribution of pesticides and PCBs detected in soil samples collected at the Site demonstrate the following:

- PCBs were only detected in the Site Interior and pesticides were detected in both the Site Interior and Outside the Fence.
- A discernable pattern of the lateral or vertical distribution of PCBs and pesticides impacts was not identified, which is consistent with the nature of waste disposal activities (e.g. variable waste deposition).
- A total of three Aroclors were detected, including Aroclors 1248, 1254 and 1260.
- A wide range of pesticides were detected in soil.

A summary of the PCBs and pesticides detected in soil is provided below.

Pesticides and PCBs in Shallow Soil - Site Interior

A total of 20 shallow soil sampling locations in the Site Interior were analyzed for PCBs (Figure 11 of the RI). The highest total PCB concentration detected in the Site Interior was 2,270 ug/kg at soil sampling location SB-13 (0-2 feet bgs) in the central portion of the Site. Aroclor 1248 was the primary component, at a concentration of 2,000 ug/kg. PCBs were also detected in a co-located sample at a concentration of 280 ug/kg, resulting in an average concentration of 1,275 ug/kg total PCBs at this location. At the remaining 19 sampling locations, total PCBs were detected below 100 ug/kg at nine locations and below 1,000 ug/kg at ten locations. The lateral distribution of PCB detections is heterogeneous across the Site and does not indicate a discrete source area or "hot spot".

A total of 20 shallow soil samples in the Site Interior were analyzed for pesticides. The highest total pesticide concentration detected was 1,180 ug/kg at soil sampling location SB-16 in the southern portion of the Site. Pesticides were detected in a co-located sample at a concentration of 119.9 ug/kg, resulting in an average total pesticide concentration of approximately 650 ug/kg. Total pesticides were detected below 100 ug/kg at all other sampling locations, except for sampling location SB-13 (200.78 ug/kg), which was located in the central portion of the Site.

Pesticides and PCBs in Shallow Soil - Outside the Fence

A total of 12 shallow soil samples Outside the Fence were analyzed for PCBs. PCBs were detected at two locations, SB-18 (15 ug/kg) east of the Site and SB-2 (7.9 ug/kg) north of the Site.

A total of 12 shallow soil samples Outside the Fence were analyzed for pesticides. Total pesticides were detected at six locations, with the maximum concentration of 10.89 ug/kg detected at SB-25 located on the former Shpack Residence property, north of the Site.

Pesticides and PCBs in Deep Soil - Site Interior

A total of 12 deep soil samples in the Site Interior were analyzed for PCBs (Figure 12 of RI). The highest concentration was 420 ug/kg, detected at location SB-4 (2-4 feet bgs), located in the north central portion of the Site. PCBs were not detected at seven of the 12 sampling locations. At the remaining five locations, PCBs were detected below 100 ug/kg at all locations, except ERM-105D, located near SB-4 in the north central portion of the Site.

A total of 12 soil samples from the Site l interior were analyzed for pesticides. Pesticides were detected at six of the 12 sampling locations. The highest concentration of pesticides was 74.8 ug/kg, detected at location SB-13 (2-4 feet bgs) in the center of the Site.

Pesticides and PCBs in Deep Soil - Outside the Fence

A total of three deep soil sampling locations were analyzed for pesticides and PCBs Outside the Fence. Pesticides and PCBs were not detected in any of the deep samples analyzed from Outside the Fence

Distribution of Dioxins/Furans in Soil

A total of two sampling locations from the Site Interior were submitted for analysis of dioxins/furans. Table 6D of the RI contains a summary of dioxins/furans detected in soil samples collected at the Site. Dioxins/furans were detected at both sampling locations. The highest concentration of total dioxins/furans was detected at ERM-105D (0-2 feet bgs) at approximately 30 ug/kg. Dioxins/furans were not detected in the deeper sample (22-24 feet bgs) collected at this location.

Distribution of Inorganics in Soil

A total of 68 soil samples were submitted for laboratory analysis of inorganics (which included metals and cyanide) during the RI. Table 6E of the RI contains a summary of inorganic constituents detected in soil samples collected at the Site. In general, the distribution of inorganics in soil indicated the following:

- The highest concentrations were located in the Tongue Area and the north central portion of the Site Interior, near ERM-105, SB-13, SB-4 and SB-12.
- The concentrations Outside the Fence were one to three orders of magnitude lower than the concentrations in the Site Interior.

The concentration often selected inorganics in shallow and deep soil are plotted on Figures 13 and 14 of the RI, respectively. The plotted data includes only those compounds detected above the maximum concentration (rounded up) in background samples SB-22, SB-23, ERM-102D or ERM-104S. A summary of the distribution of inorganics shown on these figures is as follows:

- Inorganics in soil exceeding maximum background concentrations were primarily constrained to the Site Interior.
- The distribution of inorganics detected above background on Site was variable across the Site Interior and is consistent with the nature of waste disposal activities (i.e. heterogeneous deposition).
- The highest concentrations of cadmium, chromium, nickel and zinc in both shallow and deep soils were in the Tongue Area (with the exception of zinc in shallow soil).
- The highest concentrations of arsenic in both shallow and deep soils were located in the western portion of the Site Interior

- The highest concentrations of lead in both shallow and deep soils were located in the north central portion of the Site Interior.
- The highest concentrations of barium in both shallow and deep soils were located in the northwestern and central portions of the Site.
- The highest concentrations of manganese, vanadium and silver in shallow and deep soils were located in the central portion of the Site Interior.

The extent of inorganics in soil does not appear to extend outside the Site Interior. The concentrations of inorganics in surface water and sediment (Section 4.4 and 4.5 of the RI) adjacent to the Tongue Area are consistent with elevated concentrations of metals observed in soil in the Tongue Area.

The highest concentrations of mercury were located in the southeastern portion of the Site adjacent to, and in, the Tongue Area, and at one sampling location in the north central portion of the site as follows:

- TP-1 = 41 mg/kg
- SB-17 = 30.7mg/kg
- SB-21 = 22.2 mg/kg
- ERM-103B = 8.9 mg/kg
- SB-16 = 2.2 mg/kg
- ERM-105D = 3.6 mg/kg (north central portion of site)

All other mercury detections are below 2.0 mg/kg.

Cyanide was detected in soil at five locations, with the maximum concentrations detected at SB-12 (7.1 mg/kg) and SB-10 (3 mg/kg), located in the central and western portions of the Site, respectively. Cyanide was detected at the remaining three locations below 1.0 mg/kg.

Thallium was detected in soil at five locations, with the maximum concentration detected at SB-9 (0.11 mg/kg) located in the western portion of the Site.

Antimony was detected in soil at 10 locations with the highest concentrations detected at SB-20 (75.4 mg/kg), TP-6 (67.6 mg/kg), ERM-105D (62.3 mg/kg), SB-16 (58 mg/kg), SB-13 (44.7 mg/kg), SB-4 (36.6 mg/kg), and SB-6 (35.3 mg/kg). These samples were all located on or near the Tongue Area or in the north central portion of the Site. One soil sample collected Outside the Fence, SB-24, contained antimony, at a concentration of 0.93 mg/kg. No other sample collected Outside the Fence contained antimony.

Distribution of Radiological Parameters in Soil

This section summarizes analytical results and interpretations based upon information collected by the USAGE for radiological parameters in soil. Soil samples were collected at 135 locations for laboratory analysis of radiological parameters. Table 6F of the RI contains a summary of laboratory analytical results for radiological parameters analyzed as part of the Focused Site Inspection performed by Cabrera, the contractor for the USAGE. For the purposes of displaying the nature and extent of radiological soil impacts, the distributions of uranium (235U and 238U) and radium (226Ra and 228Ra), have been plotted on Figure 15 of the RI (provided by Cabrera) as representative indicator compounds. Due to the variability of concentrations of radiological parameters detected, the scale of contaminant concentrations is different for each parameter. As shown on these figures, both radium and uranium were detected across the majority of the Site. The highest concentrations of radiological parameters are summarized in the following table:

Parameter	Location	Depth (feet bgs)	Concentration (pCi/g)
^{235}U	1274	1 - 3	730
	1278	1 - 3	311
	1224	1 - 3	185
	1096	1 - 3	174
	1286	1 - 3	90
	1136	1 - 3	46.1
^{238}U	1274	1 - 3	14,200
	1224	1 - 3	6,900
^{226}Ra	1281	0 - 2	1,600
	1100	1 - 3	730.99
^{228}Ra	1274	1 - 3	4.6
	1273	1 - 3	4.25

As shown on Figure 15 of the RI, elevated concentrations of uranium and radium were detected in discrete areas of the Site. The highest concentration of ^{228}Ra (4.6 picorcuries per gram (pCi/g)) is collocated with the highest concentration of ^{235}U and ^{238}U (730 and 14,200 pCi/g, respectively) in the southeastern portion of the Site, near borings 1273 and 1274. However, the highest concentrations of ^{226}Ra detected at borings 1281 (1,600 pCi/g) and boring 1100 (730.99 pCi/g) in the northern and eastern edges of Wetland #2 are not collocated with the highest concentrations of either ^{235}U or ^{238}U.

<u>Groundwater</u>

Groundwater samples were collected from 25 monitoring wells in 1992 and from 30 monitoring wells in 2002 as part of the RI. The following subsections present the distribution of contaminants in groundwater. Figure 16 of the RI displays the distribution of organic compounds detected in groundwater in the Site Interior and Outside the Fence. Tables 7 A, 7B, and 7C of the RI contain summaries of VOCs, SVOCS, and inorganics, respectively, detected in groundwater at the Site. In general, groundwater analytical data indicated the following:

- VOCs detected in groundwater were primarily chlorinated solvents and were located in three discrete areas. The highest concentration of total VOCs are located at well cluster ERM-107, located upgradient of the Shpack Site on the ALI Landfill.
- The distribution of VOCs in samples collected from monitoring wells in the Site Interior and Outside the Fence relative to concentrations of VOCs in perimeter/off-site monitoring wells indicate that impacts were limited to areas inside the Site Interior and do not appear to be migrating Outside the Fence.
- The elevated levels of SVOCs detected in soil do not appear to have significantly impacted groundwater quality.

A summary of the groundwater data is presented below.

Distribution of VOCs in Groundwater

VOCs were detected at 25 of the 30 groundwater sampling locations at the Site (Figure 16 of the RI). Concentrations of total VOCs were detected at relatively low levels (below 100 micrograms per liter (ug/1)) at 20 of the 25 locations where total VOCs were detected. The five detections of total VOCs greater than 100 ug/1 primarily contain chlorinated solvents (e.g. TCE, 1,2-DCE, cis-l, 2-DCE, etc.) and were located in three discrete areas, as follows:

Tongue Area - One well triplet, ERM-107, located on the ALI Landfill, upgradient of the Tongue Area, contained three of the five concentrations greater than 100 ug/1 and the highest concentration detected, 173,000 ug/1 (ERM-107M, Phase IA).

- Total VOCs were detected in ERM-107M at a concentration of 11,650 ug/1. Earlier samples at this location contained primarily TCE (84,000 ug/1) and PCE (70,000 ug/1), whereas, the more recent sample contained primarily cis-1,2-DCE (9,800 ug/1) and vinyl chloride (1,200 ug/1). The presence of these compounds likely indicates that degradation of TCE and PCE is occurring.

- Monitoring well ERM-107D contained the second highest total VOC concentration (4,150 ug/1). This sample contained PCE at a concentration of 3,400 ug/1 and TCE at a concentration of 600 ug/1.

- Monitoring well ERM-107S contained the fourth highest total VOC concentration (362 ug/1). This sample contained PCE at 180 ug/1 and TCE at 140 ug/1.

- Downgradient monitoring well cluster ERM-103 did not contain concentrations of chlorinated solvents exceeding 100 ug/1.

North Central Interior - The third highest concentration of total VOCs detected in groundwater was at ERM-105D (5,227 ug/1). This sample contained cis-l, 2-DCE at a concentration of 5,000 ug/1 and vinyl chloride at a concentration of 200 ug/1. The presence of these compounds likely indicates that degradation of chlorinated solvents is occurring. Downgradient monitoring well ERM-102D did not contain detectable concentrations of chlorinated solvents or degradation byproducts.

Eastern Interior - The final concentration of total VOCs exceeding 100 ug/1 was located in the eastern portion of the Site Interior at DOE-4 (700 ug/1). This sample contained cis-1,2-DCE at a concentration of 200 ug/1 and vinyl chloride at a concentration of 500 ug/1. The presence of these compounds likely indicates that degradation of chlorinated solvents is occurring. The nearest downgradient monitoring wells contain either low levels of chlorinated solvents (ERM-34D-4.72 ug/1) or do not contain detectable concentrations of chlorinated solvents or degradation byproducts.

In summary, total VOCs were detected at low levels across the entire Site Interior and at elevated levels in three distinct areas.

Distribution of SVOCs in Groundwater

SVOCs were detected in groundwater at eight of the 25 locations analyzed for SVOCs (Figure 16 of the RI). SVOCs were only detected in monitoring wells located in the Site Interior. In general, the non-soluble SVOC compounds detected in soil in the Site Interior have not leached to groundwater Outside the Fence.

The maximum concentration of total SVOCs detected on Site was at monitoring well ERM-105S at a concentration of 245 ug/1. (Table 7B of the RI). Total SVOCs were detected in this well at a concentration of 1.65 ug/1, which is more representative of current Site conditions. The types of SVOC compounds detected in this sample are consistent with those compounds detected in soil at this location.

The maximum concentration of total SVOCs detected during the Phase IB was 117.2 ug/1 at monitoring well ERM-107M, located on the ALI Landfill, upgradient of the Site. The majority of SVOC compounds detected in this sample are phenolic compounds that are relatively soluble.

Distribution of Pesticides and PCBs in Groundwater

Pesticides and PCBs were not detected in any of the 25 groundwater samples collected in the early round of sampling. Therefore, none of the groundwater samples collected during the later rounds were analyzed for PCBs or pesticides.

Distribution of Inorganics in Groundwater

In general, the concentrations of most inorganics detected in groundwater during the 2002-2003 sampling event are one to three orders of magnitude lower than the concentrations detected in groundwater during the 1992 sampling event. The recent sampling is most representative of current groundwater conditions at the Site.

The following table summarizes the maximum concentration of metals and cyanide detected in groundwater, the location of the maximum concentration and the area of the Site where the maximum value was detected.

Parameter	Maximum Concentration (ug/l)	Location	Area of Site
Antimony	0.96	ERM-107M	ALI Landfill
Arsenic	69.6	ERM-32D	Power line Access Road
Barium	3760	ERM-105S	Site Interior (north)
Beryllium	75.1	ERM-103D	Tongue Area
Cadmium	70.9	ERM-103S	Tongue Area
Chromium	203	ERM-103D	Tongue Area
Lead	68.1	ERM-107M	ALI Landfill
Manganese	18600	ERM-32D	Power line Access Road
Mercury	0.19*	ERM-109B	ALI portion of the Shpack
Nickel	15300	ERM-103S	Tongue Area
Selenium	4.7*	ERM-107D	ALI Landfill
Silver	4.3	ERM-105D	Site Interior (north)
Vanadium	85.4	ERM-107D	ALI Landfill
Zinc	15800	ERM-103S	Tongue Area
Cyanide	17.3*	DOE-3	Outside the Fence (north)

Notes: * - Compound was only detected at this location during 2002-2003 sampling round

As shown in the above table, the majority of the maximum concentrations of inorganics detected in groundwater are isolated to either the Site Interior in Wetland #2, or Outside the Fence, adjacent to the Tongue Area. The inorganic constituents of concern detected in groundwater are consistent with those detected in soil.

The concentrations of inorganics detected in background groundwater sampling locations, ERM-102S, ERM-102D, and ERM-104S were one to three orders of magnitude lower than the maximum concentration detected on Site.

Distribution of Radiological Parameters in Groundwater

This section summarizes analytical results and interpretations provided by the USAGE for radiological parameters in groundwater. Table 7D of the RI lists a summary of radiological parameters detected in groundwater in the Site Interior and Outside the Fence. Radiological parameters were detected at all groundwater sampling locations. The following table summarizes the location of the highest detections of Gross Alpha, Gross Beta, Radium, and Uranium detected on Site.

Parameter	Maximum Detection	Location	Area of Site
Gross Alpha	90 pCi/1	DOE-7	Eastern Interior
Gross Beta	143pCi/l	ERM-107S	The ALI Landfill
Radium 228	7.5 pCi/1	ERM-107M	The ALI Landfill
Uranium 232	13 pCi/l	ERM-106S	Northern Interior
Uranium 234	118pCi/l	DOE-7	Eastern Interior
Uranium 235	9.4 pCi/1	DOE-7	Eastern Interior
Uranium 238	15pCi/l	DOE-7	Eastern Interior

Gross Alpha was detected at the same order of magnitude as the maximum concentration at four locations, ERM-103B (22.9 pCi/1), ERM-103D (34 pCi/1), ERM-107M (18 pCi/1), and ERM-32D (29.2 pCi/1). These detections were located in the Tongue Area (ERM-103), on the ALI Landfill (ERM-107 and on the power line access road located east of the Shpack Site (ERM-32S). All of these samples were either located in the eastern/southeastern portion of the Shpack Site, or east of the Shpack Site.

Radium was detected at 20 locations at the same order of magnitude as the highest concentration detected during this sampling round. Based on the detections of radium in groundwater, radium was located in all areas of the site at relatively consistent concentrations. This distribution of radium in groundwater is consistent with the distribution of radium in soil.

The second highest concentrations of ^{234}U and ^{238}U were detected in the Tongue Area at ERM-103B (^{234}U = 22.6 pCi/1 and ^{238}U = 9.9 pCi/1) and ERM-103D (^{234}U = 20.6 pCi/1 and ^{238}U = 10.7 pCi/1). Concentrations of ^{234}U and ^{238}U were not identified in any other sample at this magnitude.

Surface Water

A total of 21 surface water samples were submitted for analysis of VOCs, SVOCs, PCBs and pesticides. Surface water at the site was defined as areas of seasonal standing water. Figure 17 of the RI displays the distribution of organic compounds detected in surface water in the Site Interior and Outside the Fence. As noted above, surface water located within the Site Interior was essentially isolated from surface water located Outside the Fence. In addition, surface water transport from the Site Interior was restricted due to topographical features inhibiting overland flow of surface water from the Site Interior to surface waters Outside the Fence. Tables 8A, 8B. 8C. and 8D of the RI contain a summary of VOCs, SVOCS, PCB/pesticides and inorganics, respectively, detected in surface water at the Site.

In general, surface water analytical data indicate the following:

- VOCs were detected at low levels in surface water in the Site Interior and were not detected Outside the Fence
- SVOCs were detected in surface water in the Site Interior in later sampling and were generally detected at concentrations less than 1.0 ug/1.
- Pesticides were detected in surface water in the Site Interior in later sampling and are consistent with pesticides detected in soil.
- PCBs were detected in one surface water sample collected during the early sampling rounds however, PCBs were not detected in later sampling
- The highest concentrations of metals in surface water were located Outside the Fence, immediately adjacent to the Tongue Area.

A summary of the compounds detected in surface water is presented in the following subsections.

Distribution of VOCs in Surface Water

A total of 21 surface water samples were submitted for analysis of VOCs from both the Site Interior and Outside the Fence (Figure 17 of the RI). VOCs were detected at nine locations, with the maximum concentration of 174 ug/1 total VOCs detected at SW-1 (Table 8 A of the RI). The predominant compound detected in this sample was acetone at a concentration of 170 ug/1, which was not identified during later sampling.

The most frequently detected compound was cis-l, 2-DCE, at four locations, SW-1 (1.2 ug/1), SW-15 (5.6 ug/1), SW-18 (0.38 ug/1), and SW-19 (19 ug/1). All of these surface water sampling locations were in the Site Interior wetlands.

Distribution of SVOCs in Surface Water

SVOCs were detected in surface water at six of the 14 locations sampled (Figure 17 of the RI). SVOCs were not detected at any of the sampling locations Outside the Fence (SW-4, SW-6, SW-7, SW-8 and SW-9) with the exception of SW-5, where total SVOCs were detected at 0.5 ug/1. The maximum concentration of SVOCs detected in the Site Interior is 4.5 ug/1 at SW-1. The total SVOC concentration of 4.5 ug/1 detected at SW-1 in earlier sampling was not reproduced at SW-1 during later sampling.

Distribution of Pesticides and PCBs in Surface Water

Pesticides were detected at three of the 14 sampling surface water locations, SW-15, SW-16 and SW-18, located in the Site Interior. The maximum concentration of pesticides was 0.02 ug/1 at both SW-16 and SW-18. Pesticides were not detected in surface water at any sampling location Outside the Fence.

PCBs were only detected at one surface water sampling location (SW-1) during the early sampling at a concentration of 0.43 ug/1 (Figure 17 of the RI). This detection was not confirmed in the surface water sample collected at this location during later sampling rounds. PCBs were not detected in any surface water sampling location in the Site Interior or Outside the Fence.

Distribution of Inorganics in Surface Water

A total of 23 surface water samples from the Site Interior and Outside the Fence were submitted for laboratory analysis of total and dissolved inorganics (metals and cyanide [Table 8D of the RI]). Inorganics were detected at all sampling locations in the Site Interior and Outside the Fence. Because the analysis of unfiltered samples includes the suspended particles in the water, higher levels of inorganics are expected in these samples than the filtered samples. Total inorganic concentrations are generally one to three orders of magnitude greater than dissolved concentrations (Table 8D of the RI). The remainder of this section presents the results of total inorganics findings only.

The highest concentrations of inorganics detected in surface water were observed Outside the Fence adjacent to the Tongue Area at SW-5, and in the Site Interior in Wetlands #1 and #2. A summary of the various inorganics detected in surface water is provided below.

The highest concentration of nine metals were detected at one sampling location, SW-5, located Outside the Fence, adjacent to the Tongue Area, as follows:

- Beryllium- 1,480 ug/1
- Cadmium- 121 ug/1
- Chromium - 13,300 ug/1
- Lead - 868 ug/1
- Mercury- 41.1 ug/1
- Nickel - 235,000 ug/1
- Silver- 35.9 ug/1
- Vanadium - 618 ug/1
- Zinc - 49,900 ug/1

The concentration of these nine metals are one to three orders of magnitude lower in all other samples collected at the Shpack Site. The concentration of inorganics in surface water detected at SW-5 is consistent with the concentrations detected in soil in the Tongue Area.

The highest concentration of antimony was detected in Wetland #2 in the Site Interior at locations SW-1 (24.5 ug/1 - Phase IA) and SW-2 (36 ug/1) and Outside the Fence, adjacent to the Tongue Area at SW-5 (14.9 ug/1). These concentrations are one to two orders of magnitude above the concentration of antimony detected at any other sampling locations either in the Site Interior or Outside the Fence.

The highest concentration of arsenic in surface water was detected in sampling location SW-4, located south of the Site, at a concentration of 31.4 ug/1. The next highest concentration of arsenic was detected adjacent to the Tongue Area at SW-5 at a concentration of 10.8 ug/1.

The highest concentrations of barium in surface water were detected in the Site Interior in Wetlands #1 and #2 at SW-1 (7,500 ug/1), SW-2 (4,840 ug/1), SW-15 (1,300 ug/1), SW-17 (2,430 ug/1), SW-18 (2,530 ug/1) and SW-19 (1,690 ug/1). Barium was not detected at any other sampling location above 1,000 ug/1.

The highest concentration of selenium in surface water was detected at SW-16 (8.6 ug/1), located in Wetland #2, in the Site Interior. The next highest concentration of selenium was detected in sampling locations SW-4 (6.2 ug/1) and SW-10 (8.5 ug/1) located south of the Site.

Distribution of Radiological Parameters in Surface Water

This section summarizes analytical results and interpretations for radiological parameters in surface water. Table 8 of the RI lists a summary of radiological parameters detected in surface water Outside the Fence. Radiological parameters were detected at all surface water sampling locations. The following table summarizes the location of the highest detections of Gross Alpha, Gross Beta, Radium, and Uranium detected Outside the Fence.

Parameter	Maximum Detection	Location	Sample Location
Gross Alpha	3.6 pCi/l	SW-14	Chartley Swamp (SE)
Gross Beta	12 pCi/l	SW-14	Chartley Swamp (SE)
Radium 226	220 pCi/1	SW-13	Chartley Swamp (SE)
Radium 228	4.33 pCi/1	SW-11	Near the ALI Landfill (SE)
Uranium 232	11.6 pCi/l	SW-12	Adjacent to Tongue (SE)
Uranium 234	3.26 pCi/l	SW-5	Adjacent to Tongue (SE)
Uranium 235	0.29 pCi/1	SW-5	Adjacent to Tongue (SE)
Uranium 238	2.66 pCi/1	SW-5	Adjacent to Tongue (SE)

Gross Alpha was only detected at one location (SW-14). This detection is located in Chartley Swamp southeast of the Site along the power line access road. Gross Alpha was not detected in any of the other surface water samples analyzed for radiological parameters.

Radium was detected at all seven locations at the same order of magnitude as the highest concentration detected in surface water. Radium in surface water outside of the site was detected at relatively consistent concentrations. The distribution of radium in surface water is consistent with the distribution of radium in both soil and groundwater.

The highest concentrations of ^{234}U and ^{238}U were detected immediately adjacent to the Tongue Area at SW-5 (^{234}U = 3.26 pCi/1 and ^{238}U = 2.66 pCi/1). The second highest concentrations ^{234}U and ^{238}U were detected downgradient of DOE-7 at SW-6 (^{234}U = 1.93 pCi/1 and ^{238}U = 1.92 pCi/1) and southeast of the site at SW-11 (^{234}U = 1.18 pCi/1 and ^{238}U = 1.04pCi/l).

Sediment

A total of 14 sediment samples were collected from in the Site Interior and Outside the Fence were analyzed for VOCs, SVOCs, PCBs and pesticides. In general, organic compounds were detected at low levels Outside the Fence and at elevated concentrations in the Site Interior. A summary of the distribution of each class of compounds is provided in the following subsections. Figure 17 of the RI displays the distribution of organic compounds detected in sediments in the Site Interior and Outside the Fence. Tables 9A. 9B, 9C, 9D and 9E of the RI contain summaries of VOCs, SVOCS, PCB/pesticides, inorganics, and general chemistry, respectively, detected in sediments at the Site.

Distribution of Total VOCs in Sediment

Total VOCs were detected at 10 of the 14 sediment sampling locations, with the highest concentrations detected in the central wetlands in the Site Interior (Figure 17 of the RI) . The two highest total VOC concentrations in sediment are 13,107 ug/kg and 6,436 ug/kg at SW-18 and SW-15, respectively (Table 9A of the RI). The predominant compounds detected in these samples are TCE (13,000 ug/kg) in SW-18 and cis-l, 2-DCE (6,400 ug/kg) in SW-15. The next highest concentration of total VOCs detected in any sediment sample is 52 ug/kg, detected in SW-8.

Distribution of Total SVOCs in Sediment

Total SVOCs were detected at all 14 sediment sampling locations, with the highest concentration detected in Wetland 2 in the Site Interior (Figure 17 and Table 9B of the RI). All samples collected from Wetland 2 contained total SVOCs at concentrations exceeding 10,000 ug/kg, as follows:

- SW-15 = 29,230 ug/kg;
- SW-16= 18,246 ug/kg;
- SW-17= 12,804 ug/kg; and
- SW-18 = 200,810 ug/kg;

No other sediment samples collected in the Site Interior or Outside the Fence contained total SVOCs at concentrations exceeding 1,000 ug/kg except at SW-19 where total SVOCs were detected at a concentration of 1,211 ug/kg.

Distribution of Pesticides in Sediment

Pesticides were detected at five of the 14 sediment sampling locations analyzed. (Figure 17 and Table 9C of the RI). Pesticides were not detected in any samples collected from Outside the Fence (SW-4, SW-5, SW-6, SW-7, SW-8, and SW-9). The highest concentration of total pesticides detected in sediment in the Site Interior is 1,970 ug/kg at SW-18, located in Wetland 2. The next highest concentration of total pesticides is two orders of magnitude lower, 92 ug/kg at SW-15, also located in Wetland 2.

Distribution of PCBs in Sediment

PCBs were detected at seven of the 14 sediment sampling locations collected (Figure 17 and Table 9C of the RI). PCBs were not detected in any samples collected from Outside the Fence (SW-4, SW-5, SW-6, SW-7, SW-8, and SW-9). The highest concentration of total PCBs detected in the Site Interior is 91,000 ug/kg at SW-18, in Wetland #2. The next highest concentration of total PCBs is two orders of magnitude lower, 370 ug/kg at SW-17, also located in Wetland #2.

Distribution of Inorganics in Sediment

A total of 23 sediment sampling locations from the Site Interior and Outside the Fence were submitted for laboratory analysis of total and dissolved inorganics (Table 91) of the RI). Inorganics were detected at all sediment sampling locations in the Site Interior and Outside the Fence.

The following table summarizes the maximum concentration of metals and cyanide detected in sediment on site, the location of the maximum concentration and the area of the site where the maximum was detected.

Parameter	Max. Concentration (ug/kg)	Location	Area of Site
Antimony	618	SW-18	Wetland #2
Arsenic	38	SW-7	Chartley Swamp
Barium	3,570	SW-18	Wetland #2
Beryllium	98.5	SW-12	Adjacent to Tongue Area
Cadmium	82.1	SW-12	Adjacent to Tongue Area
Chromium	1,380	SW-12	Adjacent to Tongue Area
Lead	2,970	SW-16	Wetland #2
Manganese	1,980	SW-17	Wetland #2
Mercury	4.4	SW-12	Wetland #2
Nickel	26,200	SW-12	Adjacent to Tongue Area
Selenium	3.3	SW-14	Power line Access Road
Silver	454	SW-18	Wetland #2
Thallium	0.15	SW-5	Wetland #1/Tongue Area
Vanadium	127	SW-7	Chartley Swamp
Zinc	20,800	SW-12	Adjacent to Tongue Area
Cyanide	2.1	SW-18	Wetland #2

As shown in the above table, the majority of the maximum inorganic concentrations detected in sediment were located either in Wetland #2, or Outside the Fence, adjacent to the Tongue Area. The concentration of inorganics in sediment detected in background sampling locations, SW-10, SW-11, SW-22 and SW-23 were one to three orders of magnitude lower than the maximum concentration detected on Site.

Residential Wells

In 2001, 2002, and 2003, samples of drinking water were collected from residential wells near Shpack as part of Phase IB investigation activities. The analytical program was designed to evaluate potential impacts to private drinking water supply wells. Figure 3 shows the location of the wells sampled, as well as the location of the two closest wells, Union Road House 1 and Union Road House 2. Water samples were collected from wells at following residences:

Town of Attleboro	Well Depth	Town of Norton	Well Depth
Peckham Street, House 1	unknown	Union Road, House 1	unknown
Peckham Street, House 2	unknown	Union Road, House 2	14 feet
Peckham Street, House 3	unknown	N. Worcester Street, House 1	180 feet
Peckham Street, House 4	unknown	Maple Street, House 1	75 feet
		Maple Street, House 2	140 feet
		Maple Street, House 3	200 feet
		Maple Street, House 4	200 feet
		Maple Street, House 5	unknown
		Maple Street, House 6	unknown

The following subsections present a summary of constituents identified in drinking water near Shpack. Figure 4 of the RI displays residential well sampling locations with respect to Shpack. Table 10 of the RI summarizes analytical results of residential well samples collected as part of the Phase IB Investigation. A summary of the residential drinking water data is presented below.

Distribution of VOCs in Residential Wells

A total of six VOCs were detected at six of the 14 residential well sampling locations (Table 10 of the RI). VOCs were not detected above EPA Maximum Contaminant Limits (MCLs) in any of the drinking water samples. In general, VOCs were detected at low levels in the residential drinking water wells. As shown on Table 10 of the RI, five of the six VOCs detected in residential wells were detected in only one sampling event and have not been repeated in previous or subsequent sampling events. One VOC, methyl-tert butyl-ether (MTBE) has been detected in four of the six residential drinking water wells at concentrations ranging from 0.68 ug/1 (Peckham Street, House 3) to 37 ug/1 (Peckham Street, House 2). With the exception of Union Street, House 1, the residential wells where MTBE has been detected are not associated with the Shpack Site. MTBE was detected in groundwater at the Shpack site at five locations.

Distribution of Inorganics in Residential Wells

Table 10 of the RI displays inorganic analytical results for residential drinking water samples collected as part of the RI in 2001, 2002, and 2003. In April 2003, samples collected from four wells were believed to contain four separate inorganic compounds exceeding EPA MCLs. Based on these results, re-sampling of these wells was performed in July and August 2003, as summarized in the following table:

Location	Compound	MCL	April 2003	July 2003	August 2003
N Worcester, House 1	Arsenic	0.01	0.0113	0.0136	0.0164
Maple Street, House 5	Cadmium	0.005	0.204	ND	ND
Union Street, House 1	Lead	0.015	0.0008	ND	ND
Union Street, House 2	Antimony	0.006	0	ND	ND

Notes
All compounds reported in milligrams per liter (mg/l)
MCL = Maximum Contaminant Limit
ND = Compound not detected

The detection of arsenic at North Worcester Street, House 1 is not believed to be related to Shpack as this location is across Chartley Pond and situated topographically and hydrologically upgradient of Shpack. The residential well sample collected at Maple Street, House 5 was most likely the result of a laboratory error and was not reproducible

In addition, the MCL exceedences at the other two residential well sampling locations were the result of data transcription errors, were re-sampled and confirmed to be free of MCL exceedences. One sample containing manganese was originally reported in the RI at 840 ug/1 at Union Street, House 2 This was later determined to be a transcription error The maximum level of manganese detected in this residential well was 170 ug/1. This detected manganese level results in noncancer hazard quotients of 0.19 and 0.66 for current adult and small child receptors, respectively, which are both below EPA's noncancer threshold of 1.0. Please refer to the revised Tables 3.10 RME, 7.4 RME, and 7.5 RME for the corrected tables within the "Human Health Risk Assessment-Letter Addendum", dated September 15, 2004 by Metcalf and Eddy for further detail. [1]

1 Water levels in monitoring wells screened in the shallow zone at the Shpack site suggest that groundwater flow is semi-radially outward toward the northwest, north, northeast, east, and southeast The only direction in which water levels are higher immediately off the site is to the southwest, beneath the ALI Landfill Although the groundwater contours for the shallow zone suggest that flow would be toward the private water supply wells north of the site at Union Road House 1 and Union Road House 2, the shallow groundwater flow is apparently predominantly downward at the site, into the deeper overburden This concept is supported by both water level and water quality measurements The positions of these two homes relative to the site (in particular their close proximity to the site) and to highly contaminated wells make them potentially vulnerable to future contamination if hydrologic conditions change (e.g , water levels in nearby ponds and wetlands change, drainage characteristics at the Shpack or ALI sites are altered) Therefore, EPA has determined that a sufficient threat exists at the Site to support installation of a waterline to these two houses This determination is consistent with EPA's 1988 "Guidance Document for Providing Alternate Water Supplies"

> "In addition, remedial action may be taken based on the threat of future contamination in cases where these criteria are not yet exceeded ("MCLs") If potable wells are not currently contaminated, it must be determined they will be threatened with contamination before a final remedy addressing ground water contamination can be implemented"

Distribution of Radiological Parameters in Drinking Water

Table 10 of the RI lists a summary of radiological parameters detected in residential drinking water in the vicinity of the Shpack Site. Radiological parameters were not detected above EPA MCLs in any of the residential drinking water samples collected during the RI. Gross Alpha and Beta were detected at approximately one order of magnitude less than Gross Alpha and Gross Beta in groundwater at the Shpack Site. Radium was detected in residential drinking water at the same order of magnitude as Radium detections in groundwater at Shpack. Total Uranium was detected in residential drinking water at the same order of magnitude or an order of magnitude less than detected in groundwater at Shpack.

Other Investigation Activities

This section summarizes the results of other field investigation activities performed at Shpack as part of the RI.

Test Pit Investigation Results

A total of 10 test pits were excavated in the Tongue Area to evaluate the physical and chemical nature of waste materials in this area. Based on the test pit program, landfill materials in the Tongue Area are approximately 6 to 8 feet thick and consist of rubber garden hose, concrete, ash (gray, purple, and yellow in color), metal debris, cinders, wood debris, unidentified burnt debris, and crushed PVC. The materials were mixed with brown-orange, fine sand, silt, and clay, with some coarse gravel, and some gray clay lenses. Test pit logs are included in Appendix A of the RI.

As shown on Table 6 of the RI, VOCs, SVOCs, PCBs, pesticides and inorganics were detected in all soil samples collected from the Tongue Area test pits. In addition, some of the highest concentrations of inorganic compounds were detected in soil samples collected from test pits in the Tongue Area. Radiological screening of soils excavated during test pit activities did not indicate elevated levels of radionuclides in soil in the Tongue Area. This is consistent with radiological analysis of soil samples collected from soil borings collected in this area by the USAGE (Table 6F of the RI).

Tar Pit Delineation Results

As part of the RI field activities, the extent of tar material present on the surface of the Site was evaluated (Figure 3 of the RI). The depth of the tar was evaluated using sections of one-inch diameter PVC marked with depth measurements. The lateral extent of the tar area was measured using a tape measure.

Based on the Tar Pit delineation, the tar material measures approximately 0.3 feet to 0.8 feet deep and extends over an area approximately 12 feet wide by 27 feet long. A graphical representation of the lateral and vertical extent of the tar pit area is included as Figure 18 of the RI.

F. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

1. Current Use

The land use surrounding the Site is predominantly rural/low-density residential in nature. The ALI Landfill is located directly west of the Site. Groundwater is currently used as drinking water by two residents close to the Site. This is consistent with the State's use and value determination that designates this groundwater as "high" use and value based primarily upon the fact that this groundwater is currently being used for drinking water at these two houses.

2. Future Use

As part of the FS, EPA evaluated each alternative based upon four possible future use scenarios. These scenarios are as follows:

- Recreational user
- Adjacent resident w/out groundwater exposure
- Adjacent resident w/groundwater exposure
- On-site resident

Based upon EPA's review of the Site and input from the community and local Town officials, the reasonably anticipated future use of the site could be either the recreational scenario or the adjacent resident scenario. A great many comments have been received from the community supporting the recreational scenario. However, because there is an adjacent resident in existence and the area is zoned to allow that use to continue, EPA believes this scenario is the most realistic future use scenario. This decision is not contrary to the wishes expressed by many in the community that the Site be cleaned up to allow recreational use in the future. The adjacent resident scenario assumes greater exposure to contamination than the recreational scenario and, therefore, will require greater quantities of waste material to be addressed by the remedy. As a result, by cleaning up the Site to an adjacent resident scenario and addressing unacceptable ecological risks, the remedy will be sufficiently protective to allow recreational uses as well.

EPA has also determined that on-site residential use of the site is highly unlikely based upon several factors. First, a large portion of the Site consists of wetlands which are not conducive to residential development. In addition, the Site is adjacent to the ALI Landfill. The Site is also bisected by high voltage power lines. All of these factors make residential development undesirable and therefore not realistic for residential future use.

The selected remedy does not address Site groundwater (See Section D. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION for this determination).

G. SUMMARY OF SITE RISKS

A baseline risk assessment was performed to estimate the probability and magnitude of potential adverse human health and environmental effects from exposure to contaminants associated with the Site assuming no remedial action was taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The public health risk assessment followed a four step process: 1) hazard identification, which identified those hazardous substances which, given the specifics of the site were of significant concern; 2) exposure assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of possible exposure; 3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with exposure to hazardous substances, and 4) risk characterization and uncertainty analysis, which integrated the three earlier steps to summarize the potential and actual risks posed by hazardous substances at the site, including carcinogenic and non-carcinogenic risks and a discussion of the uncertainty in the risk estimates. The ecological risk assessment followed the eight-step process guidance for Superfund.

A summary of those aspects of the human health risk assessment which support the need for remedial action is discussed below followed by a summary of the environmental risk assessment.

1. Human Health Risk Assessment

Sixty-one of the more than 125 chemicals detected at the site were selected for evaluation in the human health risk assessment as chemicals of potential concern. The chemicals of potential concern were selected to represent potential site related hazards based on toxicity, concentration, frequency of detection, and mobility and persistence in the environment and can be found in Tables 2.1 through 2.14 of the risk assessment (M&E, 2004). From this, a subset of the chemicals were identified in the Feasibility Study as presenting a significant current or future risk and are referred to as the chemicals of concern in this ROD and summarized in Tables G-l through G-5 for surface water, sediment, surface soil, subsurface soil, and groundwater, respectively. These tables contain the exposure point concentrations used to evaluate the reasonable maximum exposure (RME) scenario in the baseline risk assessment for the chemicals of concern. Estimates of average or central tendency exposure concentrations for the chemicals of concern and all chemicals of potential concern can be found in Tables 3.1 through 3.14 of the risk assessment (M&E, 2004).

Potential human health effects associated with exposure to the chemicals of potential concern were estimated quantitatively or qualitatively through the development of several hypothetical exposure pathways. These pathways were developed to reflect the potential for exposure to hazardous substances based on the present uses, potential future uses, and location of the Site.

The Site consists of a central fenced portion, the more recently-fenced "tongue" area, unfenced areas at the perimeter of the fencing, the former Shpack residence, and unfenced wetland areas, including Chartley Swamp. The Site is in a predominantly rural, low density residential area. The ALI Landfill landfill abuts the site to the west. A utility right-of-way with power lines crosses through the Site. Residences are found to the north and east of the site and also across Chartley Swamp. There are numerous residential wells within a 3-mile radius of the Site, the closest well being located at the former Shpack residence.

The risk assessment looked at several different exposure pathways consistent with current and future potential uses at the Site. The following current uses were evaluated in the risk assessment:

- Adjacent resident with exposure to groundwater through ingcstion;

- Former Shpack resident (adult)/worker at adjacent landfill with exposure to surface soil through ingestion, dermal contact, and external exposure to radionuclides;

- Trespasser (adolescent) with exposure to surface soil by ingestion, dermal contact, and external exposure to radionuclides; to surface water (by dermal contact) and to sediment (by ingestion and dermal contact) within the wetland areas of the Site.

Table G-1

Summary of Chemical of Concern and Medium-Specific Exposure Point Concentration

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Concern	Concentration Detected Minimum	Concentration Detected Maximum	Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure (1)
Site-wide	Benzo(a)pyrene	0.2	0.4	ug/L	2 / 14	0.4	ug/L	Max
	Benzo(b)fluoranthene	0.2	0.3	ug/L	2 / 14	0.3	ug/L	Max
	Benzo(k)fluoranthene	0.1	0.4	ug/L	2 / 14	0.4	ug/L	Max
	Aroclor-1254	0.43	0.43	ug/L	1 / 14	0.41	ug/L	95% UCL - NP
	Beryllium	0.785	1480	ug/L	6 / 21	381	ug/L	95% UCL - NP
	Chromium	0.57	13300	ug/L	15 / 21	3436	ug/L	95% UCL - NP
	Nickel	9.5	235000	ug/L	21 / 21	61363	ug/L	95% UCL - NP

Key

(1) Statistics: Maximum Detected Value (Max); 95% UCL of Transformed Data (95% UCL - T); 95% UCL of Normal Data (95% UCL - N); 95% UCL of Non-parametric Data (95% UCL - NP); Arithmetic Mean (Mean)

The table represents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for each of the COCs detected in surface water (i.e., the concentrations that will be used to estimate the exposure and risk for each COC in surface water). The table includes the range of concentrations detected for each COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC, and how the EPC was derived. This table indicates that inorganic chemicals are the most frequently detected COCs in surface water at the site. The 95% UCL on the arithmetic mean was used as the EPC for the inorganic compounds beryllium, chromium, and nickel and for Aroclor-1254. However, due to the limited amount of sample data available for benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene, the maximum detected concentration was used as the default EPC.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-2

Summary of Chemical of Concern and Medium-Specific Exposure Point Concentration

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Concern	Concentration Detected Minimum	Concentration Detected Maximum	Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure (1)
Site-wide	Aroclor-1254	0.035	84	mg/Kg	8 / 22	20	mg/Kg	95% UCL - NP

Key

(1) Statistics: Maximum Detected Value (Max); 95% UCL of Transformed Data (95% UCL - T); 95% UCL of Normal Data (95% UCL - N); 95% UCL of Non-parametric Data (95% UCL - NP); Arithmetic Mean (Mean)

The table represents the chemical of concern (COC) and exposure point concentration (EPC) for the COC detected in sediment (i.e., the concentrations that will be used to estimate the exposure and risk for the COC in sediment). The table includes the range of concentrations detected for the COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC, and how the EPC was derived. This table indicates that Aroclor-1254 is the only COC in sediment at the site. The 95% UCL on the arithmetic mean was used as the EPC for Aroclor-1254.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-3

Summary of Chemical of Concern and Medium-Specific Exposure Point Concentration

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Concern	Concentration Detected Minimum	Concentration Detected Maximum	Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure (1)
Combined On-Site	Benzo(a)anthracene	0.048	50	mg/Kg	15 / 27	14	mg/Kg	95% UCL - NP
	Benzo(a)pyrene	0.018	48	mg/Kg	19 / 27	6.5	mg/Kg	95% UCL - T
	Benzo(b)fluoranthene	0.008	35.5	mg/Kg	19 / 27	4.5	mg/Kg	95% UCL - T
	Dibenz(a,h)anthracene	0.014	3.5	mg/Kg	5 / 27	1.2	mg/Kg	95% UCL - NP
	Dioxin TEQ	0.00003	0.00047	mg/Kg	3 / 3	0.00047	mg/Kg	Max
	Arsenic	0.17	29.3	mg/Kg	27 / 27	15	mg/Kg	95% UCL - T
	Nickel	5.7	48950	mg/Kg	27 / 27	13941	mg/Kg	95% UCL - NP
	Uranium, total	0.78	43363	mg/Kg	71 / 71	3902	mg/Kg	95% UCL - NP
	Ra-226	0.39	1600	pCi/g	119 / 133	77	pCi/g	95% UCL - NP
	U-234	0.22	5340	pCi/g	71 / 71	557	pCi/g	95% UCL - NP
	U-235	0.03	730	pCi/g	69 / 133	40	pCi/g	95% UCL - NP
	U-238	0.25	14200	pCi/g	71 / 71	1277	pCi/g	95% UCL - NP
Adjacent Residence	Benzo(a)anthracene	0.048	50	mg/Kg	15 / 27	14	mg/Kg	95% UCL - NP
	Benzo(a)pyrene	0.018	48	mg/Kg	19 / 27	6.5	mg/Kg	95% UCL - T
	Benzo(b)fluoranthene	0.008	35.5	mg/Kg	19 / 27	4.5	mg/Kg	95% UCL - T
	Dibenz(a,h)anthracene	0.014	3.5	mg/Kg	5 / 27	1.2	mg/Kg	95% UCL - NP
	Dioxin TEQ	0.00003	0.00047	mg/Kg	3 / 3	0.00047	mg/Kg	Max
	Arsenic	0.17	29.3	mg/Kg	27 / 27	15	mg/Kg	95% UCL - T
	Nickel	5.7	48950	mg/Kg	27 / 27	13941	mg/Kg	95% UCL - NP
	Uranium, total	0.78	43363	mg/Kg	71 / 71	3902	mg/Kg	95% UCL - NP
	Ra-226	0.39	1600	pCi/g	119 / 133	77	pCi/g	95% UCL - NP
	U-234	0.22	5340	pCi/g	71 / 71	557	pCi/g	95% UCL - NP
	U-235	0.03	730	pCi/g	69 / 133	40	pCi/g	95% UCL - NP
	U-238	0.25	14200	pCi/g	71 / 71	1277	pCi/g	95% UCL - NP
On Site Residence	Benzo(a)anthracene	0.048	50	mg/Kg	15 / 27	14	mg/Kg	95% UCL - NP
	Benzo(a)pyrene	0.018	48	mg/Kg	19 / 27	6.5	mg/Kg	95% UCL - T
	Benzo(b)fluoranthene	0.008	35.5	mg/Kg	19 / 27	4.5	mg/Kg	95% UCL - T
	Dibenz(a,h)anthracene	0.014	3.5	mg/Kg	5 / 27	1.2	mg/Kg	95% UCL - NP
	Indeno(1,2,3-cd)pyrene	0.008	32	mg/Kg	18 / 27	3.5	mg/Kg	95% UCL - T
	Dioxin TEQ	0.00003	0.00047	mg/Kg	3 / 3	0.00047	mg/Kg	Max
	Arsenic	0.17	29.3	mg/Kg	27 / 27	15	mg/Kg	95% UCL - T
	Nickel	5.7	48950	mg/Kg	27 / 27	13941	mg/Kg	95% UCL - NP
	Uranium, total	0.78	43363	mg/Kg	71 / 71	3902	mg/Kg	95% UCL - NP
	Ra-226	0.39	1600	pCi/g	119 / 133	77	pCi/g	95% UCL - NP
	U-234	0.22	5340	pCi/g	71 / 71	567	pCi/g	95% UCL - NP
	U-235	0.03	730	pCi/g	69 / 133	40	pCi/g	95% UCL - NP
	U-238	0.25	14200	pCi/g	71 / 71	1277	pCi/g	95% UCL - NP

Key

(1) Statistics: Maximum Detected Value (Max); 95% UCL of Transformed Data (95% UCL - T); 95% UCL of Normal Data (95% UCL - N); 95% UCL of Non-parametric Data (95% UCL - NP); Arithmetic Mean (Mean)

The table represents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for each of the COCs detected in surface soil (i.e., the concentrations that will be used to estimate the exposure and risk for each COC in surface soil). The table includes the range of concentrations detected for each COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC, and how the EPC was derived. For all exposure points, this table indicates that inorganic chemicals are the most frequently detected COCs in surface soil at the site. The 95% UCL on the arithmetic mean was used as the EPC for the inorganic compounds arsenic, nickel, and uranium, for the radionuclides Ra-226, U-234, U-235, and U-238, and for the organic chemicals benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. However, due to the limited amount of sample data available for dioxins, the maximum detected concentration was used as the default EPC.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-4

Summary of Chemical of Concern and Medium-Specific Exposure Point Concentration

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Concern	Concentration Detected Minimum	Concentration Detected Maximum	Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure (1)
Combined On-Site	Nickel	101	39700	mg/Kg	12 / 12	39700	mg/Kg	Max
Adjacent Residence	Benzo(a)anthracene	0.34	180	mg/Kg	7 / 12	96	mg/Kg	95% UCL - T
	Benzo(a)pyrene	0.003	140	mg/Kg	10 / 12	140	mg/Kg	Max
	Benzo(b)fluoranthene	0.004	150	mg/Kg	10 / 12	150	mg/Kg	Max
	Dibenz(a,h)anthracene	0.19	1.6	mg/Kg	4 / 12	1.6	mg/Kg	Max
	Dioxin TEQ	0.00232	0.00232	mg/Kg	1 / 1	0.00232	mg/Kg	Max
	Arsenic	1.55	18.2	mg/Kg	11 / 12	18.2	mg/Kg	Max
	Nickel	101	39700	mg/Kg	12 / 12	39700	mg/Kg	Max
	Uranium, total	0.00000013	151	mg/Kg	40 / 40	28	mg/Kg	95% UCL - NP
	Ra-226	0.127	900	pCi/g	86 / 123	40	pCi/g	95% UCL - NP
	U-234	0.13	39.3	pCi/g	39 / 40	5.7	pCi/g	95% UCL - T
	U-235	0.02	3.37	pCi/g	30 / 123	0.58	pCi/g	95% UCL - NP
	U-238	0.05	49.4	pCi/g	39 / 40	7.8	pCi/g	95% UCL - T
On-Site Residence	Benzo(a)anthracene	0.34	180	mg/Kg	7 / 12	96	mg/Kg	95% UCL - T
	Benzo(a)pyrene	0.003	140	mg/Kg	10 / 12	140	mg/Kg	Max
	Benzo(b)fluoranthene	0.004	150	mg/Kg	10 / 12	150	mg/Kg	Max
	Benzo(k)fluoranthene	0.022	110	mg/Kg	8 / 12	49	mg/Kg	95% UCL - T
	Dibenz(a,h)anthracene	0.19	1.6	mg/Kg	4 / 12	1.6	mg/Kg	Max
	Indeno(1,2,3-cd)pyrene	0.071	110	mg/Kg	7 / 12	43	mg/Kg	95% UCL - T
	Dioxin TEQ	0.00232	0.00232	mg/Kg	1 / 1	0.00232	mg/Kg	Max
	Arsenic	1.55	18.2	mg/Kg	11 / 12	18.2	mg/Kg	Max
	Chromium	3.5	2740	mg/Kg	12 / 12	2740	mg/Kg	Max
	Mercury	0.08	41	mg/Kg	10 / 12	41	mg/Kg	Max
	Nickel	101	39700	mg/Kg	12 / 12	39700	mg/Kg	Max
	Ra-226	0.127	900	pCi/g	86 / 123	40	pCi/g	95% UCL - NP
	U-238	0.05	49.4	pCi/g	39 / 40	7.8	pCi/g	95% UCL - T

Key

(1) Statistics: Maximum Detected Value (Max); 95% UCL of Transformed Data (95% UCL - T); 95% UCL of Normal Data (95% UCL - N); 95% UCL of Non-parametric Data (95% UCL - NP);

Arithmetic Mean (Mean)

The table represents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for each of the COCs detected in subsurface soil (i.e., the concentrations that will be used to estimate the exposure and risk for each COC in subsurface soil). The table includes the range of concentrations detected for each COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC, and how the EPC was derived. For all exposure points, this table indicates that inorganic chemicals are the most frequently detected COCs in subsurface soil at the site. The 95% UCL on the arithmetic mean was used as the EPC for the inorganic compound uranium, for the radionuclides Ra-226, U-234, U-235, and U-238, and for the organic chemicals benzo(a)anthracene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene. However, due to the limited amount of sample data available for dioxins, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, arsenic, chromium, mercury and nickel, the maximum detected concentration was used as the default EPC.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-5

Summary of Chemical of Concern and Medium-Specific Exposure Point Concentration

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Concern	Concentration Detected Minimum	Concentration Detected Maximum	Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure (1)
Combined	Benzene	0.5	3.7	ug/L	5 / 25	3.7	ug/L	Max
	cis-1,2-Dichloroethene	0.71	5000	ug/L	15 / 25	5000	ug/L	Max
	Trichloroethene	0.56	9.8	ug/L	6 / 25	9.8	ug/L	Max
	Vinyl chloride	0.87	500	ug/L	8 / 25	500	ug/L	Max
	Benzo(b)fluoranthene	0.13	0.13	ug/L	1 / 3	0.13	ug/L	Max
	Arsenic	0.65	69.6	ug/L	18 / 25	69.6	ug/L	Max
	Barium	7.9	3760	ug/L	25 / 25	3760	ug/L	Max
	Beryllium	0.2	75.1	ug/L	7 / 25	75.1	ug/L	Max
	Cadmium	0.31	70.9	ug/L	9 / 25	70.9	ug/L	Max
	Chromium	0.3	203	ug/L	21 / 25	203	ug/L	Max
	Manganese	8.7	18600	ug/L	25 / 25	18600	ug/L	Max
	Nickel	1.1	15300	ug/L	25 / 25	15300	ug/L	Max
	Zinc	5.3	15800	ug/L	22 / 25	15800	ug/L	Max
	U-234	0.05	118	pCi/L	19 / 23	118	pCi/L	Max
	U-235	0.06	9.4	pCi/L	8 / 23	9.4	pCi/L	Max
	U-238	0.03	15	pCi/L	16 / 23	15	pCi/L	Max

Key

(1) Statistics: Maximum Detected Value (Max); 95% UCL of Transformed Data (95% UCL - T); 95% UCL of Normal Data (95% UCL - N); 95% UCL of Non-parametric Data (95% UCL - NP); Arithmetic Mean (Mean)

The table represents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for each of the COCs detected in groundwater (i.e., the concentrations that will be used to estimate the exposure and risk for each COC in groundwater). The table includes the range of concentrations detected for each COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC, and how the EPC was derived. This table indicates that inorganic chemicals are the most frequently detected COCs in groundwater at the site. As prescribed by EPA guidance, the maximum detected concentration was used as the EPC for all COCs detected in groundwater.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

These current exposure pathways and receptors identified may continue in the future.

The following future uses were also evaluated in the risk assessment:

- Adjacent resident with exposure to groundwater through ingestion;
- Adjacent resident (adult and child)/worker to the site with exposure to surface and subsurface soil through ingestion, dermal contact, and external exposure to radionuclides;
- Former Shpack resident (adult and child) with exposure to surface and subsurface soil through ingestion, dermal contact, inhalation, and external exposure to radionuclides;
- On-site resident (adult and child) with exposure to surface and subsurface soil through ingestion, dermal contact, external exposure to radionuclides, inhalation of volatile contaminants present in soil and groundwater following migration to indoor air; and to groundwater through ingestion;
- Recreational (adult and child) with exposure to surface and subsurface soil through ingestion, dermal contact, external exposure to radionuclides; to surface water (by dermal contact) and to sediment (by ingestion and dermal contact); and,
- Construction and utility workers with direct exposure to surface and subsurface soil contaminants, direct exposure to shallow exposed groundwater and inhalation of volatile contaminants in soil and groundwater following migration to outdoor air.

In the future, removal of the fencing after completion of the remedial action could allow an increased intensity and frequency of exposure to on-site soil contaminants for the adjacent resident and for trespassers.

Excess lifetime cancer risks were determined for each exposure pathway by multiplying a daily intake level with the chemical specific cancer potency factor. Cancer potency factors have been developed by EPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic compounds. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g. 1×10^{-6} or 1E-06 for 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater than a one in a million chance of developing cancer over 70 years as a result of site-related exposure (as defined) to the compound at the stated concentration. All risks estimated represent an "excess lifetime cancer risk" - or the additional cancer risk on top of that which we all face from other causes such as cigarette smoke or exposure to ultraviolet radiation from the sun. The chance of an individual developing cancer from all other (non-site related) causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site-related exposure is 10^{-4} to 10^{-6}. Current EPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of hazardous substances. A summary of the cancer toxicity data relevant to the chemicals of concern is presented in Table G-6.

In assessing the potential for adverse effects other than cancer, a hazard quotient (HQ) is calculated by dividing the daily intake level by the reference dose (RfD) or other suitable benchmark. Reference doses have been developed by EPA and they represent a level to which an individual may be exposed that is not expected to result in any deleterious effect. RfDs are derived from epidemiological or animal studies and incorporate uncertainty factors to help ensure that adverse health effects will not occur. A HQ <1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic non-carcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all chemical(s) of concern that affect the same target organ (e.g., liver) within or across those media to which the same individual may reasonably be exposed. A HI <1 indicates that toxic non-carcinogenic effects are unlikely. A summary of the non-carcinogenic toxicity data relevant to the chemicals of concern is presented in Table G-7.

The following is a brief summary of the exposure pathways that were found to present significant risks exceeding EPA's cancer risk range and noncancer threshold. A more thorough description of all exposure pathways evaluated in the risk assessment, including estimates for an average exposure scenario, can be found in Section 5 and on Tables 9.1 through 9.22 of the risk assessment (M&E, 2004).[2]

Recreational Use

Tables G-8 and G-12 depict the carcinogenic and non-carcinogenic risk summary for the chemicals of concern in surface water and surface soil evaluated to reflect potential future recreational exposure corresponding to the reasonable maximum exposure (RME) scenario. For the future young child and adult recreational user, carcinogenic and non-carcinogenic risks exceeded the EPA acceptable risk range of 10^{-4} to 10^{-6} and a target organ HI of 1. The exceedences were due primarily to the presence of benzo(a) pyrene, beryllium, chromium, and nickel in surface water, Aroclor-1254 in sediment, and nickel, uranium, Ra-226, and U-238 in surface soil.

On-Site Resident

Tables G-9 and G-13 depict the carcinogenic and non-carcinogenic risk summary for the chemicals of concern in groundwater evaluated to reflect potential future RME residential drinking water exposure. Carcinogenic and non-carcinogenic risks for the future resident drinking water ingestion scenario exceeded the EPA acceptable risk range primarily due to the presence of the following compounds in groundwater: cis-l, 2-dichloroethene, trichloroethene, vinyl chloride, arsenic, barium, beryllium, cadmium, chromium, manganese, nickel, zinc, and U-234. In addition, the following compounds detected in groundwater exceeded MCLs: cis-l, 2-dichloroethene, trichloroethene, vinyl chloride, arsenic, barium, beryllium, cadmium, chromium, lead, and uranium.

Tables G-10 and G-14 depict the carcinogenic and non-carcinogenic risk summary for the chemicals of concern in surface and subsurface soil evaluated to reflect potential future on-site residential exposures for the RME scenario. For the future on-site resident, carcinogenic and non-carcinogenic risks exceeded the EPA acceptable risk range for surface and subsurface soil due primarily to the presence of nickel, uranium, Ra-226, U-235, and U-238 in surface soil and chromium, mercury, nickel, benzo(a) pyrene, benzo(b) fluoranthene, dioxin, and Ra-226 in subsurface soil.

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2 For contaminated groundwater, ingestion of 2 liters/day, 350 days/year for 24 years was presumed for an adult. For a young child (age 1 to 6), ingestion of 1.5 liters/day, 350 days/year for 6 years was presumed Dermal contact and incidental ingestion of soils was evaluated for a young child and adult recreational user and on-site resident who may be exposed 78 or 150 days/year, respectively, for a total of 30 years. Dermal contact and incidental ingestion of soils was also evaluated for a young child and adult adjacent resident, assumed to be equally exposed to soil contaminants in both the yard of the former Shpack residence and the site interior (75 days year at each location). Soil ingestion rates for the young child and adult were presumed to be 200 mg/day and 100 mg day. respectively. Dermal contact with surface water along with incidental ingestion and dermal contact with sediment was evaluated to reflect a young child and adult recreational user who may wade in the wetlands 78 days each summer for a total of 30 years. Sediment ingestion rates were the same as those presumed for soils Incidental ingestion of and dermal contact with subsurface soils were evaluated for the construction worker who was presumed to be exposed 125 days/year. The soil ingestion rate for the worker was presumed to be 200 mg/day

Table G-6

Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal

Chemical of Concern	Oral Cancer Slope Factor	Dermal Cancer Slope Factor	Slope Factor Units	Weight of Evidence/Cancer Guideline Description	Source	Date (MM/DD/YYYY)
Benzene	5.5E-02	5.5E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	07/01/03
cis-1,2-Dichloroethene	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Trichloroethene	4.0E-01	4.0E-01	$(mg/kg\text{-}day)^{-1}$	C-B2	NCEA	07/01/03
Vinyl chloride	1.5E+00	1.5E+00	$(mg/kg\text{-}day)^{-1}$	C	IRIS	07/01/03
Benzo(a)anthracene	7.3E-01	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Benzo(a)pyrene	7.3E+00	7.3E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Benzo(b)fluoranthene	7.3E-01	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Benzo(k)fluoranthene	7.3E-02	7.3E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Dibenz(a,h)anthracene	7.3E+00	7.3E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Indeno(1,2,3-cd)pyrene	7.3E-01	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Aroclor-1254	2.0E+00	2.0E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	07/01/03
Dioxin TEQ	1.5E+05	1.5E+05	$(mg/kg\text{-}day)^{-1}$	B2	HEAST	07/01/97
Arsenic	1.5E+00	1.5E+00	$(mg/kg\text{-}day)^{-1}$	A	IRIS	07/01/03
Barium	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Beryllium	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Cadmium	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Chromium	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Manganese	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Mercury	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	C	IRIS	07/01/03
Nickel	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Zinc	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03
Uranium, total	N/A	N/A	$(mg/kg\text{-}day)^{-1}$	D	IRIS	07/01/03

Pathway: External (Radiation)

Chemical of Concern	Cancer Slope or Conversion Factor	Exposure Route	Units	Weight of Evidence/Cancer Guideline Description	Source	Date (MM/DD/YYYY)
Ra-226	8.49E-06	External Exposure	Risk/year per pCi/g soil	A	HEAST	07/01/03
U-234	2.52E-10	External Exposure	Risk/year per pCi/g soil	A	HEAST	07/01/03
U-235	5.43E-07	External Exposure	Risk/year per pCi/g soil	A	HEAST	07/01/03
U-238	1.14E-07	External Exposure	Risk/year per pCi/g soil	A	HEAST	07/01/03
Ra-226	7.3E-10	Soil Ingestion	Risk/pCi soil	A	HEAST	07/01/03
U-234	1.6E-10	Soil Ingestion	Risk/pCi soil	A	HEAST	07/01/03
U-235	1.6E-10	Soil Ingestion	Risk/pCi soil	A	HEAST	07/01/03
U-238	2.1E-10	Soil Ingestion	Risk/pCi soil	A	HEAST	07/01/03
U-234	7.1E-11	Water Ingestion	Risk/pCi water	A	HEAST	07/01/03
U-235	7.2E-11	Water Ingestion	Risk/pCi water	A	HEAST	07/01/03
U-238	8.7E-11	Water Ingestion	Risk/pCi water	A	HEAST	07/01/03

Key

N/A Not applicable

IRIS Integrated Risk Information System, U.S. EPA

NCEA National Center for Environmental Assessment, U.S. EPA

HEAST Health Effects Assessment Summary Tables, U.S. EPA

EPA Group

A - Human carcinogen

B1 - Probable human carcinogen - Indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

This table provides the carcinogenic risk information which is relevant to the contaminants of concern in surface water, sediment, soil and groundwater. At this time, slope factors are not available for the dermal route of exposure. Thus, the dermal slope factors used in this assessment have been extrapolated from oral values. An adjustment factor is sometimes applied, and is dependent upon how well the chemical is absorbed via the oral route. Adjustments are particularly important for chemicals with less than 50% absorption via the ingestion route. However, adjustment is not necessary for the chemicals evaluated at this site. Therefore, the same values presented above were used as the dermal carcinogenic slope factors for these contaminants.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

ROD RISK WORKSHEET

Table G-7

Non-Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Dermal RfD	Dermal RfD Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of Rfd: Target Organ (MM/DD/YYYY)
Benzene	Chronic	4.0E-03	mg/kg-day	4.0E-03	mg/kg-day	Immune System	300	IRIS	07/01/03
cis-1,2-Dichloroethene	Chronic	1.0E-02	mg/kg-day	1.0E-02	mg/kg-day	Blood	3000	HEAST	07/01/97
Trichloroethene	Chronic	3.0E-04	mg/kg-day	3.0E-04	mg/kg-day	Liver	3000	NCEA	07/01/03
Vinyl chloride	Chronic	3.0E-03	mg/kg-day	3.0E-03	mg/kg-day	Liver	30	IRIS	07/01/03
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1254	Chronic	2.0E-05	mg/kg-day	2.0E-05	mg/kg-day	Immune System	300	IRIS	07/01/03
Dioxin TEQ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	Chronic	3.0E-04	mg/kg-day	3.0E-04	mg/kg-day	Skin	3	IRIS	07/01/03
Barium	Chronic	7.0E-02	mg/kg-day	4.9E-03	mg/kg-day	Cardiovascular	3	IRIS	07/01/03
Beryllium	Chronic	2.0E-03	mg/kg-day	1.4E-05	mg/kg-day	GI System	300	IRIS	07/01/03
Cadmium	Chronic	5.0E-04	mg/kg-day	1.3E-05	mg/kg-day	Kidney	10	IRIS	07/01/03
Chromium	Chronic	3.0E-03	mg/kg-day	7.5E-05	mg/kg-day	GI System	300	IRIS	07/01/03
Manganese	Chronic	2.4E-02	mg/kg-day	9.6E-04	mg/kg-day	Nervous System	1	IRIS	07/01/03
Mercury	Chronic	1.0E-04	mg/kg-day	1.0E-04	mg/kg-day	Nervous System	10	IRIS	07/01/03
Nickel	Chronic	2.0E-02	mg/kg-day	8.0E-04	mg/kg-day	General Toxicity	300	IRIS	07/01/03
Zinc	Chronic	3.0E-01	mg/kg-day	3.0E-01	mg/kg-day	Blood	3	IRIS	07/01/03
Uranium, total	Chronic	3.0E-03	mg/kg-day	1.5E-04	mg/kg-day	Kidney	1000	IRIS	07/01/03
Nickel	Subchronic	2.0E-02	mg/kg-day	8.0E-04	mg/kg-day	General Toxicity	300	IRIS	07/01/03

Key

N/A - No information available

IRIS - Integrated Risk Information System, U.S. EPA

NCEA - National Center for Environmental Assessment, U.S. EPA

HEAST - Health Effects Assessment Summary Tables, U.S. EPA

This table provides non-carcinogenic risk information which is relevant to the contaminants of concern in surface water, sediment, soil, and groundwater. Fifteen of the COCs have toxicity data indicating their potential for adverse non-carcinogenic health effects in humans. Chronic and subchronic toxicity data available for the fifteen COCs for oral exposures have been used to develop chronic and subchronic oral reference doses (RfDs), provided in this table. The available chronic and subchronic toxicity data indicate that trichloroethene and vinyl chloride affect the liver, benzene and Aroclor-1254 affect the immune system, cis-1,2-dichloroethene and zinc affect the blood, arsenic affects the skin, barium affects the cardiovascular system, cadmium and uranium affect the kidneys, beryllium and chromium affect the gastrointestinal system, manganese and mercury affect the nervous system, and nickel causes general toxicity resulting in growth reduction. Reference doses are not available for the carcinogenic polycyclic aromatic hydrocarbons (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluorenthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) or dioxin. Dermal RfDs are not available for any of the COCs. As was the case for the carcinogenic data, dermal RfDs can be extrapolated from oral RfDs by applying an adjustment factor as appropriate.
Dermal RfDs have been extrapolated for the inorganic compounds barium, beryllium, cadmium, chromium, manganese, nickel, and uranium that have less than 50% absorption via the ingestion route.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Adjacent Resident

Tables G-11 and G-15 depict the carcinogenic and non-carcinogenic risk summary for the chemicals of concern in surface and subsurface soil evaluated to reflect potential future adjacent residential exposures for the RME scenario. For the future adjacent resident, carcinogenic and non-carcinogenic risks exceeded the EPA acceptable risk range for surface and subsurface soil due primarily to the presence of nickel, uranium, Ra-226, and U-238 in surface and subsurface soils.

Tables G-9 and G-13 depict the carcinogenic and non-carcinogenic risk summary for the chemicals of concern in groundwater evaluated to reflect potential future RME residential drinking water exposure. Carcinogenic and non-carcinogenic risks for the future resident drinking water ingestion scenario exceeded the EPA acceptable risk range primarily due to the presence of the following compounds in groundwater: cis-l, 2-dichloroethene, trichloroethene, vinyl chloride, arsenic, barium, beryllium, cadmium, chromium, manganese, nickel, zinc, and U-234. In addition, the following compounds detected in groundwater exceeded MCLs: cis-1,2-dichloroethene, trichloroethene, vinyl chloride, arsenic, barium, beryllium, cadmium, chromium, lead, and uranium.

Construction Worker

Table G-16 depicts the non-carcinogenic risk summary for the chemicals of concern in subsurface soil evaluated to reflect potential future construction worker exposure for the RME scenario. For the construction worker, the non-carcinogenic risk exceeds the EPA acceptable risk range for subsurface soil exposure due to the presence of nickel.

This ROD is based upon the adjacent resident without groundwater consumption exposure scenario. Readers are referred to Section 5 and Tables 9.1 through 9.22 of the risk assessment (M&E, 2004) for a more comprehensive risk summary of all exposure pathways evaluated for all chemicals of potential concern and for estimates of the central tendency risk.

Risks Associated with Exposure to Lead

The Integrated Exposure and Uptake Biokinetic (IEUBK) model was used to evaluate the hazard potential posed by exposure of future on-site young child residents as the most sensitive receptor group. The average time-weighted soil lead concentration was used as the soil concentration in the model. Default values, as recommended in the model, were used for all other inputs. The outcome of the model revealed that 5.6% of an exposed population is predicted to have blood lead levels greater than 10 µg/dl. It is EPA policy to protect 95% of the sensitive population against blood lead levels in excess of 10 µg/dl blood. The adult lead model was used to evaluate the hazard potential posed by exposure of the developing fetus as the most sensitive receptor group. A geometric standard deviation in intake and biokinetics of 1.8 was used in the model which is typical of populations in small areas dominated by a single source of lead. A typical blood lead concentration in the absence of site exposures was assumed to be 2.0 µg/dL, which is a mid-range default assumption. The outcome of the model revealed that 15.4% of an exposed population is predicted to have blood lead levels greater than 10 µg/dl. It is EPA policy to protect 95% of the sensitive population against blood lead levels in excess of 10 µg/dl blood. This means that exposures to lead in on-site soil were estimated to result in an exceedance of the blood lead level goal for a future construction worker and a future on-site adult and young child resident.

Table G-8

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Surface Water	Surface Water	Site-wide						
			Benzo(a)pyrene	--	--	1E-04	--	1E-04
			Benzo(b)fluoranthene	--	--	1E-05	--	1E-05
			Benzo(k)fluoranthene	--	--	4E-06	--	4E-06
			Aroclor-1254	--	--	1E-05	--	1E-05
							Surface Water Risk Total =	2E-04
Soil	Surface Soil	Combined On-Site						
			Benzo(a)anthracene	3E-06	--	1E-06	--	5E-06
			Benzo(a)pyrene	2E-05	--	7E-06	--	2E-05
			Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06
			Dibenz(a,h)anthracene	3E-06	--	1E-06	--	4E-06
			Dioxin TEQ	2E-05	--	2E-06	--	3E-05
			Arsenic	8E-06	--	7E-07	--	9E-06
			Ra-226	2E-05	--	--	1E-04	1E-04
			U-234	2E-05	--	--	3E-08	2E-05
			U-235	2E-06	--	--	4E-06	6E-06
			U-238	8E-05	--	--	3E-05	1E-04
							Surface Soil Risk Total =	3E-04
							Total Risk =	5E-04

Key

-- Route of exposure is not applicable to this medium.

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of a young child and adult's exposure to surface water and surface soil, as well as the toxicity of the COCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, dioxin, Aroclor-1254, arsenic, Ra-226, U-234, U-235, and U-238). The total risk from direct exposure to contaminated surface water and surface soil at this site to a future young child/adult recreational user is estimated to be 5×10^{-4}. The COCs contributing most to this risk level are benzo(a)pyrene in surface water and Ra-226 and U-238 in surface soil. This risk level indicates that if no clean-up action is taken, an individual would have an increased probability of 5 in 10,000 of developing cancer as a result of site-related exposure to the COCs.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

ROD RISK WORKSHEET

Table G-9

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Groundwater	Groundwater	Combined						
			Benzene	4E-06	--	--	--	4E-06
			Trichloroethene	7E-05	--	--	--	7E-05
			Vinyl chloride	1E-02	--	--	--	1E-02
			Benzo(b)fluoranthene	2E-06	--	--	--	2E-06
			Arsenic	2E-03	--	--	--	2E-03
			U-234	2E-04	--	--	--	2E-04
			U-235	1E-05	--	--	--	1E-05
			U-238	3E-05	--	--	--	3E-05
							Groundwater Risk Total =	2E-02
							Total Risk =	2E-02

Key

-- Route of exposure is not applicable to this medium

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of a young child and adult's exposure to groundwater, as well as the toxicity of the COCs (benzene, trichloroethene, vinyl choride, benzo(b)fluoranthene, arsenic, U-234, U-235, and U-238). The total risk from direct exposure to contaminated groundwter at this site to a future young child/adult resident is estimated to be 2 x 10^{-2}. The COCs contributing most to this risk level are vinyl chloride, arsenic, and U-234 in groundwater. This risk level indicates that if no clean-up action is taken, an individual would have an increased probability of 2 in 100 of developing cancer as a result of site-related exposure to the COCs

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-10

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Future
Receptor Population: On-Site Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Soil	Surface Soil	On-Site Residence	Benzo(a)anthracene	7E-06	--	3E-06	--	9E-06
			Benzo(a)pyrene	3E-05	--	1E-05	--	5E-05
			Benzo(b)fluoranthene	2E-06	--	9E-07	--	3E-06
			Dibenz(a,h)anthracene	6E-06	--	2E-06	--	8E-06
			Indeno(1,2,3-cd)pyrene	2E-06	--	7E-07	--	2E-06
			Dioxin TEQ	5E-05	--	4E-06	--	5E-05
			Arsenic	1E-05	--	1E-06	--	2E-05
			Ra-226	3E-05	--	--	3E-03	3E-03
			U-234	5E-05	--	--	6E-07	5E-05
			U-235	3E-06	--	--	9E-05	1E-04
			U-238	1E-04	--	--	6E-04	8E-04
							Surface Soil Risk Total =	4E-03
Soil	Subsurface Soil	On-Site Residence	Benzo(a)anthracene	5E-05	--	2E-05	--	7E-05
			Benzo(a)pyrene	7E-04	--	3E-04	--	1E-03
			Benzo(b)fluoranthene	7E-05	--	3E-05	--	1E-04
			Benzo(k)fluoranthene	2E-06	--	1E-06	--	3E-06
			Dibenz(a,h)anthracene	8E-06	--	3E-06	--	1E-05
			Indeno(1,2,3-cd)pyrene	2E-05	--	9E-06	--	3E-05
			Dioxin TEQ	2E-04	--	2E-05	--	3E-04
			Arsenic	2E-05	--	2E-06	--	2E-05
			Ra-226	2E-05	--	--	1E-03	1E-03
			U-238	9E-07	--	--	4E-06	5E-06
							Subsurface Soil Risk Total =	3E-03
							Total Risk =	7E-03

Key

-- Route of exposure is not applicable to this medium

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of a young child and adult's exposure to surface and subsurface soil, as well as the toxicity of the COCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, dioxin, arsenic, Ra-226, U-234, U-235, and U-238). The total risk from direct exposure to contaminated surface and subsurface soil at this site to a future young child/adult on-site resident is estimated to be 7×10^{-3}. The COCs contributing most to this risk level are Ra-226, U-235, and U-238 in surface soil and benzo(a)pyrene, benzo(b)fluoranthene, dioxin and Ra-226 in subsurface soil. This risk level indicates that if no clean-up action is taken, an individual would have an increased probability of 7 in 1,000 of developing cancer as a result of site-related exposure to the COCs.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-11

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Future
Receptor Population: Adjacent Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Soil	Surface Soil	Adjacent Residence						
			Benzo(a)anthracene	3E-06	--	1E-06	--	5E-06
			Benzo(a)pyrene	2E-05	--	7E-06	--	2E-05
			Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06
			Dibenz(a,h)anthracene	3E-06	--	1E-06	--	4E-06
			Dioxin TEQ	2E-05	--	2E-06	--	3E-05
			Arsenic	1E-05	--	1E-06	--	1E-05
			Ra-226	2E-05	--	--	1E-04	2E-04
			U-234	2E-05	--	--	3E-08	2E-05
			U-235	2E-06	--	--	4E-06	6E-06
			U-238	8E-05	--	--	3E-05	1E-04
							Surface Soil Risk Total =	4E-04
Soil	Subsurface Soil	Adjacent Residence						
			Benzo(a)anthracene	3E-06	--	1E-06	--	5E-06
			Benzo(a)pyrene	2E-05	--	7E-06	--	2E-05
			Benzo(b)fluoranthene	1E-06	--	5E-07	--	2E-06
			Dibenz(a,h)anthracene	3E-06	--	1E-06	--	4E-06
			Dioxin TEQ	2E-05		2E-06	--	3E-05
			Arsenic	9E-06	--	9E-07	--	1E-05
			Ra-226	2E-05	--	--	1E-04	1E-04
			U-234	2E-05	--		3E-08	2E-05
			U-235	2E-06	--	--	4E-06	6E-06
			U-238	8E-05	--	--	3E-05	1E-04
							Subsurface Soil Risk Total =	3E-04
							Total Risk =	7E-04

Key

-- Route of exposure is not applicable to this medium

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of a young child and adult's exposure to surface and subsurface soil, as well as the toxicity of the COCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, dioxin, arsenic, Ra-226, U-234, U-235, and U-238). The total risk from direct exposure to contaminated surface and subsurface soil at this site to a future young child/adult adjacent resident is estimated to be 7×10^{-4}. The COCs contributing most to this risk level are Ra-226 and U-238 in surface and subsurface soil. This risk level indicates that if no clean-up action is taken, an individual would have an increased probability of 7 in 10,000 of developing cancer as a result of site-related exposure to the COCs.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

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Table G-12

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Site-wide	Beryllium	GI System	--	--	3E+00	3E+00
			Chromium	GI System	--	--	9E+00	9E+00
			Nickel	General Toxicity	--	--	2E+00	2E+00
							Surface Water Hazard Index Total =	1E+01
Sediment	Sediment	Site-wide	Aroclor-1254	Immune System	3E+00	--	1E+00	4E+00
							Sediment Hazard Index Total =	4E+00
Soil	Surface Soil	Combined On-Site	Nickel	General Toxicity	2E+00	--	N/A	2E+00
			Uranium, total	Kidney	4E+00	--	N/A	4E+00
							Soil Hazard Index Total =	6E+00
							Receptor Hazard Index =	2E+01
							General Toxicity Hazard Index =	4E+00
							GI System Hazard Index =	1E+01
							Immune System Hazard Index =	4E+00
							Kidney Hazard Index =	4E+00

Key

N/A - Toxicity criteria are not available to quantitatively address this route of exposure

-- Route of exposure is not applicable to this medium.

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of the hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) of greater than 1 indictes the potential for adverse noncancer effects. The estimated HI of 4 indicates that the potential for adverse noncancer effects could occur from exposure to contaminated surface water containing beryllium, chromium, and nickel, sediment containing Aroclor-1254, and surface soil containing nickel and uranium

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-13

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Combined						
			cis-1,2-Dichloroethene	Blood	5E+01	--	--	5E+01
			Trichloroethene	Liver	3E+00	--	--	3E+00
			Vinyl chloride	Liver	2E+01	--	--	2E+01
			Arsenic	Skin	2E+01	--	--	2E+01
			Barium	Cardiovascular	5E+00	--	--	5E+00
			Beryllium	GI System	4E+00	--	--	4E+00
			Cadmium	Kidney	1E+01	--	--	1E+01
			Chromium	GI System	6E+00	--	--	6E+00
			Manganese	Nervous System	7E+01	--	--	7E+01
			Nickel	General Toxicity	7E+01	--	--	7E+01
			Zinc	Blood	5E+00	--	--	5E+00
							Groundwater Hazard Index Total =	3E+02
							Receptor Hazard Index =	3E+02
							Blood Hazard Index =	5E+01
							Cardiovascular Hazard Index =	5E+00
							General Toxicity Hazard Index =	7E+01
							GI System Hazard Index =	1E+01
							Kidney Hazard Index =	1E+01
							Liver Hazard Index =	2E+01
							Nervous System Hazard Index =	7E+01
							Skin Hazard Index =	2E+01

Key

N/A - Toxicity criteria are not available to quantitatively address this route of exposure.

-- Route of exposure is not applicable to this medium.

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of the hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) of greater than 1 indictes the potential for adverse noncancer effects. The estimated HI of 300 indicates that the potential for adverse noncancer effects could occur from exposure to contaminated groundwater containing cis-1,2-dichloroethene, trichloroethene, vinyl chloride, arsenic, barium, beryllium, cadmium, chromium, manganese, nickel, and zinc.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-14

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Future
Receptor Population: On-Site Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	On-Site Residence	Nickel	General Toxicity	4E+00	- -	N/A	4E+00
			Uranium, total	Kidney	7E+00	- -	N/A	7E+00
							Surface Soil Hazard Index Total =	1E+01
Soil	Subsurface Soil	On-Site Residence	Chromium	GI System	5E+00	- -	N/A	5E+00
			Mercury	Nervous System	2E+00	- -	N/A	2E+00
			Nickel	General Toxicity	1E+01	- -	N/A	1E+01
							Subsurface Soil Hazard Index Total =	2E+01
							Receptor Hazard Index =	3E+01
							General Toxicity Hazard Index =	1E+01
							GI System Hazard Index =	5E+00
							Nervous System Hazard Index =	2E+00
							Kidney Hazard Index =	7E+00

Key

N/A - Toxicity criteria are not available to quantitatively address this route of exposure.

-- Route of exposure is not applicable to this medium.

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of the hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) of greater than 1 indictes the potential for adverse noncancer effects. The estimated HI of 30 indicates that the potential for adverse noncancer effects could occur from exposure to contaminated surface soil containing nickel and uranium and subsurface soil containing chromium, mercury, and nickel

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Table G-15

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Future
Receptor Population: Adjacent Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Adjacent Residence	Nickel	General Toxicity	2E+00	--	N/A	2E+00
			Uranium, total	Kidney	4E+00	--	N/A	4E+00
							Surface Soil Hazard Index Total =	6E+00
Soil	Subsurface Soil	Adjacent Residence	Nickel	General Toxicity	2E+00	--	N/A	2E+00
			Uranium, total	Kidney	4E+00	--	N/A	4E+00
							Subsurface Soil Hazard Index Total =	6E+00
							Receptor Hazard Index =	1E+01
							General Toxicity Hazard Index =	4E+00
							Kidney Hazard Index =	7E+00

Key

N/A - Toxicity criteria are not available to quantitatively address this route of exposure.

-- Route of exposure is not applicable to this medium.

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of the hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) of greater than 1 indictes the potential for adverse noncancer effects. The estimated HI of 10 indicates that the potential for adverse noncancer effects could occur from exposure to contaminated surface and subsurface soil containing nickel and uranium.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

Uncertainties

Estimation of risks to human health that may result from exposure to chemicals and radionuclides at the Site is a complex process. Each assumption, whether regarding the toxicity value to use for a particular COPC or the value of a parameter in an exposure equation, has a degree of variability and uncertainty associated with it. In each step of the risk assessment process, beginning with the data collection and analysis and continuing through the toxicity assessment, exposure assessment, and risk characterization, conservative assumptions are made that are intended to be protective of human health and to ensure that risks are not underestimated. The following provides a discussion of the key uncertainties that may affect the final estimates of human health risk at this Site. One assumption in the risk assessment was that the concentrations of chemicals would remain constant over time. Because of this assumption, historical and recently collected sampling data were combined allowing for the use of a more robust data set.

This assumption may overestimate risks, depending on the degree of chemical degradation or transport to other media. Conversely, biodegradation of chemicals to more toxic chemicals was also not considered. However, the natural decay of radionuclides to short-lived decay products was factored into the risk estimates through the use of toxicity values that include these decay products. COCs currently undergoing re-evaluation for carcinogenic potency include dioxin and trichloroethene. An interim revised cancer slope factor for dioxin indicates that the cancer risk associated with dioxin exposure may be as much as 6.2 times greater than the risks estimated in this risk assessment. Estimates of carcinogenic potency for trichloroethene range over nearly two orders of magnitude. The high-end of the range of oral slope factors and unit risk values was used for carcinogenic risk estimation. Therefore, carcinogenic risks for trichloroethene may have been overestimated.

The bioavailability of COPCs by the oral exposure route through the ingestion of soil and sediment is uncertain. The animal bioassays on which the toxicity values are based do not involve feeding of chemicals in a soil/sediment matrix. Oral absorption of chemicals from soil/sediment may be diminished due to the matrix effect, particularly for inorganics that may be a component of the mineral structure of these media and, thus, not available for uptake. This may have resulted in an overestimation of inorganic risks.

For dermal exposure pathways, the absence of dermal toxicity criteria necessitated the use of oral toxicity data. To calculate risk estimates for the dermal pathway, absolute oral bioavailability factors that reflect the toxicity study conditions were used to modify the oral toxicity criteria. For the chemicals with oral absorption exceeding 50% (e.g., the PAHs), a default oral absorption factor of 100% was used. The risk estimates for the dermal pathways may be over- or underestimated depending on how closely these values reflect the difference between the oral and dermal routes.

Reasonable Maximum Exposure (RME) risks are conservative since estimated risks are based on upper-bound exposure assumptions. Actual risks for some individuals within an exposed population may vary from those predicted depending upon their actual intake rates (e.g., soil ingestion rates) or body weights. Therefore, exposures and estimated risks are likely to be overestimated.

In a limited number of cases, a small number of environmental samples were collected resulting in the use of the maximum detected level of a COPC as the RME EPC. Use of the maximum detected result instead of the 95% UCL value for the RME EPC results in an overestimate of risk.

For groundwater, maximum detected COPC concentrations were used as the RME EPCs, as prescribed by EPA guidance. This assumption is protective of worst-case groundwater exposures that may occur during future pumping events. Because the maximum detected groundwater concentrations are not co-located at

Table G-16

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface Soil	Combined On-Site	Nickel	General Toxicity	2E+00	- -	N/A	2E+00
							Subsurface Soil Hazard Index Total =	2E+00
							Receptor Hazard Index =	2E+00
							General Toxicity Hazard Index =	2E+00

Key

N/A - Toxicity criteria are not available to quantitatively address this route of exposure

-- Route of exposure is not applicable to this medium.

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of the hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) of greater than 1 indictes the potential for adverse noncancer effects. The estimated HI of 2 indicates that the potential for adverse noncancer effects could occur from exposure to contaminated subsurface soil containing nickel.

Source: A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (U.S. EPA, 1999)

this site, it is unlikely that the installation of a well would result in exposure to maximum detected concentrations of each groundwater COPC. Therefore, this approach likely results in an overestimate of risk.

2. Ecological Risk Assessment

An ecological risk assessment (ERA) was completed for the Shpack Landfill Superfund Site to evaluate the likelihood and magnitude of potential ecological effects associated with historical disposal practices. The ERA evaluated the potential for contaminants in soil, surface water, and sediment to impact ecological receptor populations within six distinct exposure areas: the Tongue Area, combined field and shrubland, onsite seasonal wetlands, hardwood forest, Chartley Swamp, and Chartley Pond. See Figure 4.

In accordance with EPA policy, a screening level ecological risk assessment (SLERA) can be sufficient to document risk in areas where a known remedy will be implemented when risk is driven by other factors, such as another risk assessment. Based on the feasibility study, which incorporates the human health risk assessment for the Shpack site, it was determined that remediation at the Tongue Area and the combined field and shrubland would require some action to take place, such as capping under the original proposed plan. As a result, additional evaluation of ecological risk within these two exposure areas was not thought to be necessary since risk associated with potential exposure to ecological receptors was to have been eliminated. Therefore, evaluations associated with the Tongue Area and the combined field and shrubland were not included in the BERA.

Because the selected remedy does not in fact cap the Combined Field and Shrubland habitat, an assessment of ecological risk posed by soil in the Combined Field and Shrubland habitat (Figure 4) of the site will be performed utilizing food chain models developed to evaluate receptor risk from soil in other areas of the site following 1997 EPA Superfund ecological risk assessment guidance. This evaluation will be limited to those areas which are not being excavated due to human health risk.

Evaluations associated with Chartley Pond are not included in the ROD because no risk was identified in Chartley Pond in the SLERA. Because radiation standards for human populations will also protect populations of non-human biota, risk from radiological effects were covered by the human health risk assessment and were not evaluated in the ERA.

Identification of Chemicals of Concern

Contaminants of concern (COCs) were identified using an effects-based screening involving the comparison of maximum contaminant concentrations to ecological benchmarks for each medium and within each exposure area. Data used to identify COCs are summarized below in Table G-l7 (hardwood forest), Table G-l8 and Table G-l9 (Chartley Swamp), and Table G-20 and Table G-21 (onsite seasonal wetlands).

Exposure Assessment

The hardwood forest provides habitat for a variety of terrestrial receptors, including small mammals and terrestrial songbirds. Chartley Swamp provides habitat for aquatic and semi-aquatic mammals, waterfowl, bottom dwelling fish, and benthic invertebrates. When inundated, the onsite seasonal wetlands provide habitat for wetland songbirds and benthic invertebrates, and when dry provide habitat for small terrestrial mammals. The onsite seasonal wetlands also provide habitat for the spotted turtle (*Clemmys guttata*), a species of special concern in Massachusetts.

Terrestrial receptors may accumulate COCs through consumption of contaminated prey and incidental soil ingestion. Aquatic and semi-aquatic receptors may be exposed to COCs through ingestion of contaminated prey, sediment, and surface water. Exposure pathways, assessment endpoints, and measurement endpoints are summarized below in Table G-22 (hardwood forest). Table G-23 (Chartley Swamp), and Table G-24 (onsite seasonal wetlands).

Potential risk from COCs to assessment populations was estimated using dietary exposure models. Because site-specific tissue data were not available, doses were modeled from soil, sediment, and surface water concentrations. To assist in exposure estimation for small terrestrial mammals and songbirds, COC concentrations in prey (earthworms) were modeled directly from COC concentrations in soil. To assist in exposure estimation for semi-aquatic mammals, waterfowl, and marsh wren, COC concentrations in prey (oligocheates) were modeled directly from COC concentrations in sediment. COC concentrations in dietary vegetation were also modeled to assist exposure estimation for these five indicator species. Risk to bottom dwelling fish was evaluated by modeling tissue concentrations from measured sediment concentrations. Risk to benthic invertebrates was evaluated by comparing sediment concentrations to sediment ecological benchmarks.

Short-tailed shrew (*Blarina brevicauda*), representing small mammals, and American robin (*Turdus migratorius*), representing songbirds, were selected as assessment populations to evaluate risks associated with exposure to COCs in hardwood forest soil. Muskrat (*Ondatra zibethicus*), representing semi-aquatic mammals, and mallards (*Anas platyrhynchos*), representing waterfowl, were selected as assessment populations to evaluate risks associated with exposure to COCs in Chartley Swamp sediment and surface water. In addition, risk to fish, represented by brown bullhead (*Ameiurus nebulosus*}, and risk to benthic invertebrates, were also evaluated in Chartley Swamp. Short-tailed shrew (*Blarina brevicauda*), representing small mammals, and marsh wren (*Cistothorus palitstris*), representing wetland songbirds were selected as assessment populations to evaluate risks associated with exposure to COCs in onsite seasonal wetland sediment and surface water. In addition, risk to benthic invertebrates was also evaluated in the onsite seasonal wetlands.

For each assessment population, an average exposure case and a maximum exposure case were calculated. The average case was an exposure model based on (arithmetic) mean COC concentrations. The maximum exposure case was an exposure model based on the upper confidence limit (UCL) of COC concentrations.

Chartley Swamp was assessed for three exposure scenarios: the inner rung, outer rung, and site-wide scenario. See Figure 5 for the approximate location of the inner and outer rung of Chartley Swamp. The distinction was based on apparent geographic differences in contaminant concentrations. The inner rung is an area of Chartley Swamp which lies adjacent to the highly contaminated Tongue Area, where COC concentrations were as much as three orders of magnitude higher than the concentrations at sediment locations in the rest of Chartley Swamp. The area of Chartley Swamp which is not part of the inner rung comprises the outer rung. The inner rung and outer rung combine to form the site-wide scenario. In the hardwood forest and the onsite seasonal wetlands, concentrations of COCs in sediments were relatively uniform, so these exposure areas were not divided into separate sub-areas.

TABLE G-17
SOIL COPC SCREENING
FOREST
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Soil Concentration mg/kg	Ecological Soil Screening Level mg/kg	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
VOCs (mg/kg)							
1,1-Dichloroethene	0 / 10	< 0.016	23.5	Mammal	No	Below benchmark	0.0
1,2-Dichloroethene (total)	1 / 6	< 0.016	No SL	NA	Yes	No SL	NA
2-Butanone	0 / 10	< 0.016	6,487	Mammal	No	Below benchmark	0.0
Acetone	1 / 10	0.0225	36.6	Mammal	No	Below benchmark	0.0
Carbon Disulfide	0 / 10	< 0.016	No SL	NA	Yes	No SL	NA
cis-1,2-Dichloroethene	0 / 4	< 0.008	No SL	NA	Yes	No SL	NA
Methyl Acetate	0 / 4	< 0.008	No SL	NA	Yes	No SL	NA
Tetrachloroethene	0 / 10	< 0.016	2.27	Mammal	No	Below benchmark	0.0
Toluene	0 / 10	< 0.016	51.5	Mammal	No	Below benchmark	0.0
trans-1,2-Dichloroethene	0 / 4	< 0.008	No SL	NA	Yes	No SL	NA
Trichloroethene	0 / 10	< 0.016	1.387	Mammal	No	Below benchmark	0.0
Trichlorofluoromethane	0 / 4	< 0.008	No SL	NA	Yes	No SL	NA
Vinyl Chloride	0 / 10	< 0.016	0.0623	Mammal	No	Below benchmark	0.3
SVOCs (mg/kg)							
1,1'-Biphenyl	0 / 4	< 0.37	60	Phyto	No	Below benchmark	0.0
2-Methylnaphthalene	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
4-Methylphenol	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Acenaphthene	0 / 10	< 0.52	20	Phyto	No	Below benchmark	0.0
Acenaphthylene	1 / 10	0.006	No SL	NA	Yes	No SL	NA
Anthracene	1 / 10	0.004	No SL	NA	Yes	No SL	NA
Benzaldehyde	1 / 4	0.048	No SL	NA	Yes	No SL	NA
Benzo(a)anthracene	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Benzo(a)pyrene	1 / 10	0.009	1.98	Mammal	No	Below benchmark	0.0
Benzo(b)fluoranthene	3 / 10	0.041	No SL	NA	Yes	No SL	NA
Benzo(g,h,i)perylene	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Benzo(k)fluoranthene	2 / 10	0.037	No SL	NA	Yes	No SL	NA
bis(2-Ethylhexyl)phthalate	2 / 10	0.11	0.91	Avian	No	Below benchmark	0.1
Carbazole	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Chrysene	3 / 10	0.047	No SL	NA	Yes	No SL	NA
Dibenz(a,h)anthracene	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Dibenzofuran	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Diethylphthalate	0 / 10	< 0.52	100	Phyto	No	Below benchmark	0.0
Di-n-butylphthalate	0 / 10	< 0.52	0.09	Avian	Yes	Exceeds benchmark[a]	5.8
Di-n-octylphthalate	1 / 10	0.041	No SL	NA	Yes	No SL	NA
Fluoranthene	5 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Fluorene	0 / 10	< 0.52	30	Earthworm	No	Below benchmark	0.0
Indeno(1,2,3-cd)pyrene	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Naphthalene	0 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Phenanthrene	4 / 10	< 0.52	No SL	NA	Yes	No SL	NA
Phenol	0 / 10	< 0.52	30	Earthworm	No	Below benchmark	0.0
Pyrene	5 / 10	< 0.52	No SL	NA	Yes	No SL	NA
PCBs/Pesticides (mg/kg)							
4,4'-DDD	0 / 10	< 0.0057	0.002	Avian	Yes	Bioaccumulates[d]	2.9
4,4'-DDE	4 / 10	0.003	0.002	Avian	Yes	Bioaccumulates	1.5
4,4'-DDT	3 / 10	0.0054	0.002	Avian	Yes	Bioaccumulates	2.7
Aldrin	0 / 10	< 0.0029	0.733	Mammal	Yes	Bioaccumulates	0.0
alpha-BHC	0 / 10	< 0.0029	No SL	NA	Yes	Bioaccumulates	NA
alpha-Chlordane	0 / 10	< 0.0029	1.8	Avian	Yes	Bioaccumulates	0.0
Aroclor-1248	1 / 10	0.064	0.071	Mammal	Yes	Bioaccumulates	0.9
Aroclor-1254	0 / 10	< 0.057	0.111	Mammal	Yes	Bioaccumulates	0.5
Aroclor-1260	3 / 10	0.046	40	Phyto	Yes	Bioaccumulates	0.0
Dieldrin	1 / 10	0.00079	0.064	Avian	Yes	Bioaccumulates	0.0
Endosulfan I	0 / 10	< 0.0029	0.55	Mammal	Yes	Bioaccumulates	0.0
Endosulfan sulfate	1 / 10	0.0017	0.55	Mammal	Yes	Bioaccumulates	0.0
Endrin	0 / 10	< 0.0057	0.008	Avian	Yes	Bioaccumulates	0.7
Endrin aldehyde	0 / 10	< 0.0057	No SL	NA	Yes	Bioaccumulates	NA
Endrin ketone	0 / 10	< 0.0057	No SL	NA	Yes	Bioaccumulates	NA
gamma-Chlordane	0 / 10	< 0.0029	No SL	NA	Yes	Bioaccumulates	NA
Heptachlor epoxide	0 / 10	< 0.0029	No SL	NA	Yes	Bioaccumulates	NA
Methoxychlor	0 / 10	< 0.029	14.7	Mammal	Yes	Bioaccumulates	0.0

TABLE G-17
SOIL COPC SCREENING
FOREST
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Soil Concentration mg/kg	Ecological Soil Screening Level mg/kg	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
Metals (mg/kg)							
Aluminum	11 / 11	22300	3.825	Mammal	Yes	Exceeds benchmark	5830.1
Antimony	0 / 11	< 4.9	0.248	Mammal	Yes	Exceeds benchmark[a]	19.8
Arsenic	11 / 11	10.2	0.25	Mammal	Yes	Exceeds benchmark	40.8
Barium	11 / 11	356	17.2	Avian	Yes	Exceeds benchmark	20.7
Beryllium	10 / 11	0.48	2.42	Mammal	No	Below benchmark	0.2
Cadmium	4 / 11	0.35	1.2	Avian	No	Below benchmark	0.3
Calcium	11 / 11	2220	NA	Nutrient	No	Nutrient	NA
Chromium	11 / 11	17	0.4	Earthworm	Yes	Exceeds benchmark	42.5
Cobalt	6 / 11	6	20	Phyto	No	Below benchmark	0.3
Copper	9 / 11	26.9	38.9	Avian	No	Below benchmark	0.7
Cyanide	0 / 11	< 5.4	236.5	Mammal	No	Below benchmark	0.0
Iron	11 / 11	20900	No SL	NA	Yes	No SL	NA
Lead	11 / 11	73	0.94	Avian	Yes	Exceeds benchmark	77.7
Magnesium	11 / 11	2220	NA	Nutrient	No	Nutrient	NA
Manganese	11 / 11	302	322	Mammal	No	Below benchmark	0.9
Mercury	1 / 11	0.052	0.1	Earthworm	No	Below benchmark	0.5
Nickel	11 / 11	37.7	30	Phyto	Yes	Exceeds benchmark	1.3
Potassium	9 / 11	< 604	NA	Nutrient	No	Below benchmark	NA
Selenium	5 / 11	2.5	0.331	Avian	Yes	Exceeds benchmark	7.6
Silver	4 / 11	1.3	2	Phyto	No	Below benchmark	0.7
Sodium	7 / 11	137	NA	Nutrient	No	Nutrient	NA
Thallium	1 / 11	0.087	0.027	Mammal	Yes	Exceeds benchmark	3.2
Uranium, total	4 / 4	2.6	5	Phyto	No	Below benchmark	0.5
Vanadium	11 / 11	28.7	0.714	Mammal	Yes	Exceeds benchmark	40.2
Zinc	11 / 11	68.9	12	Mammal	Yes	Exceeds benchmark	5.7

a. Hazard quotient > 1 but based on maximum detection limit.
No SL - No screening level available
"<" - Indicates maximum detection limit.
NA - Not applicable
COC - Contminant of Concern

Sources:
Mammal - NOAEL-based benchmark for food ingestion from Sample et al, 1996
Avian - NOAEL-based benchmark for food ingestion from Sample et al, 1996
Earthworm - Efroymson et al. (1997a)
Phyto - Efroymson et al. (1997b)

TABLE G-18
SEDIMENT COPC SCREENING
CHARTLEY SWAMP
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Sediment Concentration mg/kg	Ecological Sediment Screening Level[a] mg/kg	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
VOCs (mg/kg)							
1,1-Dichloroethene	0 / 6	< 0.02	No SL	NA	Yes	No SL	NA
1,2-Dichloroethene (total)	0 / 6	< 0.02	No SL	NA	Yes	No SL	NA
2-Butanone	0 / 6	< 0.02	No SL	NA	Yes	No SL	NA
Acetone	1 / 6	< 0.02	No SL	NA	Yes	No SL	NA
Carbon Disulfide	2 / 6	0.052	No SL	NA	Yes	No SL	NA
cis-1,2-Dichloroethene	0 / 6	< 0.02	No SL	NA	Yes	No SL	NA
Tetrachloroethene	0 / 6	< 0.02	4.3	SQB	No	Below benchmark	0.005
Toluene	0 / 6	< 0.02	5.4	SQB	No	Below benchmark	0.004
Trichloroethene	0 / 6	< 0.02	13.0	SQB	No	Below benchmark	0.002
Vinyl Chloride	0 / 6	< 0.02	No SL	NA	Yes	No SL	NA
SVOCs (mg/kg)							
2-Methylnaphthalene	0 / 6	< 0.6	No SL	NA	Yes	No SL	NA
4-Methylphenol	0 / 6	< 0.6	0.07	ER-L	Yes	Exceeds benchmark[b]	8.6
Acenaphthene	0 / 6	< 0.6	5.0	SQC	No	Below benchmark	0.1
Acenaphthylene	0 / 6	< 0.6	0.044	ER-L	Yes	Exceeds benchmark[b]	13.6
Anthracene	0 / 6	< 0.6	0.085	ER-L	Yes	Exceeds benchmark[b]	7.1
Benzo(a)anthracene	0 / 6	< 0.6	0.261	ER-L	Yes	Exceeds benchmark[b]	2.3
Benzo(a)pyrene	0 / 6	< 0.6	0.43	ER-L	Yes	Exceeds benchmark[b]	1.4
Benzo(b)fluoranthene	1 / 6	0.017	No SL	NA	Yes	No SL	NA
Benzo(g,h,i)perylene	0 / 6	< 0.6	1.4	OMOE-Low	No	Below benchmark	0.4
Benzo(k)fluoranthene	0 / 6	< 0.6	1.9	OMOE-Low	No	Below benchmark	0.3
bis(2-Ethylhexyl)phthalate	0 / 6	< 0.6	0.182	TEL	Yes	Exceeds benchmark[b]	3.3
Carbazole	0 / 6	< 0.6	No SL	NA	Yes	No SL	NA
Chrysene	1 / 6	0.018	0.384	ER-L	No	Below benchmark	0.05
Dibenz(a,h)anthracene	0 / 6	< 0.6	0.06	ER-L	Yes	Exceeds benchmark[b]	9.5
Dibenzofuran	0 / 6	< 0.6	16.2	SQB	No	Below benchmark	0.04
Diethylphthalate	0 / 6	< 0.6	5.1	SQB	No	Below benchmark	0.1
Di-n-butylphthalate	0 / 6	< 0.6	No SL	NA	Yes	No SL	NA
Di-n-octylphthalate	0 / 6	< 0.6	No SL	NA	Yes	No SL	NA
Fluoranthene	6 / 6	0.033	23.5	SQC	No	Below benchmark	0.0
Fluorene	0 / 6	< 0.6	4.4	SQB	No	Below benchmark	0.1
Indeno(1,2,3-cd)pyrene	0 / 6	< 0.6	0.2	OMOE-Low	Yes	Exceeds benchmark[b]	3.7
Naphthalene	0 / 6	< 0.6	0.16	ER-L	Yes	Exceeds benchmark[b]	3.8
Phenanthrene	6 / 6	0.017	6.9	SQC	No	Below benchmark	0.002
Phenol	1 / 6	0.087	No SL	NA	Yes	No SL	NA
Pyrene	6 / 6	0.027	0.66	ER-L	No	Below benchmark	0.04
PCBs/Pesticides (mg/kg)							
4,4'-DDD	0 / 6	< 0.006	0.002	ER-L	Yes	Bioaccumulates[b]	3.0
4,4'-DDE	0 / 6	< 0.006	0.0022	ER-L	Yes	Bioaccumulates[b]	2.7
4,4'-DDT	1 / 6	0.0024	0.00158	ER-L	Yes	Bioaccumulates	1.5
Aldrin	0 / 6	< 0.0031	0.016210111	OMOE-Low	Yes	Bioaccumulates	0.2
alpha-BHC	0 / 6	< 0.0031	0.048630333	OMOE-Low	Yes	Bioaccumulates	0.1
alpha-Chlordane	0 / 6	< 0.0031	0.0005	ER-L	Yes	Bioaccumulates[b]	6.2
Aroclor-1248	0 / 6	< 0.06	0.243151667	OMOE-Low	Yes	Bioaccumulates	0.2
Aroclor-1254	0 / 6	< 0.06	0.486303333	OMOE-Low	Yes	Bioaccumulates	0.1
Aroclor-1260	0 / 6	< 0.06	0.040525278	OMOE-Low	Yes	Bioaccumulates[b]	1.5
Dieldrin	0 / 6	< 0.006	0.421462889	SQC	Yes	Bioaccumulates	0.01
Endosulfan II	0 / 6	< 0.006	0.113470778	SQB	Yes	Bioaccumulates	0.1
Endosulfan sulfate	0 / 6	< 0.006	No SL	NA	Yes	Bioaccumulates	NA
Endrin	0 / 6	< 0.006	0.162101111	SQC	Yes	Bioaccumulates	0.04
Endrin aldehyde	0 / 6	< 0.006	No SL	NA	Yes	Bioaccumulates	NA
Endrin ketone	0 / 6	< 0.006	No SL	NA	Yes	Bioaccumulates	NA
gamma-Chlordane	0 / 6	< 0.0031	0.0005	ER-L	Yes	Bioaccumulates[b]	6.2
Heptachlor epoxide	0 / 6	< 0.0031	0.040525278	OMOE-Low	Yes	Bioaccumulates	0.1
Methoxychlor	0 / 6	< 0.031	0.153996056	SQB	Yes	Bioaccumulates	0.2

TABLE G-18
SEDIMENT COPC SCREENING
CHARTLEY SWAMP
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Sediment Concentration mg/kg	Ecological Sediment Screening Level[a] mg/kg	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
Metals (mg/kg)							
Aluminum	13 / 13	16,800	No SL	NA	Yes	No SL	NA
Antimony	6 / 13	< 6.8	2	ER-L	Yes	Exceeds benchmark	3.4
Arsenic	13 / 13	38	8.2	ER-L	Yes	Exceeds benchmark	4.6
Barium	13 / 13	61.2	No SL	NA	Yes	No SL	NA
Beryllium	12 / 13	98.5	No SL	NA	Yes	No SL	NA
Cadmium	6 / 13	82.1	1.2	ER-L	Yes	Exceeds benchmark	68.4
Calcium	13 / 13	6,960	Nutrient	NA	No	Nutrient	NA
Chromium	13 / 13	1,380	81	ER-L	Yes	Exceeds benchmark	17.0
Cobalt	11 / 13	432	No SL	NA	Yes	No SL	NA
Copper	8 / 13	553	34	ER-L	Yes	Exceeds benchmark	16.3
Cyanide	1 / 13	< 7.5	No SL	NA	Yes	No SL	NA
Iron	13 / 13	48,400	20,000	OMOE-Low	Yes	Exceeds benchmark	2.4
Lead	13 / 13	134	46.7	ER-L	Yes	Exceeds benchmark	2.9
Magnesium	13 / 13	2,400	Nutrient	NA	No	Nutrient	NA
Manganese	13 / 13	276	460	OMOE-Low	No	Below benchmark	0.6
Mercury	4 / 13	4.4	0.15	ER-L	Yes	Exceeds benchmark	29.3
Nickel	13 / 13	26,200	20.9	ER-L	Yes	Exceeds benchmark	1253.6
Potassium	12 / 13	659	Nutrient	NA	No	Nutrient	NA
Selenium	8 / 13	3.3	No SL	NA	Yes	No SL	NA
Silver	6 / 13	14.8	1	ER-L	Yes	Exceeds benchmark	14.8
Sodium	13 / 13	173	Nutrient	NA	No	Nutrient	NA
Thallium	4 / 13	< 0.77	No SL	NA	Yes	No SL	NA
Uranium, total	7 / 7	6.5	No SL	NA	Yes	No SL	NA
Vanadium	13 / 13	127	No SL	NA	Yes	No SL	NA
Zinc	13 / 13	20,800	150	ER-L	Yes	Exceeds benchmark	138.7

a. SQB, SQC, and OMOE-Low benchmark values (organics only) have been adjusted for a TOC of 8.1%.
b. Hazard quotient > 1 but based on maximum detection limit.
No SL - No screening level available
"<" - Indicates maximum detection limit.
NA - Not applicable
COC - Contminant of Concern

Sources in Order of Preference:
SQC - Sediment Quality Criteria. USEPA (1996) ECO Update, Ecotoxix Thresholds. Intermittent Bulletin Vol 3, No. 2.
SQB - Sediment Quality Benchmarks. USEPA (1996) ECO Update, Ecotox Thresholds. Intermittent Bulletin Vol 3, No. 2.
ER-L - NOAA Effects Range-Low, Long et al. (1995) as cited in in Jones, Sutter & Hull (1997)
OMOE-Low - Ontario Ministry of the Environment-Low, Persaud, et al. (1993) as cited in Jones, Sutter & Hull (1997)
TEL - Threshold Effects Levels, MacDonald (1994) as cited in Jones, Sutter & Hull (1997)

TABLE G-19
SURFACE WATER COPC SCREENING
CHARTLEY SWAMP
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Surface Water Concentration (ug/L)	Ecological Surface Water Screening Level[a] (ug/L)	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
VOCs (ug/L)							
1,1-Dichloroethene	0 / 4	< 10	25	SCV	No	Below benchmark	0.4
1,2-Dichloroethene (total)	0 / 4	< 10	590	SCV	No	Below benchmark	0.02
2-Butanone	0 / 4	< 10	14,000	SCV	No	Below benchmark	0.001
Acetone	1 / 4	7	1,500	SCV	No	Below benchmark	0.005
Carbon Disulfide	0 / 4	< 10	0.92	SCV	Yes	Exceeds benchmark[b]	10.9
Tetrachloroethene	0 / 4	< 10	120	ET-Tier II	No	Below benchmark	0.1
Toluene	0 / 4	< 10	130	ET-Tier II	No	Below benchmark	0.1
trans-1,2-Dichloroethene	0 / 4	< 10	590	SCV	No	Below benchmark	0.02
Trichloroethene	0 / 4	< 10	350	ET-Tier II	No	Below benchmark	0.03
Vinyl Chloride	0 / 4	< 10	No SL	NA	Yes	No SL	NA
SVOCs (ug/L)							
2-Methylnaphthalene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
4-Methylphenol	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Acenaphthene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Acenaphthylene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Anthracene	0 / 4	< 10	0.73	SCV	Yes	Exceeds benchmark[b]	13.7
Benzo(a)anthracene	0 / 4	< 10	0.027	SCV	Yes	Exceeds benchmark[b]	370.4
Benzo(a)pyrene	0 / 4	< 10	0.014	ET-Tier II	Yes	Exceeds benchmark[b]	714.3
Benzo(b)fluoranthene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Benzo(g,h,i)perylene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Benzo(k)fluoranthene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
bis(2-Ethylhexyl)phthalate	0 / 4	< 10	32	ET-Tier II	No	Below benchmark	0.3
Carbazole	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Chrysene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Dibenz(a,h)anthracene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Dibenzofuran	0 / 4	< 10	20	ET-Tier II	No	Below benchmark	0.5
Diethylphthalate	0 / 4	< 10	220	ET-Tier II	No	Below benchmark	0.05
Di-n-butylphthalate	0 / 4	< 10	33	ET-Tier II	No	Below benchmark	0.3
Di-n-octylphthalate	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Fluoranthene	1 / 4	0.2	No SL	NA	Yes	No SL	NA
Fluorene	0 / 4	< 10	3.9	ET-Tier II	Yes	Exceeds benchmark[b]	2.6
Indeno(1,2,3-cd)pyrene	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Naphthalene	0 / 4	< 10	24	ET-Tier II	No	Below benchmark	0.4
Phenanthrene	1 / 4	0.1	No SL	NA	Yes	No SL	NA
Phenol	0 / 4	< 10	No SL	NA	Yes	No SL	NA
Pyrene	1 / 4	0.2	No SL	NA	Yes	No SL	NA
PCBs/Pesticides (ug/L)							
4,4'-DDD	0 / 4	< 0.1	0.011	SCV	Yes	Bioaccumulates[b]	9.1
4,4'-DDE	0 / 4	< 0.1	No SL	NA	Yes	Bioaccumulates	NA
4,4'-DDT	0 / 4	< 0.1	0.001	AWQC	Yes	Bioaccumulates[b]	100.0
Aldrin	0 / 4	< 0.05	3	AWQC	Yes	Bioaccumulates	0.02
alpha-BHC	0 / 4	< 0.05	No SL	NA	Yes	Bioaccumulates	NA
alpha-Chlordane	0 / 4	< 0.05	0.0043	AWQC	Yes	Bioaccumulates[b]	11.6
Aroclor-1248	0 / 4	< 1	0.081	SCV	Yes	Bioaccumulates[b]	12.3
Aroclor-1254	0 / 4	< 1	0.033	SCV	Yes	Bioaccumulates[b]	30.3
Aroclor-1260	0 / 4	< 1	94	SCV	Yes	Bioaccumulates	0.01
Dieldrin	0 / 4	< 0.1	0.056	AWQC	Yes	Bioaccumulates[b]	1.8
Endosulfan I	0 / 4	< 0.05	0.056	ET-Tier II	Yes	Bioaccumulates	0.9
Endosulfan sulfate	0 / 4	< 0.1	No SL	NA	Yes	Bioaccumulates	NA
Endrin	0 / 4	< 0.1	0.036	AWQC	Yes	Bioaccumulates[b]	2.8
Endrin aldehyde	0 / 4	< 0.1	No SL	NA	Yes	Bioaccumulates	NA
Endrin ketone	0 / 4	< 0.1	No SL	NA	Yes	Bioaccumulates	NA
gamma-Chlordane	0 / 4	< 0.05	0.0043	AWQC	Yes	Bioaccumulates[b]	11.6
Heptachlor epoxide	0 / 4	< 0.05	0.0038	AWQC	Yes	Bioaccumulates[b]	13.2
Methoxychlor	0 / 4	< 0.5	0.03	AWQC	Yes	Bioaccumulates[b]	16.7

TABLE G-19
SURFACE WATER COPC SCREENING
CHARTLEY SWAMP
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Surface Water Concentration (ug/L)	Ecological Surface Water Screening Level[a] (ug/L)	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
Metals (ug/L)							
Aluminum - Dissolved	7 / 7	510	750	AWQC	No	Below benchmark[c]	0.7
Aluminum - Total	11 / 11	33300	750	AWQC	Yes	Exceeds benchmark	44.4
Antimony - Dissolved	7 / 7	0.9	30	SCV	No	Below benchmark	0.03
Antimony - Total	6 / 11	< 18	30	SCV	No	Below benchmark	0.6
Arsenic - Dissolved	3 / 7	< 2	150	AWQC	No	Below benchmark	0.01
Arsenic - Total	8 / 11	10.8	150	AWQC	No	Below benchmark	0.1
Barium - Dissolved	7 / 7	81.6	3.9	ET-Tier II	Yes	Exceeds benchmark	20.9
Barium - Total	11 / 11	217	3.9	ET-Tier II	Yes	Exceeds benchmark	55.6
Beryllium - Dissolved	2 / 7	21.3	5.1	ET-Tier II	Yes	Exceeds benchmark	4.2
Beryllium - Total	6 / 11	1480	5.1	ET-Tier II	Yes	Exceeds benchmark	290.2
Cadmium - Dissolved	2 / 7	14.9	0.33	AWQC	Yes	Exceeds benchmark	45.3
Cadmium - Total	6 / 11	121	0.37	AWQC	Yes	Exceeds benchmark	327.9
Calcium - Dissolved	7 / 7	283000	Nutrient	NA	No	Nutrient	NA
Calcium - Total	11 / 11	335000	Nutrient	NA	No	Nutrient	NA
Chromium - Dissolved	6 / 7	193	104	AWQC	Yes	Exceeds benchmark	1.8
Chromium - Total	9 / 11	13300	121	AWQC	Yes	Exceeds benchmark	109.5
Cobalt - Dissolved	7 / 7	515	3	ET-Tier II	Yes	Exceeds benchmark	171.7
Cobalt - Total	11 / 11	1960	3	ET-Tier II	Yes	Exceeds benchmark	653.3
Copper - Dissolved	4 / 7	55	12.8	AWQC	Yes	Exceeds benchmark	4.3
Copper - Total	8 / 11	4220	13.3	AWQC	Yes	Exceeds benchmark	316.3
Cyanide - Dissolved	0 / 7	< 10	5.2	AWQC	Yes	Exceeds benchmark[b]	1.9
Cyanide - Total	0 / 11	< 10	5	AWQC	Yes	Exceeds benchmark[b]	2.0
Iron - Dissolved	7 / 7	33100	1,000	AWQC	Yes	Exceeds benchmark	33.1
Iron - Total	11 / 11	270000	1,000	AWQC	Yes	Exceeds benchmark	270.0
Lead - Dissolved	6 / 7	6.2	4.0	AWQC	Yes	Exceeds benchmark	1.6
Lead - Total	9 / 11	868	5.4	AWQC	Yes	Exceeds benchmark	160.1
Magnesium - Dissolved	7 / 7	8730	Nutrient	NA	No	Nutrient	NA
Magnesium - Total	11 / 11	15800	Nutrient	NA	No	Nutrient	NA
Manganese - Dissolved	7 / 7	5320	80	ET-Tier II	Yes	Exceeds benchmark	66.5
Manganese - Total	11 / 11	5480	80	ET-Tier II	Yes	Exceeds benchmark	68.5
Mercury - Dissolved	1 / 7	0.29	0.77	AWQC	No	Below benchmark	0.4
Mercury - Total	4 / 11	41.1	0.91	AWQC	Yes	Exceeds benchmark	45.4
Nickel - Dissolved	7 / 7	8390	74	AWQC	Yes	Exceeds benchmark	113.2
Nickel - Total	11 / 11	235000	74	AWQC	Yes	Exceeds benchmark	3161.3
Potassium - Dissolved	7 / 7	5790	Nutrient	NA	No	Nutrient	NA
Potassium - Total	11 / 11	23350	Nutrient	NA	No	Nutrient	NA
Selenium - Dissolved	2 / 7	8.6	4.61	AWQC	Yes	Exceeds benchmark	1.9
Selenium - Total	0 / 11	< 3.8	5	AWQC	No	Below benchmark	0.8
Silver - Dissolved	4 / 7	1.135	0.36	SCV	Yes	Exceeds benchmark	3.2
Silver - Total	8 / 11	35.9	0.36	SCV	Yes	Exceeds benchmark	99.7
Sodium - Dissolved	7 / 7	18500	Nutrient	NA	No	Nutrient	NA
Sodium - Total	11 / 11	78150	Nutrient	NA	No	Nutrient	NA
Thallium - Dissolved	0 / 7	< 1	12	SCV	No	Below benchmark	0.1
Thallium - Total	0 / 11	< 2	12	SCV	No	Below benchmark	0.2
Uranium - Total	7 / 11	572.5	2.6	SCV	Yes	Exceeds benchmark	220.2
Vanadium - Dissolved	3 / 7	1.8	19	ET-Tier II	No	Below benchmark	0.1
Vanadium - Total	7 / 7	5.9	19	ET-Tier II	No	Below benchmark	0.3
Zinc - Dissolved	7 / 7	3840	168.45	AWQC	Yes	Exceeds benchmark	22.8
Zinc - Total	9 / 11	49900	171	AWQC	Yes	Exceeds benchmark	292.1

a. Screeing values adjusted to a hardness of 152 mg/L $CaCO_3$.
b. Hazard quotient > 1 but based on maximum detection limit.
c. Screening value for alumimum is an acute value for Total/Unfiltered aluminum.
No SL - No screening level available
"<" - Indicates maximum detection limit.
NA - Not applicable
COC - Contminant of Concern

Sources in Order of Preference:
AWQC - Ambient Water Quality Criteria (USEPA, 2002)
ET-Tier II - Ecotox Thresholds (USEPA, 1996)
SCV- Secondary Chornic Value (Suter & Tsao, 1996)

TABLE G-20
SEDIMENT COPC SCREENING
ONSITE SEASONAL WETLANDS
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Sediment Concentration mg/kg	Ecological Sediment Screening Level[a] mg/kg	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
VOCs (mg/kg)							
1,1-Dichloroethene	3 / 15	< 0.031	No SL	NA	Yes	No SL	NA
1,2-Dichloroethene (total)	2 / 8	2.1	No SL	NA	Yes	No SL	NA
2-Butanone	5 / 15	< 0.031	No SL	NA	Yes	No SL	NA
Acetone	2 / 15	0.09	No SL	NA	Yes	No SL	NA
Carbon Disulfide	2 / 15	< 0.031	No SL	NA	Yes	No SL	NA
cis-1,2-Dichloroethene	5 / 7	6.4	No SL	NA	Yes	No SL	NA
Methyl Acetate	2 / 7	0.01425	No SL	NA	Yes	No SL	NA
Tetrachloroethene	1 / 15	< 0.031	2.1	SQB	No	Below benchmark	0.01
Toluene	1 / 15	< 0.031	2.7	SQB	No	Below benchmark	0.01
trans-1,2-Dichloroethene	2 / 7	0.013	No SL	NA	Yes	No SL	NA
Trichloroethene	5 / 15	10.45	6.5	SQB	Yes	Exceeds benchmark	1.6
Trichlorofluoromethane	1 / 7	< 0.012	No SL	NA	Yes	No SL	NA
Vinyl Chloride	2 / 15	0.13	No SL	NA	Yes	No SL	NA
SVOCs (mg/kg)							
1,1'-Biphenyl	1 / 7	0.077	4.5	SQB	No	Below benchmark	0.02
2-Methylnaphthalene	5 / 15	0.275	0.07	ER-L	Yes	Exceeds benchmark	3.9
4-Methylphenol	0 / 14	< 6.2	No SL	NA	Yes	No SL	NA
Acenaphthene	6 / 14	0.445	2.5	SQC	No	Below benchmark	0.2
Acenaphthylene	8 / 15	0.76	0.044	ER-L	Yes	Exceeds benchmark	17.3
Anthracene	10 / 15	4	0.085	ER-L	Yes	Exceeds benchmark	47.1
Benzaldehyde	2 / 7	0.053	No SL	NA	Yes	No SL	NA
Benzo(a)anthracene	9 / 14	16	0.261	ER-L	Yes	Exceeds benchmark	61.3
Benzo(a)pyrene	11 / 15	11.85	0.43	ER-L	Yes	Exceeds benchmark	27.6
Benzo(b)fluoranthene	12 / 15	19	No SL	NA	Yes	No SL	NA
Benzo(g,h,i)perylene	9 / 14	5.7	0.6885	OMOE-Low	Yes	Exceeds benchmark	8.3
Benzo(k)fluoranthene	12 / 15	10	0.972	OMOE-Low	Yes	Exceeds benchmark	10.3
bis(2-Ethylhexyl)phthalate	5 / 15	5.9	0.182	TEL	Yes	Exceeds benchmark	32.4
Carbazole	4 / 14	2.75	No SL	NA	Yes	No SL	NA
Chrysene	12 / 15	16	0.384	ER-L	Yes	Exceeds benchmark	41.7
Dibenz(a,h)anthracene	5 / 14	2.55	0.06	ER-L	Yes	Exceeds benchmark	40.2
Dibenzofuran	3 / 14	0.63	8.1	SQB	No	Below benchmark	0.1
Diethylphthalate	1 / 15	0.28	2.6	SQB	No	Below benchmark	0.1
Di-n-butylphthalate	4 / 15	1.5	No SL	NA	Yes	No SL	NA
Di-n-octylphthalate	0 / 14	0	No SL	NA	Yes	No SL	NA
Fluoranthene	14 / 15	26	11.7	SQC	Yes	Exceeds benchmark	2.2
Fluorene	7 / 15	0.84	2.187	SQB	No	Below benchmark	0.4
Indeno(1,2,3-cd)pyrene	9 / 14	5.5	0.081	OMOE-Low	Yes	Exceeds benchmark	67.9
m-Nitroaniline	0 / 6	< 16	No SL	NA	Yes	No SL	NA
Naphthalene	11 / 15	0.44	0.16	ER-L	Yes	Exceeds benchmark	2.8
o-Nitroaniline	0 / 6	< 16	No SL	NA	Yes	No SL	NA
o-Nitrophenol	0 / 6	< 6.2	No SL	NA	Yes	No SL	NA
Phenanthrene	14 / 15	16.5	3.4	SQC	Yes	Exceeds benchmark	4.8
Phenol	0 / 14	< 6.2	No SL	NA	Yes	No SL	NA
Pyrene	15 / 15	31	0.66	ER-L	Yes	Exceeds benchmark	47.0
PCBs/Pesticides (mg/kg)							
4,4'-DDD	4 / 14	0.046	0.002	ER-L	Yes	Bioaccumulates	23.0
4,4'-DDE	6 / 14	0.51	0.0022	ER-L	Yes	Bioaccumulates	231.8
4,4'-DDT	5 / 14	0.03	0.00158	ER-L	Yes	Bioaccumulates	19.0
Aldrin	1 / 14	0.00088	0.0081	OMOE-Low	Yes	Bioaccumulates	0.1
alpha-BHC	0 / 14	< 0.029	0.0243	OMOE-Low	Yes	Bioaccumulates[b]	1.2
alpha-Chlordane	3 / 14	0.0027	0.0005	ER-L	Yes	Bioaccumulates	5.4
Aroclor-1248	4 / 14	1.6	0.1215	OMOE-Low	Yes	Bioaccumulates	13.2
Aroclor-1254	8 / 15	84	0.243	OMOE-Low	Yes	Bioaccumulates	345.7
Aroclor-1260	5 / 14	0.28	0.02025	OMOE-Low	Yes	Bioaccumulates	13.8
Dieldrin	1 / 14	0.0065	0.2106	SQC	Yes	Bioaccumulates	0.03
Endosulfan II	1 / 14	0.00098	0.0567	SQB	Yes	Bioaccumulates	0.02
Endosulfan sulfate	3 / 14	0.006	No SL	NA	Yes	Bioaccumulates	NA
Endrin	2 / 14	0.047	0.081	SQC	Yes	Bioaccumulates	0.6
Endrin aldehyde	4 / 14	0.615	No SL	NA	Yes	Bioaccumulates	NA
Endrin ketone	2 / 14	0.0066	No SL	NA	Yes	Bioaccumulates	NA
gamma-Chlordane	5 / 14	0.625	0.0005	ER-L	Yes	Bioaccumulates	1250.0
Heptachlor epoxide	2 / 14	0.00098	0.02025	OMOE-Low	Yes	Bioaccumulates	0.05
Methoxychlor	4 / 14	0.021	0.07695	SQB	Yes	Bioaccumulates	0.3

TABLE G-20
SEDIMENT COPC SCREENING
ONSITE SEASONAL WETLANDS
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Sediment Concentration mg/kg	Ecological Sediment Screening Level[a] mg/kg	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
Metals (mg/kg)							
Aluminum	15 / 15	53,600	No SL	NA	Yes	No SL	NA
Antimony	8 / 15	491	2	ER-L	Yes	Exceeds benchmark	245.5
Arsenic	15 / 15	16.15	8.2	ER-L	Yes	Exceeds benchmark	2.0
Barium	15 / 15	4,060	No SL	NA	Yes	No SL	NA
Beryllium	12 / 15	233	No SL	NA	Yes	No SL	NA
Cadmium	11 / 15	75.3	1.2	ER-L	Yes	Exceeds benchmark	62.8
Calcium	15 / 15	167,000	Nutrient	NA	No	Nutrient	NA
Chromium	13 / 15	2,600	81	ER-L	Yes	Exceeds benchmark	32.1
Cobalt	14 / 15	422	No SL	NA	Yes	No SL	NA
Copper	15 / 15	17,800	34	ER-L	Yes	Exceeds benchmark	523.5
Cyanide	4 / 15	< 11.1	No SL	NA	Yes	No SL	NA
Iron	15 / 15	200,000	20,000	OMOE-Low	Yes	Exceeds benchmark	10.0
Lead	15 / 15	13,200	46.7	ER-L	Yes	Exceeds benchmark	282.7
Magnesium	15 / 15	40,700	Nutrient	NA	No	Nutrient	NA
Manganese	15 / 15	10,300	460	OMOE-Low	Yes	Exceeds benchmark	22.4
Mercury	11 / 15	30.7	0.15	ER-L	Yes	Exceeds benchmark	204.7
Nickel	15 / 15	31,800	20.9	ER-L	Yes	Exceeds benchmark	1521.5
Potassium	10 / 15	959	Nutrient	NA	No	Nutrient	NA
Selenium	5 / 15	7.7	No SL	NA	Yes	No SL	NA
Silver	11 / 15	374	1	ER-L	Yes	Exceeds benchmark	374.0
Sodium	12 / 15	1,470	Nutrient	NA	No	Nutrient	NA
Thallium	4 / 15	< 11	No SL	NA	Yes	No SL	NA
Vanadium	14 / 15	108	No SL	NA	Yes	No SL	NA
Zinc	15 / 15	38,000	150	ER-L	Yes	Exceeds benchmark	253.3

a. SQB, SQC, and OMOE-Low benchmark values (organics only) have been adjusted for a TOC of 4.1%.
b. Hazard quotient > 1 but based on maximum detection limit.
No SL - No screening level available
"<" - Indicates maximum detection limit.
NA - Not applicable
COC - Contminant of Concern

Sources in Order of Preference:
SQC - Sediment Quality Criteria. USEPA (1996) ECO Update, Ecotoxix Thresholds. Intermittent Bulletin Vol 3, No. 2.
SQB - Sediment Quality Benchmarks. USEPA (1996) ECO Update, Ecotox Thresholds. Intermittent Bulletin Vol 3, No. 2.
ER-L - NOAA Effects Range-Low, Long et al. (1995) as cited in in Jones, Sutter & Hull (1997)
OMOE-Low - Ontario Ministry of the Environment-Low, Persaud, et al. (1993) as cited in Jones, Sutter & Hull (1997)
TEL - Threshold Effects Levels, MacDonald (1994) as cited in Jones, Sutter & Hull (1997)

TABLE G-21
SURFACE WATER COPC SCREENING
ONSITE SEASONAL WETLANDS
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Surface Water Concentration (ug/L)	Ecological Surface Water Screening Level[a] (ug/L)	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
VOCs (ug/L)							
1,1-Dichloroethene	0 / 9	< 10	25	SCV	No	Below benchmark	0.4
1,2,3-Trichlorobenzene	0 / 6	< 0.5	No SL	NA	Yes	No SL	NA
1,2-Dichloroethene (total)	0 / 3	< 10	590	SCV	No	Below benchmark	0.02
2-Butanone	0 / 9	< 10	14,000	SCV	No	Below benchmark	0.001
Acetone	1 / 9	170	1,500	SCV	No	Below benchmark	0.1
Carbon Disulfide	0 / 9	< 0.5	0.92	SCV	No	Below benchmark	0.5
cis-1,2-Dichloroethene	4 / 6	19	590	SCV	No	Below benchmark	0.03
Methyl Acetate	0 / 6	< 0.5	No SL	NA	Yes	No SL	NA
Tetrachloroethene	1 / 9	< 10	120	ET-Tier II	No	Below benchmark	0.1
Toluene	2 / 9	< 10	130	ET-Tier II	No	Below benchmark	0.1
trans-1,2-Dichloroethene	0 / 6	< 0.5	590	SCV	No	Below benchmark	0.001
Trichloroethene	2 / 9	< 10	350	ET-Tier II	No	Below benchmark	0.03
Trichlorofluoromethane	0 / 6	< 0.5	No SL	NA	Yes	No SL	NA
Vinyl Chloride	1 / 9	< 10	No SL	NA	Yes	No SL	NA
SVOCs (ug/L)							
1,1'-Biphenyl	0 / 6	< 6.3	14	SCV	No	Below benchmark	0.5
1,2,4,5-Tetrachlorobenzene	0 / 6	< 6.3	No SL	NA	Yes	No SL	NA
2-Methylnaphthalene	0 / 9	< 10	No SL	NA	Yes	No SL	NA
4-Methylphenol	2 / 9	0.3	No SL	NA	Yes	No SL	NA
Acenaphthene	1 / 9	0.1	No SL	NA	Yes	No SL	NA
Acenaphthylene	0 / 9	< 10	No SL	NA	Yes	No SL	NA
Anthracene	0 / 9	< 0.12	0.73	SCV	No	Below benchmark	0.2
Benzaldehyde	0 / 6	< 6.3	No SL	NA	Yes	No SL	NA
Benzo(a)anthracene	0 / 9	< 0.4	0.027	SCV	Yes	Below benchmark	14.8
Benzo(a)pyrene	2 / 9	0.4	0.014	ET-Tier II	Yes	Exceeds benchmark	28.6
Benzo(b)fluoranthene	2 / 9	< 10	No SL	NA	Yes	No SL	NA
Benzo(g,h,i)perylene	0 / 9	< 10	No SL	NA	Yes	No SL	NA
Benzo(k)fluoranthene	2 / 9	< 10	No SL	NA	Yes	No SL	NA
bis(2-Ethylhexyl)phthalate	1 / 9	1.1	32	ET-Tier II	No	Below benchmark	0.03
Carbazole	1 / 9	0.1	No SL	NA	Yes	No SL	NA
Chrysene	2 / 9	0.5	No SL	NA	Yes	No SL	NA
Dibenz(a,h)anthracene	0 / 9	< 10	No SL	NA	Yes	No SL	NA
Dibenzofuran	0 / 9	< 10	20	ET-Tier II	No	Below benchmark	0.5
Diethylphthalate	0 / 9	< 10	220	ET-Tier II	No	Below benchmark	0.0
Di-n-butylphthalate	0 / 9	< 10	33	ET-Tier II	No	Below benchmark	0.3
Di-n-octylphthalate	0 / 9	< 10	No SL	NA	Yes	No SL	NA
Fluoranthene	4 / 9	0.8	No SL	NA	Yes	No SL	NA
Fluorene	1 / 9	0.1	3.9	ET-Tier II	No	Below benchmark	0.03
Indeno(1,2,3-cd)pyrene	0 / 9	< 10	No SL	NA	Yes	No SL	NA
m-Nitroaniline	0 / 6	< 25	No SL	NA	Yes	No SL	NA
Naphthalene	0 / 9	< 10	24	ET-Tier II	No	Below benchmark	0.4
o-Nitroaniline	0 / 6	< 25	No SL	NA	Yes	No SL	NA
o-Nitrophenol	0 / 6	< 6.3	No SL	NA	Yes	No SL	NA
Phenanthrene	6 / 9	0.8	No SL	NA	Yes	No SL	NA
Phenol	0 / 9	< 10	No SL	NA	Yes	No SL	NA
Pyrene	2 / 9	0.9	No SL	NA	Yes	No SL	NA
PCBs/Pesticides (ug/L)							
4,4'-DDD	0 / 9	< 0.1	0.011	SCV	Yes	Bioaccumulates[b]	9.1
4,4'-DDE	1 / 9	0.012	No SL	NA	Yes	Bioaccumulates	NA
4,4'-DDT	0 / 8	< 0.1	0.001	AWQC	Yes	Bioaccumulates[b]	100.0
Aldrin	0 / 9	< 0.05	3	AWQC	Yes	Bioaccumulates	0.02
alpha-BHC	1 / 9	0.008125	No SL	NA	Yes	Bioaccumulates	NA
alpha-Chlordane	0 / 9	< 0.05	0.0043	AWQC	Yes	Bioaccumulates[b]	11.6
Aroclor-1248	0 / 9	< 1	0.081	SCV	Yes	Bioaccumulates[b]	12.3
Aroclor-1254	1 / 9	0.43	0.033	SCV	Yes	Bioaccumulates	13.0
Aroclor-1260	0 / 9	< 1	94	SCV	Yes	Bioaccumulates	0.01
Dieldrin	0 / 9	< 0.1	0.056	AWQC	Yes	Bioaccumulates[b]	1.8
Endosulfan I	0 / 9	< 0.05	0.056	ET-Tier II	Yes	Bioaccumulates[b]	0.9
Endosulfan sulfate	1 / 9	0.0065	No SL	NA	Yes	Bioaccumulates	NA
Endrin	0 / 9	< 0.1	0.036	AWQC	Yes	Bioaccumulates[b]	2.8
Endrin aldehyde	0 / 9	< 0.1	No SL	NA	Yes	Bioaccumulates	NA
Endrin ketone	0 / 9	< 0.1	No SL	NA	Yes	Bioaccumulates	NA
gamma-Chlordane	1 / 9	0.0031	0.0043	AWQC	Yes	Bioaccumulates	0.7
Heptachlor epoxide	0 / 9	< 0.05	0.0038	AWQC	Yes	Bioaccumulates[b]	13.2
Methoxychlor	0 / 9	< 0.5	0.03	AWQC	Yes	Bioaccumulates[b]	16.7

TABLE G-21
SURFACE WATER COPC SCREENING
ONSITE SEASONAL WETLANDS
Shpack Superfund Site
Norton, Attleboro, MA

Analyte	Frequency of Detection	Maximum Surface Water Concentration (ug/L)	Ecological Surface Water Screening Level[a] (ug/L)	Source of Ecological Screening Level	COC?	Reason	Hazard Quotient
Metals (ug/L)							
Aluminum - Dissolved	0 / 6	< 9	750	AWQC	No	Below benchmark[c]	0.01
Aluminum - Total	9 / 9	6420	750	AWQC	Yes	Exceeds benchmark	8.6
Antimony - Dissolved	6 / 6	0.65	30	SCV	No	Below benchmark	0.02
Antimony - Total	8 / 9	36	30	SCV	Yes	Exceeds benchmark	1.2
Arsenic - Dissolved	0 / 6	< 0.5	150	AWQC	No	Below benchmark	0.0
Arsenic - Total	1 / 9	2.3	150	AWQC	No	Below benchmark	0.0
Barium - Dissolved	6 / 6	3190	3.9	ET-Tier II	Yes	Exceeds benchmark	818
Barium - Total	9 / 9	7500	3.9	ET-Tier II	Yes	Exceeds benchmark	1,923
Beryllium - Dissolved	0 / 6	< 0.2	5.1	ET-Tier II	No	Below benchmark	0.04
Beryllium - Total	0 / 9	< 1	5.1	ET-Tier II	No	Below benchmark	0.2
Cadmium - Dissolved	1 / 6	0.43	0.48	AWQC	No	Below benchmark	0.9
Cadmium - Total	8 / 9	39.5	0.55	AWQC	Yes	Exceeds benchmark	71
Calcium - Dissolved	6 / 6	154000	Nutrient	NA	No	Nutrient	NA
Calcium - Total	9 / 9	167000	Nutrient	NA	No	Nutrient	NA
Chromium - Dissolved	5 / 6	1.4	164	AWQC	No	Below benchmark	0.01
Chromium - Total	6 / 9	< 6.9	190	AWQC	No	Below benchmark	0.04
Cobalt - Dissolved	2 / 6	6.4	3	ET-Tier II	Yes	Exceeds benchmark	2.1
Cobalt - Total	5 / 9	70.4	3	ET-Tier II	Yes	Exceeds benchmark	23.5
Copper - Dissolved	5 / 6	14.8	20.5	AWQC	No	Below benchmark	0.7
Copper - Total	8 / 9	891	21.3	AWQC	Yes	Exceeds benchmark	42
Cyanide - Dissolved	0 / 6	< 5	5.2	AWQC	No	Below benchmark	0.96
Cyanide - Total	0 / 9	< 10	5.2	AWQC	Yes	Exceeds benchmark[b]	1.9
Iron - Dissolved	6 / 6	267.5	1,000	AWQC	No	Below benchmark	0.3
Iron - Total	9 / 9	50800	1,000	AWQC	Yes	Exceeds benchmark	50.8
Lead - Dissolved	6 / 6	21.3	7.1	AWQC	Yes	Exceeds benchmark	3.0
Lead - Total	9 / 9	160	10.9	AWQC	Yes	Exceeds benchmark	14.7
Magnesium - Dissolved	6 / 6	24700	Nutrient	NA	No	Nutrient	NA
Magnesium - Total	9 / 9	37400	Nutrient	NA	No	Nutrient	NA
Manganese - Dissolved	6 / 6	1000	80	ET-Tier II	Yes	Exceeds benchmark	12.5
Manganese - Total	9 / 9	2570	80	ET-Tier II	Yes	Exceeds benchmark	32.1
Mercury - Dissolved	0 / 6	< 0.14	0.77	AWQC	No	Below benchmark	0.2
Mercury - Total	2 / 9	1.1	0.77	AWQC	Yes	Below benchmark	1.4
Nickel - Dissolved	6 / 6	135	118	AWQC	Yes	Exceeds benchmark	1.1
Nickel - Total	9 / 9	1780	118	AWQC	Yes	Exceeds benchmark	15.1
Potassium - Dissolved	6 / 6	24200	Nutrient	NA	No	Nutrient	NA
Potassium - Total	9 / 9	59300	Nutrient	NA	No	Nutrient	NA
Selenium - Dissolved	1 / 6	7.6	4.6	AWQC	Yes	Exceeds benchmark	1.7
Selenium - Total	2 / 9	7.95	5	AWQC	Yes	Exceeds benchmark	1.6
Silver - Dissolved	0 / 6	< 0.8	0.36	SCV	Yes	Exceeds benchmark	2.2
Silver - Total	2 / 9	26.2	0.36	SCV	Yes	Exceeds benchmark	72.8
Sodium - Dissolved	6 / 6	47900	Nutrient	NA	No	Nutrient	NA
Sodium - Total	9 / 9	125000	Nutrient	NA	No	Nutrient	NA
Thallium - Dissolved	0 / 6	< 0.34	12	SCV	No	Below benchmark	0.03
Thallium - Total	0 / 9	< 2	12	SCV	No	Below benchmark	0.2
Vanadium - Dissolved	6 / 6	6.9	19	ET-Tier II	No	Below benchmark	0.4
Vanadium - Total	7 / 9	148	19	ET-Tier II	Yes	Exceeds benchmark	7.8
Zinc - Dissolved	6 / 6	40.9	268	AWQC	No	Below benchmark	0.2
Zinc - Total	8 / 9	5470	272	AWQC	Yes	Exceeds benchmark	20.1

a. Screeing values adjusted to a hardness of 263 mg/L $CaCO_3$.
b. Hazard quotient > 1 but based on maximum detection limit.
c. Screening value for aluminum is an acute value for Total/Unfiltered aluminum.
No SL - No screening level available
"<" - Indicates maximum detection limit.
NA - Not applicable
COC - Contminant of Concern

Sources in Order of Preference:
AWQC - Ambient Water Quality Criteria (USEPA, 2002)
ET-Tier II - Ecotox Thresholds (USEPA, 1996)
SCV- Secondary Chornic Value (Suter & Tsao, 1996)

Table G-22
Ecological Exposure Pathways of Concern – Hardwood Forest

Exposure Medium	Sensitive Environment Flag Y or N	Receptor	Endangered/ Threatened Species Flag Y or N	Exposure Routes	Assessment Endpoints	Measurement Endpoints
Soil	N	Small terrestrial mammals	N	Ingestion and direct contact with chemicals in soil.	Sustainability (survival, growth, reproduction) of local populations of small terrestrial mammals	Compare modeled exposures to published values which are indicative of potential impairment.
Soil	N	Songbirds	N	Ingestion and direct contact with chemicals in soil.	Sustainability (survival, growth, reproduction) of local populations of songbirds	Compare modeled exposures to published values which are indicative of potential impairment.

Table G-23
Ecological Exposure Pathways of Concern – Chartley Swamp

Exposure Medium	Sensitive Environment Flag Y or N	Receptor	Endangered/ Threatened Species Flag Y or N	Exposure Routes	Assessment Endpoints	Measurement Endpoints
Sediment and Surface Water	N	Semi-aquatic mammals	N	Ingestion and direct contact with chemicals in sediment and surface water.	Sustainability (survival, growth, reproduction) of local populations of semi-aquatic mammals	Compare modeled exposures to published values which are indicative of potential impairment.
Sediment and Surface Water	N	Waterfowl	N	Ingestion and direct contact with chemicals in sediment and surface water.	Sustainability (survival, growth, reproduction) of local populations of waterfowl	Compare modeled exposures to published values which are indicative of potential impairment.
Sediment and Surface Water	N	Bottom dwelling fish	N	Ingestion and direct contact with chemicals in sediment and surface water.	Sustainability (survival, growth, reproduction) of local populations of bottom dwelling fish	Compare modeled exposures to published values which are indicative of potential impairment.
Sediment and Surface Water	N	Benthic invertebrates	N	Ingestion and direct contact with chemicals in sediment and surface water.	Sustainability (survival, growth, reproduction) of local populations of benthic invertebrates	Compare chemical concentrations in medium to sediment toxicity benchmarks. Indicative of potential impairment.

Table G-24
Ecological Exposure Pathways of Concern – Onsite Seasonal Wetland

Exposure Medium	Sensitive Environment Flag Y or N	Receptor	Endangered/ Threatened Species Flag Y or N	Exposure Routes	Assessment Endpoints	Measurement Endpoints
Soil	N	Small terrestrial mammals	N	Ingestion and direct contact with chemicals in soil.	Sustainability (survival, growth, reproduction) of local populations of small terrestrial mammals	Compare modeled exposures to published values which are indicative of potential impairment.
Sediment and Surface Water	N	Wetland songbirds	N	Ingestion and direct contact with chemicals in sediment and surface water.	Sustainability (survival, growth. reproduction) of local populations of wetland songbirds	Compare modeled exposures to published values which are indicative of potential impairment.
Sediment and Surface Water	N	Benthic invertebrates	N	Ingestion and direct contact with chemicals in sediment and surface water.	Sustainability (survival, growth, reproduction) of local populations of benthic invertebrates	Compare chemical concentrations in medium to sediment toxicity benchmarks indicative of potential impairment.

Ecological Effects Assessment

Modeled doses were compared to toxicity reference values (TRVs) obtained from the literature. TRVs were predominantly selected from studies which reported no-observed-adverse-effects-levels (NOAELs). When a suitable NOAEL was unavailable, studies which reported lowest-observed-adverse-effects-levels (LOAELs) were used and adjusted downward with an uncertainty factor of 10. The LOAEL to NOAEL adjustment was the only calculation in which an uncertainty factor was used. Hazard quotients (HQs) were then calculated for each COC using the modeled doses and NOAEL TRVs. Risk to shrew, robin, muskrat, mallard, and marsh wren was based on magnitude of the HQs and an assessment of the uncertainty associated with the HQs. COCs which showed risk based on these factors in the maximum (UCL) case were identified as exceeding lower risk thresholds. When COCs exceeded lower risk thresholds, a second set of HQs was calculated using LOAEL TRVs and the average case. COCs which showed risk based on LOAEL TRVs and the average case were identified as exceeding upper risk thresholds.

Several COCs lacked avian TRVs (especially VOCs and SVOCs); when avian TRVs were not available, mammalian TRVs were used as surrogate values to calculate HQs. When mammalian TRVs were not available for a COC, HQs could not be calculated.

Risk to fish was evaluated by modeling tissue concentrations from measured sediment concentrations. Hazard quotients were then calculated for each COC using the modeled doses and no-observed-effects-dose (NOED) and lowest-observed-effects-dose (LOED) TRVs indicative of potential harm. Risk to fish was based on magnitude of the HQs and an assessment of the uncertainty associated with the estimates. Risk to benthic invertebrates was evaluated by comparing sediment concentrations to sediment ecological benchmarks within the context of SEM-AVS data. Whether COCs exceeded lower risk thresholds or upper risk thresholds for benthic invertebrates was based on exceedences of benchmark values.

Risk Characterization

In the hardwood forest, risk to small mammals and songbirds is not actionable because no COCs exceed upper risk thresholds. In Chartley Swamp, only the inner rung scenario demonstrated actionable risk to semi-aquatic mammals, waterfowl, bottom dwelling fish, and benthic macro invertebrates; risk in the inner rung was associated with concentrations of inorganics. In the onsite seasonal wetlands, risk to small mammals, wetland songbirds, and benthic invertebrates was associated with concentration of SVOCs, pesticides/PCBs, and inorganics which exceeded upper risk thresholds.

The goal of the risk description is to identify a threshold concentration (also called threshold effects levels, or TELs) at which ecological effects are likely to occur. A TEL is a daily dose resulting in a hazard quotient (HQ) of 1.0. Since food COC concentrations were estimated from soil and sediment concentrations, the food chain models were used to back-calculate a soil or sediment concentration that corresponds to a daily dose resulting in an HQ of 1.0. This approach assumes that concentrations are evenly distributed throughout the site or foraging area. TELs are summarized below (Table G-25 though Table G-27) for those COCs which exceed upper risk thresholds. TELs were based on LOAELs and the average case; if LOAELs were not available then TELs were based on NOAELs and the average case.

TELs for the benthic invertebrate community have not been calculated at this time. Site specific toxicity testing will be conducted during pre-design efforts to ensure that the selected cleanup standards are protective of this community. As part of remedial design toxicity testing will be conducted in Chartley Swamp and the onsite seasonal wetlands to confirm that the selected sediment cleanup levels are protective of the benthic community.

3. Basis for Response Action

Because the baseline human health and ecological risk assessments revealed that ecological and human receptors potentially exposed to contaminants of concern in soil, sediment and groundwater via ingestion or direct exposure may present an unacceptable human health risk of 10^{-4} excess cancer risk and/or a Hazard Index of HI of 1.0 or greater, or unacceptable ecological risk; actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

In order to address these risks, the focus of the remedial action is on soil and sediment media in which COCs are present above the site cleanup levels listed in Tables L-l, L-2, and L-3 of this ROD.

H. REMEDIATION OBJECTIVES

Based on preliminary information relating to types of contaminants, environmental media of concern, and potential exposure pathways, response action objectives (RAOs) were developed to aid in the development and screening of alternatives. These RAOs were developed to mitigate, restore and/or prevent existing and future potential threats to human health and the environment. The RAOs for the selected remedy for the Shpack Landfill Superfund Site are:

Source Control:

Soil

- Prevent Ingestion/direct contract 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 ARARs.

- Prevent inhalation of carcinogens posing excess cancer risk levels above 10^{-4} to 10^{-6} or a hazard index of 1.0 and meet ARARs.

- 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 hazard index of 1.0.

- 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.

Table G-25
COC Concentrations Expected to Provide Adequate Protection of Ecological Receptors in the Hardwood Forest

Habitat Type/ Name	Exposure Medium	COC	Protective Level	Units	Basis	Assessment Endpoint
Hardwood Forest	Soil	None	NA	NA	Food chain models, LOAEL	Sustainability (survival, growth, reproduction) of local populations of small terrestrial mammals
	Soil	None	NA	NA	Food chain models, LOAEL	Sustainability (survival, growth, reproduction) of local populations of small songbirds.

Table G-26
COC Concentrations Expected to Provide Adequate Protection of Ecological Receptors in Chartley Swamp

Habitat Type/ Name	Exposure Medium	COC	Protective Level	Units	Basis	Assessment Endpoint
Chartley Swamp	Sediment	Arsenic	8.4	mg/kg	Food chain models, LOED	Sustainability (survival, growth, reproduction) of local populations of bottom dwelling fish
		Cadmium	6.2	mg/kg	Food chain models, LOED	
		Copper	41	mg/kg	Food chain models, LOED	
		Lead	32	mg/kg	Food chain models, LOED	
		Mercury	0.89	mg/kg	Food chain models, LOED	
		Silver	0.89	mg/kg	Food chain models, LOED	
	Sediment	Beryllium	45	mg/kg	Food chain models, NOAEL	Sustainability (survival, growth, reproduction) of local populations of semi-aquatic mammals
		Cadmium	170	mg/kg	Food chain models, LOAEL	
		Copper	246	mg/kg	Food chain models, LOAEL	
		Mercury	1.9	mg/kg	Food chain models, LOAEL	
		Nickel	7,805	mg/kg	Food chain models, LOAEL	
		Zinc	1,591	mg/kg	Food chain models, LOAEL	
	Sediment	Beryllium	45	mg/kg	Food chain models, NOAEL	Sustainability (survival, growth, reproduction) of local populations of waterfowl
		Cadmium	757	mg/kg	Food chain models, LOAEL	
		Chromium	2,679	mg/kg	Food chain models, LOAEL	
		Mercury	1.8	mg/kg	Food chain models, LOAEL	
		Zinc	3,114	mg/kg	Food chain models, LOAEL	
	Sediment				Toxicity testing to be conducted during predesign studies 1.	Sustainability (survival, growth, reproduction) of local populations of benthic invertebrates

1. A pre-design study will include toxicity testing confirm that selected cleanup goals for sediment concentrations are protective of the benthic invertebrate community. See text for a more detailed discussion of toxicity testing.

Table G-27
COC Concentrations Expected to Provide Adequate Protection of Ecological Receptors in the onsite seasonal Wetlands

Habitat Type/ Name	Exposure Medium	COC	Protective Level	Units	Basis	Assessment Endpoint
Onsite Seasonal Wetlands	Soil	Benzo(a)anthracene	1.2	mg/kg	Food chain models, LOAEL	Sustainability (survival, growth, reproduction) of local populations of small terrestrial mammals
		Benzo(a)pyrene	1.3	mg/kg	Food chain models, LOAEL	
		Benzo(b)fluoranthene	1.3	mg/kg	Food chain models, LOAEL	
		Benzo(k)fluoranthene	1.3	mg/kg	Food chain models, LOAEL	
		Chrysene	1.3	mg/kg	Food chain models, LOAEL	
		Dibenz(a,h)anthracene	1.3	mg/kg	Food chain models, LOAEL	
		Indeno(1,2,3)pyrene	1.3	mg/kg	Food chain models, LOAEL	
		Aroclor-1254	0.27	mg/kg	Food chain models, LOAEL	
		Antimony	49	mg/kg	Food chain models, LOAEL	
		Arsenic	188	mg/kg	Food chain models, LOAEL	
		Barium	853	mg/kg	Food chain models, NOAEL	
		Beryllium	23	mg/kg	Food chain models, NOAEL	
		Cadmium	136	mg/kg	Food chain models, LOAEL	
		Copper	5,606	mg/kg	Food chain models, LOAEL	
		Lead	15,110	mg/kg	Food chain models, LOAEL	
		Mercury	33	mg/kg	Food chain models, LOAEL	
		Nickel	31,845	mg/kg	Food chain models, LOAEL	
		Silver	522	mg/kg	Food chain models, NOAEL	
		Vanadium	448	mg/kg	Food chain models, LOAEL	
		Zinc	25,175	mg/kg	Food chain models, LOAEL	
	Sediment	Benzo(a)anthracene	2.7	mg/kg	Food chain models, LOAEL	Sustainability (survival, growth, reproduction) of local populations of wetland songbirds
		Benzo(a)pyrene	2.7	mg/kg	Food chain models, LOAEL	
		Benzo(b)fluoranthene	2.7	mg/kg	Food chain models, LOAEL	
		Benzo(k)fluoranthene	2.7	mg/kg	Food chain models, LOAEL	
		Chrysene	2.7	mg/kg	Food chain models, LOAEL	

Habitat Type/ Name	Exposure Medium	COC	Protective Level	Units	Basis	Assessment Endpoint
		Dibenz(a,h)anthracene	2.3	mg/kg	Food chain models, LOAEL	
		Indeno(1,2,3)pyrene	2.3	mg/kg	Food chain models, LOAEL	
		DDT	0.027	mg/kg	Food chain models, LOAEL	
		Aroclor-1254	1.6	mg/kg	Food chain models, LOAEL	
		Antimony	39	mg/kg	Food chain models, LOAEL	
		Beryllium	5	mg/kg	Food chain models, NOAEL	
		Cadmium	103	mg/kg	Food chain models, LOAEL	
		Chromium	427	mg/kg	Food chain models, LOAEL	
		Copper	122	mg/kg	Food chain models, LOAEL	
		Lead	551	mg/kg	Food chain models, LOAEL	
		Mercury	0.26	mg/kg	Food chain models, LOAEL	
		Nickel	7,943	mg/kg	Food chain models, LOAEL	
		Silver	187	mg/kg	Food chain models, NOAEL	
		Zinc	437	mg/kg	Food chain models, LOAEL	
	Sediment				Toxicity testing to be conducted during predesign studies.1	Sustainability (survival, growth, reproduction) of local populations of benthic invertebrates

1 A pre-design study will include toxicity testing confirm that selected cleanup goals for sediment concentrations are protective of the benthic invertebrate community. See text for a more detailed discussion of toxicity testing.

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 that 10^{-4} to 10^{-6}.

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

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

I. DEVELOPMENT AND SCREENING OF ALTERNATIVES

A. Statutory Requirements/Response Objectives

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences, including a requirement that EPA's remedial action, when complete, must comply with all federal and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that EPA select a remedial action that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and a preference for remedies in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. Response alternatives were developed to be consistent with these congressional mandates.

B. Technology and Alternative Development and Screening

CERCLA and the National Contingency Plan (NCP) set forth the process by which remedial actions are evaluated and selected. As discussed in Section 2 of the FS, soil technology options were identified, assessed and screened based on implementability, effectiveness, and cost. These technologies were combined into source control (SC) alternatives. Section 3 of the FS presented the remedial alternatives developed by combining the technologies identified in the previous screening process in the categories identified in Section 300.430(e)(3) of the NCP. The purpose of the initial screening was to narrow the number of potential remedial actions for further detailed analysis while preserving a range of options. Each alternative was then evaluated in detail in Section 4 of the FS.

In summary, two source control remedial alternatives screened in Section 2 were retained as possible options for the cleanup of the Site. As discussed earlier, these alternatives were then developed based upon four future use scenarios.

With respect to ground water response action, the RI/FS developed a limited number of remedial alternatives. However, based on site-specific conditions, the FS concluded that groundwater remediation was infeasible at the time the FS was prepared from a cost, effectiveness and implementability perspective based on the following:

- ***Proximity to a Significant Offsite Source*** - As documented in the RI, chemically impacted landfill materials from the ALI Landfill extend onto the southwestern portion of the Shpack Site. The highest concentration of VOCs in groundwater detected during the RI were located upgradient on the ALI Landfill. This indicates that a significant VOC source is located beneath the ALI Landfill. Because of this, groundwater remediation (i.e., pump and treat) would be ineffective because a significant source of groundwater contamination remains unaddressed. Until this offsite, upgradient source is adequately addressed, groundwater remediation at Shpack would be ineffective.

- ***High Probability for COPC Partitioning*** - Due to the high organic carbon contents of shallow aquifer sediments, the majority of contaminant mass is likely adsorbed onto aquifer solids, limiting the effectiveness of groundwater restoration The high contaminant sorption onto soil and sediment inhibit contaminant movement in the aquifer and would increase the restoration time frame for groundwater remedial activities

In addition, EPA has determined that groundwater will not be used in the future for drinking water, etc See Section D of the ROD for additional discussion As a result, groundwater cleanup alternatives were not addressed in the Detailed Analysis of the FS.

J. DESCRIPTION OF ALTERNATIVES

Detailed Analysis of Alternatives

This section presents the detailed analysis of remedial action alternatives that were retained from the screening performed in Section 2 of the FS. The detailed analysis performed as part of the FS was conducted in accordance with CERCLA Section 121, the NCP and USEPA RI/FS Guidance. Costs presented in this section are based on existing site data and will be reevaluated as part of the Remedial Design/Remedial Action (RD/RA) Phase. In accordance with USEPA RI/FS Guidance, costs presented in this section are intended to be within the target range of -30% to +50% of the actual cost of the remedial alternative as described.

Evaluation Criteria

This section presents a summary of the nine criteria used to evaluate the appropriate remedial alternative for the Site. The nine criteria are broken down into three categories and are summarized as follows:

Threshold Criteria relate directly to statutory findings that must be made in the Record Of Decision. These criteria include:

- Overall protection of human health and the environment; and
- Compliance with ARARs

Balancing Criteria refer to five of the evaluation criteria that represent the primary criteria upon which the detailed evaluation is performed. These criteria include:

- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility or volume;
- Short-term effectiveness; Implementability; and
- Cost.

Modifying criteria are evaluated following comment on the FS and the proposed plan. These criteria were not evaluated as part of the FS and include:

- State acceptance; and,
- Community acceptance.

A description of the major components of each alternative, the costs for each alternative, and comparison to the nine criteria is provided below.

ALTERNATIVE SC-1: NO ACTION

Under this alternative, no remedial technologies would be implemented at the Site to reduce soil or sediment concentrations in the source area. As a result, the only decreases in COPC concentrations would occur from naturally occurring degradation processes.

A comparison of this alternative to the criteria established in the NCP is included as Table 7 of the FS. As shown in Table X of the FS, there are no costs associated with the No Action alternative.

This alternative does not meet ARAR requirements for radiological and chemical source material.

ALTERNATIVE SC-2: MULTI-BARRIER CAP/EXCAVATION/OFF-SITE DISPOSAL OF PCBs. DIOXIN, RADIOLOLOGICAL MATERIAL

This alternative includes installing a multi-barrier landfill cap to limit water infiltration and subsequent migration of contaminants, and excavation and off-site disposal of radiological, PCB and dioxin material exceeding Cleanup levels. This alternative eliminates the exposure pathways of soil and sediment dermal contact and ingestion. The capping portion of this alternative was included as part of the FS to comply with the Federal RCRA ARAR requirements for implementation of an appropriately designed landfill cap at Superfund sites. The landfill would be designed and installed in accordance with 40 CFR 264 Subpart G (closure and post-closure); and 40 CFR 264 Subpart N (landfills).

Figure 4 of the FS displays the estimated excavation areas exceeding Cleanup Levels for each of the risk scenarios evaluated in the FS, and Figure 5 of the FS shows areas with ecological risk. Table 6 displays a summary of the volumes of impacted material for each risk scenario. Under each risk scenario, the amount of soil to be excavated varies; however, the general excavation and disposal method is consistent.

A comparison of Alternative SC-2 to seven of the nine NCP criteria is provided on Table 9 of the FS. A detailed cost estimate for Alternatives SC-2A through SC-2D is provided on Tables 10A through Table 10D of the FS. The total estimated cost for various risk scenarios under this alternative were estimated as follows:

- SC-2A - Recreational User - $26,057,000
- SC-2B - Adjacent Resident without GW consumption - $28,106,000
- SC-2C - Adjacent Resident with GW consumption $94,514,000
- SC-2D - Onsite Resident - $98,066,000

All costs include 30 years of operation, maintenance and monitoring. The ARARs associated with this alternative are shown in Table 1C of the FS. The estimated time for construction of the SC-2 alternative given by the FS is 18-25 months.

Expected Outcomes

The outcome is dependent upon the risk exposure scenario selected. Restrictions would be placed on the Site to protect the integrity of the cap in the future. Groundwater restrictions would also be necessary.

ALTERNATIVE SC-3: EXCAVATION AND OFFSITE DISPOSAL

Under this alternative, all source area materials exceeding Cleanup Levels will be excavated and transported for offsite disposal. As a result, this alternative would provide permanent elimination of contaminants exceeding Cleanup levels at the Site.

Figure 4 of the FS displays the estimated excavation areas exceeding Cleanup levels for each of the risk scenarios evaluated in the FS, and Figure 5 of the FS shows areas exceeding ecological risk Cleanup levels. Table 6 of the FS displays a summary of the volumes of impacted material for each risk scenario. Under each risk scenario, the amount of soil excavated varies; however, the general excavation and disposal method is consistent.

A comparison of Alternatives SC-3A through SC-3D to seven of the nine NCP criteria is provided on Table 11 of the FS. A detailed estimate of costs associated with each of the risk scenarios associated with this alternative is provided as Tables 12A through Table 12B of the FS.

The total estimated costs for each of the risk scenarios associated with this alternative are as follows:

- SC-3A - Recreational User - $54,055,000
- SC-3B - Adjacent Resident without GW consumption - $55,553,000[3]
- SC-3C - Adjacent Resident with GW consumption - $120,888,000
- SC-3D - Onsite Resident - $126,868,000

The ARARs associated with this alternative are shown in Table 1G of the FS. The estimated time for construction given in the FS is 9-16 months.

Expected Outcomes

The outcome is dependent upon the risk exposure scenario selected. Groundwater restrictions would also be necessary.

K. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

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

A detailed analysis was performed on the alternatives using the nine evaluation criteria in order to select a site remedy. The following is a summary of the comparison of each alternative's strength and weakness with respect to the nine evaluation criteria. These criteria are summarized as follows:

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3 This cost was later revised downward to $43,034,000. See Section L for more information.

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-worth 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.

Following the detailed analysis of each individual alternative, a comparative analysis, focusing on the relative performance of each alternative against the nine criteria, was conducted. This comparative analysis can be found in Tables 9 and 11 of the FS.

The section below presents the nine criteria and a brief narrative summary of the alternatives and the strengths and weaknesses according to the detailed and comparative analysis. Only those alternatives which satisfied the first two threshold criteria were balanced and modified using the remaining seven criteria as compared to these NCP criteria.

OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Alternative SC-1, No Action, would be the least protective of human health and the environment because it would offer no protection to human health and the environment. Because no remedial action would be performed, both chemical and radiological impacts exceeding site-specific cleanup levels and ARARs would remain at the Site. Therefore, potential future unacceptable exposure to human health and the environment would remain at the Site. As a result, this alternative would not meet the threshold criteria in the NCP that an alternative would be protective of human health and the environment and meet ARARs.

Alternatives SC-2, Multi Barrier Cap/Excavation, and SC-3, Excavation and Off-Site Disposal, both provide overall protection of human health and the environment. Each of these alternatives would eliminate exposure to impacted source materials exceeding site-specific Cleanup levels. In addition, Alternatives SC-2 and SC-3 both include requirements for waterlines for adjacent residents to eliminate exposure to contaminated groundwater. Alternative SC-2, Multi Barrier Cap/Excavation, would remove all radiological, dioxin and PCB waste that exceeds cleanup requirements from the Site for off-site disposal while the remaining chemical waste material would be consolidated beneath a RCRA landfill cap which will prevent exposure to materials that present an unacceptable risk. This alternative also includes requirements for monitoring to ensure that exposure does not occur in the future. Alternative SC-3, Excavation and Off-Site Disposal, would eliminate exposure to impacted radiological, dioxin, PCB, and chemical source materials by removing them from the Site. Because this alternative removes all materials that create an unacceptable risk from the site, it provides the greatest degree of overall protection.

COMPLIANCE WITH ARARS

Alternative SC-1, No Action, would not comply with chemical-specific ARARs applicable to the Site.

Alternatives SC-2, Multi Barrier Cap/Excavation, and SC-3, Excavation and Off-Site Disposal, would meet all chemical, location, and action-specific ARARs. See Tables 1A-1I of the FS for additional identification and discussion of ARARs for each alternative.

LONG-TERM EFFECTIVENESS AND PERMANENCE

Alternative SC-1, No Action, does not provide any long-term effectiveness or permanence. Alternative SC-2, Multi-Barrier Cap/Excavation, would provide both long-term effectiveness and some permanence because landfill capping is a proven technology to eliminate exposure to chemical waste material effectively in the long-term. The cap would be regularly maintained to ensure that it remains effective in the long-term. In addition, because the radiological, PCB, and dioxin waste is excavated and disposed of off-site. This component of the alternative is also permanent and effective in the long-term.

Alternative SC-3, Excavation and Off-Site Disposal, provides the greatest degree of long-term effectiveness and permanence because both chemical and radiological source materials exceeding cleanup levels would be permanently removed from the site thereby ensuring that this remedy remains effective in the long-term.

In addition, Alternatives SC-2 and SC-3 both include requirements for waterlines for adjacent residents. This component of these Alternatives provides additional long-term effectiveness and permanence because the waterline permanently eliminates the risk to these adjacent residents from using contaminated water.

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT

None of the alternatives reduce toxicity, mobility, or volume through treatment (although some materials shipped off-site may require treatment prior to disposal).

However, Alternative SC-2, Multi Barrier Cap/Excavation, would reduce toxicity, mobility or volume although not through treatment. This alternative would reduce mobility of the chemical contaminants that are placed beneath the landfill cap at the Site by preventing water from coming into contact with waste material thereby preventing this contamination from mobilizing. The toxicity of the radiological, PCB, and dioxin waste material would be greatly reduced/eliminated because all of this material that exceeds cleanup levels will be removed from the site. In addition, because all soil and sediment above cleanup levels established for radiological, PCB, and dioxin waste material will be removed from the property, both the volume and mobility of this contamination is greatly reduced/eliminated although not through treatment.

Alternative SC-3, Excavation and Off-site Disposal, would reduce/eliminate toxicity by removing both the radiological, PCB and dioxin contamination as well as all chemical waste material from the Site, thereby greatly reducing/eliminating the toxicity of what remains at the Site to acceptable levels. In addition, because all soil and sediment above cleanup levels will be removed from the property, both the volume and mobility of contamination is greatly reduced/eliminated although not through treatment.

SHORT-TERM EFFECTIVENESS

Because Alternative SC-1, No Action, would not require any activities to be conducted, there would not be any short-term impacts on the community and on-site workers.

Alternative SC-2, Multi-Barrier Cap/Excavation, would have some short-term impacts to the community from both the construction activities as well as from shipping materials off-site for disposal. However, these impacts can be greatly reduced by using standard construction techniques to reduce dust, etc. from the Site during excavation and construction of the cap. In addition, air monitoring will be conducted to ensure that adjacent residents are not adversely impacted while this Alternative is being implemented. Appropriate OSHA/health and safety requirements will be followed to reduce risk to on-site workers. Because this Alternative requires off-site disposal of radiological, PCB and dioxin waste as well as incoming shipments of material for construction of the cap, there will be a significant increase in truck traffic through the community during the 18-25 month time frame the FS estimates it will take to implement this remedy.

Alternative SC-3, Excavation and Off-site Disposal, would have slightly greater short-term effects because this Alternative would require all chemical and radiological waste material be excavated and shipped off-site for disposal. However, these impacts can be greatly reduced/eliminated by using standard construction techniques to reduce dust, etc. from waste material during the excavation and shipping phase. In addition, air monitoring will be conducted to ensure that adjacent residents are not adversely impacted while this Alternative is being implemented. Appropriate OSHA/health and safety requirements will be followed to reduce risk to on-site workers. Because this Alternative requires off-site disposal of both chemical and radiological waste, there will be a significant increase in truck traffic through the community during the 9-16 month time frame the FS estimates it will take to implement this remedy.

IMPLEMENTABILITY

Alternative SC-1 is the easiest to implement because no remedial actions are required.

Alternatives SC-2 and SC-3 are both easily implementable because they both involve reliable waste disposal technologies with proven histories of success. In addition, the personnel, equipment and materials required to implement each of these technologies are readily available. The greatest degree of variability in these alternatives is derived from the time frame required for implementation of these alternatives and the impact on the community. Alternative SC-3B will take less time to construct than Alternative SC-2B and will involve some additional truck traffic in comparison to Alternative SC-2B according to Table 9 of the FS.

COST

Alternative SC-1, No Action, would require the least cost. As shown in Table 8 of the FS, there are no costs associated with the No Action alternative.

Alternative SC-2, Multi-Barrier Cap/Excavation, is generally the second most expensive alternative, with cost estimates ranging from approximately $26,000,000 to $98,000,000 based upon the risk exposure scenario.

Alternative SC-2A Recreational Risk Scenario $26,057,000

Alternative SC-2B Adjacent Resident w/out Groundwater $28,106,000

Alternative SC-2C Adjacent Resident w/Groundwater $94,514,000

Alternative SC-2D On-Site Resident $98,066,000

Alternative SC-3, Excavation and Off-Site Disposal, is generally the most expensive alternative, with estimated costs ranging from approximately $54,000,000 to $127,000,000 based on the risk exposure scenario.

Alternative SC-3A Recreational Risk Scenario $54,055,000

Alternative SC-3B Adjacent Resident w/out Groundwater $55,553,000[4]

Alternative SC-3C Adjacent Resident w/Groundwater $120,888,000

Alternative SC-3D On-Site Resident $126,868,000

COMMUNITY ACCEPTANCE

From June 24th, 2004 to August 25th, 2004, EPA held a public comment period to seek input from the community regarding remedial cleanup alternatives evaluated for the Site. In addition, comments were received during a public hearing conducted August 4, 2004.

4 The cost estimate for the selected remedy has been revised. More detail is provided in Section L

On the basis of comments received, there was overwhelming support in the community for the selected remedy SC-3B. In addition, while there was some support for Alternative SC-2B, it was significantly less than support shown for Alternative SC-3B. A summary of the comments received and EPA's response to comments is included in the Responsiveness Summary portion of this ROD (Part 3).

STATE ACCEPTANCE

The Commonwealth of Massachusetts has indicated its support for the selected remedy by providing its concurrence in the attached letter (Appendix A).

L. THE SELECTED REMEDY

1. Summary of the Rationale for the Selected Remedy

The Selected Remedy is Alternative SC-3B. The selected remedy is a comprehensive remedy for the Site based upon EPA's determination that groundwater will not be addressed at this Site for the reasons outlined in Section D of this ROD. EPA has selected this remedy because it believes this cleanup plan is cost-effective yet still protective. The selected remedy achieves the best balance among the criteria used by EPA to evaluate alternatives. The selected remedy provides both short-term and long-term protection of human health and the environment, attains all Federal and State applicable or relevant and appropriate environmental requirements, reduces the volume and mobility of contaminated soil and sediment, utilizes permanent solutions to the maximum extent practicable, by removing contaminated material exceeding site cleanup levels off-site for disposal.

The vast majority of the comments received during the comment period requested that Alternative SC-3B be selected as the remedy for the Site based upon numerous concerns including regarding the long term effectiveness and permanence of the proposed alternative.

The selected remedy does not address Site groundwater. Section D. Scope and Role of Operable Unit or Response Action discussed this determination.

2. Description of Remedial Components

The selected remedy includes excavation and off-site disposal of material exceeding cleanup levels. This alternative eliminates the exposure pathways to soil and sediment.

A. The primary components of this alternative include:

- Coordination with local, state and federal agencies for excavating source area materials within a wetland and associated buffer zone;

- Preparation and implementation of a traffic control plan to adequately manage the increased volume of truck traffic associated with transportation of chemical and radiological impacted source material from the site;

- Preparation and implementation of a transportation and emergency spill contingency plan;

- Relocation of existing power line structures needed to implement the rest of the remedy in coordination with National Grid.

- Connecting two residences to public water.[5] The two residences are identified as Union Road House 1 and Union Road House 2 in the Remedial Investigation.

- Mobilization/demobilization of all personnel and equipment to the site for construction activities;

- Clearing and grubbing areas of the site requiring excavation;

- Establishing a survey grid to conduct sequential consolidation of grid cells to minimize generation of large quantities of groundwater with one open excavation;

- Based on the selected risk scenario for the site (Adjacent Resident without Groundwater Consumption), excavation and off-site disposal of soil and sediment exceeding radiological and chemical Cleanup levels including dioxin and PCBs as identified in Tables L-l and L-3, estimated in the FS as approximately 34,445 yd^3;

- Excavation and off-site disposal of sediment from the Inner Rung and exceeding the cleanup levels listed in Table L-2, estimated by the FS to be approximately 1,111 yd^3 soil/sediment. The FS estimated this will take a period of one month;

- Dewatering of open areas as needed in each area of the Site needed to complete the rest of the remedial action;

- Transportation of all impacted soils via truck and rail to an approved offsite disposal facility;

- All excavated soil and sediments disposed of in accordance with TSCA and the TSCA determination included as part of this ROD;

- Placement of clean fill in open areas to backfill to grade and/or wetlands restoration/ replication as appropriate;

- Vernal pools and spotted turtle habitat surveyed to focus on the spotted turtle and marbled salamander and evaluate the habitat for any other rare species or species of special concern that may be found on the Shpack Site; [6]

- Vernal pools and areas containing rare or species of special concern will be protected if possible or restored/replicated if impacted - an impact minimization and habitat restoration plan prepared and followed in conjunction with this work;

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5 Installation of the waterline shall comply with the substantiative requirements of the ARARs relating to protection of wetlands resources, including the Massachusetts Wetlands Protection Act Design will include detailed plans of the waterline, elevations and inverts, all wetlands resources which may be impacted by the waterline extension, de-watering methods and the options for installing the waterline at the railroad crossing on Peckham Street, if necessary

6 The "Rare Animal Observation Forms" and "Vernal Pool Certification Forms" should be completed and submitted as part of the substantiative requirements relating to the Massachusetts Natural Heritage and Endangered Species Program (NHESP)

- All work in wetlands areas conducted in accordance with the Wetland Determination included in this ROD. In addition, work in wetlands, including replication and restoration, must comply with the Wetlands Protection Act Regulations, 310 CMR 10 as well as all other ARARs identified for this component of the remedy. [7]

- Installation of a temporary chainlink fence surrounding the entire site, with access gates to secure the site during the design and construction phases of the cleanup; [8]

- Preparation and implementation of a surface water, sediment and groundwater monitoring program, including installation of additional wells around the perimeter of the Site; [9]

- Performance of 5-year reviews to monitor effectiveness of the remedy; [10]

- Implementation of institutional controls to restrict future use of property and groundwater.[11]

The selected remedy may change somewhat as a result of the remedial design and construction processes. Changes to the remedy described in this Record of Decision will be documented by the EPA Remedial Project Manager in a technical memorandum added to the Administrative Record for the Site, an Explanation of Significant Differences or a Record of Decision Amendment, as appropriate.

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7 The wetland replication/restoration must include at a minimum, detailed plans illustrating all existing and proposed contoui elevations, soil profiles for imported soils, a construction schedule, a planting plan including the number, size, and species of all plants, groundwater elevations, description of the replicated wetland function and values, physical features that replicate the vernal pool habitat and rare species habitat functions of the existing wetlands including coarse woody debris, snags and pit and mound topography, and a 5 year monitoring plan The wetland replication/restoration plan should commence in the first growing season after the construction activity has been completed The Conservation Commissions of Norton and Attleboro will be given a reasonable opportunity to review and comment on dehverables relative to wetlands restoration/replication

8 After construction is completed the community members, municipalities, landowners, and other stakeholders will be consulted to determine the fence should be permanent or removed as part of demobilization

9 The selected remedy includes a long-term monitoring program to include sampling and analysis of data to ensure that the remedy continues to be effective This will include sediment and surface water sampling of wetlands near the site ensure that re-contamination is not occurring

10 EPA will review the Site at least once every five years after the initiation of remedial action at the Site to assure that the remedial action continues to protect human health and the environment If additional action is required to ensure protectiveness. it will be taken

11 Restrictions would be placed on the Site to prevent residential use or other uses that present unacceptable risk in the future Groundwater restrictions would also be necessary on the site and for Union Road House 1 and Union Road House 2 in the form of deed restrictions These restrictions will be enforced by the appropriate government entity

B. Pre-design and Design Studies

Pre-design studies sufficient to design the selected remedy will include, but not be limited to, the following:

Performance of pre-design and design studies to prepare for the relocation of existing power line structures needed to implement the rest of the remedy in coordination with National Grid.

Site specific sediment toxicity testing will be conducted during pre-design efforts to ensure that the selected cleanup standards are protective of the benthic invertebrate community. As part of remedial design, toxicity testing will be conducted in Chartley Swamp and the onsite seasonal wetlands to confirm that the selected sediment cleanup levels in Tables L-2 and L-3 are protective of the benthic community. Toxicity testing will consist of collecting bulk sediment samples for use in ten day chironomid toxicity tests to assess the impact of contaminated sediment on growth and survival. Three sampling locations will be selected for each of the exposure areas (i.e. Chartley Swamp and the onsite seasonal wetlands), two in an area near where COC concentrations are the highest (near the Tongue Area in Chartley Swamp), and one to represent an area with lower COC concentrations so as to provide a gradient across which potential effects can be observed and to provide information useful for targeting potential remediation areas.

Sediment sampling will be performed in the inner rung of Chartley Swamp as necessary to more fully delineate the extent of sediment exceeding cleanup levels in Table L-2.

An assessment of ecological risk posed by soil in the Combined Field and Shrubland habitat (shown in Figure 4) of the site will be performed utilizing food chain models developed to evaluate receptor risk from soil in other areas of the site following "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments (EPA 540-R-97-006)".

A design study will be prepared to determine options for limiting the impact of dewatering on wetlands.

3. Summary of the Estimated Remedy Costs

All cost information reported in the ROD are estimates from the Feasibility Study, with an accuracy expectation of+50 to -30%. These estimates will be refined as the remedy is designed and implemented. The original estimated cost of the Selected Remedy (SC-3B) as outlined in Table 12B of the Feasibility Study is $55,553,000.

EPA gathered additional information that indicates that the transportation and disposal of material exceeding cleanup standards is considerably lower than the cost figures used in the FS. As a result, EPA has revised the estimated cost of the selected remedy to $43,034,000. See memorandum dated September 24, 2004 from Ed Conroy of Metcalf and Eddy to David Lederer, Remedial Project Manager entitled "Shpack-T&D Costs" in the Administrative Record for more information.

The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an BSD, or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

The Feasibility Study estimated the time for construction of SC-3B at 9-16 months.

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 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

4. Expected Outcomes of the Selected Remedy

The selected remedy is based upon a future exposure scenario that envisions a resident that lives next to the site (adjacent resident) who is connected to a public water supply and therefore does not use site groundwater for drinking water, etc. The selected remedy does not address groundwater. Section D. *Scope and Role of operable unit or Response Action* of this Decision Summary discussed this determination. The expected outcome of the selected remedy is that the Shpack Landfill Superfund Site will no longer present an unacceptable risk to adjacent residents via exposure to contaminated soil and sediment and will be suitable for passive recreational use. Approximately 9-16 months are estimated as the amount of time necessary to achieve the cleanup levels for the selected remedy.

The selected remedy will also provide environmental and ecological benefits such as restoration of sensitive ecosystems, protection of endangered species, protection of wildlife, and wetlands restoration.

a. Cleanup Levels

1. Soil and Sediment Cleanup Levels

The anticipated future use of the site is based upon an adjacent resident that does not consume groundwater. The site is also suitable for passive recreation. The site will not be suitable for residential use or the use of groundwater as a drinking water.

Soil cleanup levels for compounds of concern in surface and subsurface soil exhibiting an unacceptable cancer risk and/or hazard index have been have been established such that they are protective of human health For the selected remedy, soil cleanup levels for known and suspect carcinogenic chemicals of concern (Classes A, B, and C compounds) have been set at a 10^{-5} excess cancer risk level considering exposures via dermal contact and incidental ingestion

Cleanup levels for chemicals of concern in soils having non-carcinogenic effects (Classes D and E compounds) were derived for the same exposure pathway(s) and correspond to an acceptable exposure level to which the human population (including sensitive subgroups) may be exposed without adverse affect during a lifetime or part of a lifetime, incorporating an adequate margin of safety (hazard quotient = 1)

The cleanup values that were selected for the adjacent resident without consumption of groundwater (the selected remedy) are listed in Table L-l. Table L-l summarizes the cleanup levels for carcinogenic and non-carcinogenic chemicals of concern in soils protective of direct contact with soils

Cleanup levels based on protection of environmental receptors are as stated in Tables L-2 and L-3 for the Chartley Swamp and the Interior Wetlands

These sediment cleanup levels must be met at the completion of the remedial action throughout the Site They are consistent with ARARs for sediment, attain EPA's risk management goals for remedial action, and are protective of environmental receptors

Site specific toxicity testing will be conducted during pre-design efforts to ensure that the selected cleanup standards are protective of the benthic invertebrate community As part of remedial design, toxicity testing will be conducted in Chartley Swamp and the onsite seasonal wetlands to confirm that the selected sediment cleanup levels are protective of the benthic community Toxicity testing will consist of collecting bulk sediment samples for use in ten day chironomid toxicity tests to assess the impact of contaminated sediment on growth and survival Three sampling locations will be selected for each of the exposure areas (i.e. Chartley Swamp and the onsite seasonal wetlands), two in an area near where COC concentrations are the highest (near the Tongue Area in Chartley Swamp), and one to represent an area with lower COC concentrations so as to provide a gradient across which potential effects can be observed and to provide information useful for targeting potential remediation areas

M. STATUTORY DETERMINATIONS

The remedial action selected for implementation at the Shpack Landfill Superfund Site is consistent with CERCLA and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, will comply with ARARs and is cost effective. In addition, the selected remedy utilizes permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable, and satisfies the statutory preference for treatment that permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element.

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

The remedy at this Site will adequately protect human health and the environment by eliminating, reducing or controlling exposures to human and environmental receptors through engineering controls and institutional controls. More specifically, the excavation and off-site disposal of all materials exceeding site cleanup levels will eliminate exposure to these contaminants.

The selected remedy will reduce potential human health risk levels such that they do not exceed EPA's acceptable risk range of 10^{-4} to 10^{-5} for incremental carcinogenic risk and such that the non-carcinogenic hazard is below a level of concern, in this case the Hazard Index will not exceed 1. It will reduce potential human health risk levels to protective ARARs levels, i.e., the remedy will comply with ARARs and To Be Considered criteria. In addition, site sediments will be addressed such that they no longer present an unacceptable risk to ecological receptors. Implementation of the selected remedy will not pose any unacceptable short-term risks or cause any cross-media impacts.

2. The Selected Remedy Complies With ARARs

The selected remedy will comply with all federal and any more stringent state ARARs that pertain to the Site. In particular, this remedy will comply with the federal and state ARARs identified in Table 1G of the FS (for Alternative SC-3B; attached to this ROD).

3. The Selected Remedy is Cost-Effective

In EPA's judgment, the selected remedy is cost-effective because the remedy's costs are proportional to its overall effectiveness (see 40 CFR 300.430(f)(l)(ii)(D)). This determination was made by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria (i.e.. that are protective of human health and the environment and comply with all federal and any more stringent ARARs, or as appropriate, waive ARARs). Overall effectiveness was evaluated by assessing three of the five balancing criteria — long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness, in combination. The overall effectiveness of each alternative then was compared to the alternative's costs to determine cost-effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence represents a reasonable value for the money to be spent.

From this evaluation, EPA has determined that Alternative SC-3 is cost effective as it meets both threshold criteria and is reasonable given the relationship between the overall effectiveness afforded by the other alternative and cost compared to other available options. In evaluating the differences between Alternatives SC-2B and SC-3B, the decisive factors were that Alternative SC-3B provides the greatest long-term effectiveness and permanence when compared to the other source control alternative, SC-2B, and also provides greater reduction in toxicity, mobility, and volume, although not through treatment.

Although the difference in cost between these two Alternatives is large, EPA believes the additional cost is justified given the uniqueness of the waste material and the risks it presents to the community. EPA also believes that the cost differential between Alternatives SC-2B and SC-3B for the chemical waste component of these alternatives may well end up being significantly smaller than estimated in this ROD. This is based upon EPA's intention to phase the work at the Site with the radiological waste being addressed first. Because the different types of contamination present at the site may be co-located, the amount of non-radiological waste that may be left to be disposed of off-site may be, in fact, less than what is estimated in the FS. As a result, the cost differential between the 2 alternatives in practice may be smaller than depicted in the FS.

Finally, while Alternative SC-2 has marginally fewer short term impacts than Alternative SC-3 on the community, the difference is not significant given that these types of impacts are typical during cleanup operations and can be minimized or eliminated through routine, standard operating procedures.

Given the importance to the community that the remedy selected have the greatest overall effectiveness, the additional cost associated with SC-3 is justified.

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

Once the Agency identified those alternatives that attain or, as appropriate, waive ARARs and that are protective of human health and the environment, EPA identified which alternative utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In this case because of the nature of the material at the Site, essentially municipal and industrial waste combined with PCBs, dioxin and radioactive materials, EPA determined that it was impractical from a technical standpoint to utilize treatment to address this diverse waste material. As a result, neither alternative relied upon alternative treatment technologies or resource recovery.

The selected remedy provides the greatest long-term effectiveness and permanence by disposing of all chemical, radioactive, dioxin and PCB material off-site. The selected remedy also provides the greatest reduction in toxicity, mobility, and volume although not through treatment. The selected remedy would reduce/eliminate mobility of chemical, radiological, PCB, and dioxin waste material because all of the material that exceeds cleanup levels will be removed from the Site. The toxicity of the chemical, radiological, PCB, and dioxin waste material would be greatly reduced/eliminated because all of the material that exceeds cleanup levels will be removed from the Site. In addition, because all soil and sediment above cleanup levels established for chemical, radiological, PCB, and dioxin waste material will be removed from the site, the volume of this contamination is greatly reduced/eliminated, although not through treatment. The selected remedy has acceptable short term impacts to the community and workers that can be minimized or eliminated through routine, standard operating procedures. The selected remedy is easily implementable and the cost is reasonable given the overall effectiveness of this remedy. The selected remedy also has significant support from the community and the Commonwealth of Massachusetts. Alternative SC-2B, on the other hand, was actively opposed by most in the community that provided input on remedy selection. This leads to the conclusion that the selected remedy provides the best balance of trade-offs among the alternatives.

5. The Selected Remedy Does Not Satisfy the Preference for Treatment as a Principal Element

The selected remedy does not satisfy the statutory preference for treatment as a principal element. In this case because of the nature of the material at the Site, essentially municipal and industrial waste combined with PCBs, dioxin and radionuclides, EPA determined that it was impractical from a technical standpoint to utilize treatment to address this diverse waste material.

6. Five-Year Reviews of the Selected Remedy are Required.

Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review will be conducted within five years after initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

N. DOCUMENTATION OF SIGNIFICANT CHANGES

EPA presented a proposed plan that provided for off-site disposal and consolidation with capping for remediation of the Site on June 23, 2004. This preferred alternative included off-site disposal of PCB, dioxin and radioactive waste, consolidation and capping of remaining waste material and construction of a water line. EPA reviewed all written and verbal comments submitted during the public comment period. It was determined that Alternative SC-3B would be selected in this Record of Decision, as opposed to SC-2B as originally identified in the proposed plan.

O. STATE ROLE

The Massachusetts Department of Environmental Protection has reviewed the various alternatives and has indicated its support for the selected remedy. The State has also reviewed the Remedial Investigation, Risk Assessment and Feasibility Study to determine if the selected remedy is in compliance with applicable or relevant and appropriate State environmental and facility siting laws and regulations. The MA DEP concurs with the selected remedy for the Shpack Landfill Superfund Site. A copy of the declaration of concurrence is attached as Appendix A.

PART 3

RESPONSIVENESS SUMMARY

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SHPACK LANDFILL SUPERFUND SITE RESPONSIVENESS SUMMARY

PREFACE

The U.S. Environmental Protection Agency (EPA) held a 30-day public comment period from June 24th to August 25th, 2004, to provide an opportunity for public input on the June 2004 Proposed Plan to address contamination at the Shpack Landfill Superfund Site (the "Site") in Norton/Attleboro, MA. EPA prepared the Proposed Plan based on the results of the human-health risk assessment, ecological risk assessment, remedial investigation data evaluation reports, and the Commonwealth of Massachusetts groundwater use and value determination. All documents that were used in EPA's selection of the preferred alternative were placed in the Administrative Record which is available for public review in Norton Public Library, and at the EPA Records Center in Boston, Massachusetts.

The purpose of this Responsiveness Summary is to document EPA's responses to the questions and comments raised during the public comment period. EPA considered all the comments summarized in this document before selecting a final remedy for the Shpack Landfill Superfund Site

This Responsiveness Summary is organized into the following sections:

A. Overview of Proposed Plan. This section briefly outlines the plan proposed to the public in June 2004 for addressing the contamination at the site.

B. Site history and background on community involvement and concerns. This section provides a brief history of the site and an overview of community interests and concerns regarding the site.

C. Summary of comments received during the public comment period. This section summarizes and provides EPA's responses to the oral and written comments received from the public during the public comment period.

A copy of the transcript from the public hearing held on Thursday, August 4, 2004, in Norton, Massachusetts, is included as Attachment A to this Responsiveness Summary. The written comments received during the comment period are included in Attachment B.

A. OVERVIEW OF PROPOSED PLAN

On June 23th, 2004, the Proposed Plan for the Shpack Landfill Superfund Site was released. Its main points included:

- Clean up based upon a future scenario in which a resident living next to the Site (adjacent resident) is connected to a public water supply and does not drink the groundwater at the site

- The public waterline will be extended to include two residences adjacent to the landfill that are currently on private wells.

    - Approximately 10,500 cubic yards of soil containing radiological contaminants of concern above the cleanup levels will be excavated and disposed of off-site.

    - Approximately 2250 cubic yards of dioxin and PCB-contaminated sediment will be excavated and disposed of off-site.

    - Contaminated sediments in wetland areas of the site will be consolidated to an upland area on-site and the disturbed wetlands will be restored and/or replicated.

    - The upland area will be capped to prevent exposure to contaminated waste.

    - The site will be fenced to control access and institutional controls will be put in place to ensure the remedy remains protective in the long term.

    - Groundwater will continue to be monitored and the cap maintained in the long term.

- Based on the presence of ALI Landfill and other technical issues, the proposed plan did not address groundwater contamination at and near the site. It addressed the risk of exposure to contaminated groundwater by installing a public waterline to the two homes adjacent to the site that are currently on private wells.

B. SITE HISTORY AND BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

Site History

Between 1946 and the 1970's, the Shpack Site received domestic and industrial wastes, including low-level radioactive waste. The filled areas where the wastes were dumped are overgrown and entirely enclosed by a chain link fence. The Site itself is relatively flat with vegetated minor depressions and knolls and was formerly a flat wetlands area. A powerline transmission corridor divides the Site into two portions. The Site is bounded on two other sides by the Chartley Swamp that drains under Union Road to Chartley Pond. There are two homes on private drinking water wells within 500 feet of the Site.

In 1980, the Shpack Site was added to the Department of Energy's (DOE) Formerly Utilized Remedial Action Program (FUSRAP), which dealt with the legacy of the nation's early atomic energy programs. The uranium at the site is thought to have originated from local businesses that constructed reactor cores for the early naval propulsion program from the early 1950' s until the mid-sixties.

A more detailed description of the Site History can be found in Section 1.2.2 of the RI Report.

In 1978, a concerned citizen who had detected elevated radiation levels at the site contacted the Nuclear Regulatory Commission (NRC). The NRC conducted an investigation that confirmed the presence of radioactivity above background levels. The NRC determined that certain operations associated with government activities might have resulted in the deposition of radioactive materials within the Shpack Landfill. The primary constituents of concern found were radium and uranium. It is not known exactly when these radioactive materials were deposited at the site.

The NRC investigation concluded that the Shpack Landfill was a candidate for the FUSRAP program. On behalf of the NRC, Oak Ridge National Laboratory (ORNL) conducted a radiological survey in 1980 that identified metallic wastes containing uranium of various enrichments. The ORNL report confirmed the NRC preliminary findings and defined general areas of radiological contamination. In 1998, FUSRAP responsibility was transferred from DOE to the United States Army Corps of Engineers (USACE), and a gamma walkover survey was performed to further delineate the radiological contamination.

In October of 1981, a security fence was installed around the site on behalf of DOE to prevent unauthorized access. With the exception of the area located in the section of the site known as the Tongue Area and an approximately 1,000-foot section of replacement fence, this fence is the same fence that currently is located on the Site. Additional studies conducted by DOE between 1982 and 1984 identified chemical contamination (volatile organic compounds (VOCs) and metals) in groundwater. In 1984, EPA evaluated the site to determine if it should be listed on the National Priority List (NPL). The site was added to the list in June 1986.

A summary of preliminary investigations performed at the Site prior to 1990 is included in Table 1 of the RI. These investigations included sampling of various environmental media and primarily focused on evaluating radiological impacts at the Site.

In 1990, a group of potentially responsible parties formed the Shpack Steering Committee (SSC) and individual companies comprising the SSC entered into an Administrative Consent Order (ACO) with EPA (EPA Docket No. 1-90-1113, June 24,1990) which required them to conduct the Remedial Investigation/ Feasibility Study (RI/FS) for the Site. In November 1991, the SSC prepared and submitted a Site Characterization Work Plan (SCWP) for the first phase of the RI, known as "Phase IA". Between 1991 and 1992, the SSC implemented Phase IA of the RI, which was a comprehensive investigation of potentially impacted media at the Site. The Phase IA identified chemical impacts in soil, groundwater, sediment and surface water at the site. Non-radioactive constituents of concern identified on Site during the Phase IA include:

- Volatile organic compounds (VOCs);
- Semi-volatile organic compounds (SVOCs);
- Polychlorinated biphenyls (PCBs);
- Pesticides;
- Dioxins/furans; and
- Inorganics.

The results of the Phase IA RI activities were documented in ERM's 1993 Initial Site Characterization (ISC) Report. In addition, the Phase IA contains a detailed summary of the previous investigations listed in Table 1 of the RI. With the exception of residential well monitoring activities, no chemical investigation activities were performed at the Site after the Phase IA ISC Report.

In 1999, the SSC in conjunction with EPA, the Corps of Engineers FUSRAP program, and DEP began preparation of work plans to implement Phase IB of the RI. The Phase IB activities included the following:

- Monitoring well Installation
- Groundwater sampling
- Surface water and sediment sampling
- Soil sampling
- Tar area delineation
- Well functionality and site survey
- Site fence extension
- Test pit excavation in Tongue Area
- Groundwater gauging
- Residential well sampling
- Surface water drainage characterization

The Phase IB activities were completed in 2003. The Results of the Phase IB investigations, as well as the prior investigations are documented in the RI Report.

Community Involvement and Concerns

Throughout the Site's history, community concern and involvement has been high. EPA has kept the community and other interested parties apprized of Site activities through informational meetings, fact sheets, press releases, and public meetings. Below is a brief chronology of public outreach efforts.

- Local residents formed the Citizen's Advisory Shpack Team (CAST) to monitor Site activities. CAST has been actively involved in organizing community review of activities conducted at the Site and providing input to the various government agencies involved at the Site.

- On numerous occasions during 2000-2004, EPA and DEP held informational meetings at the Solmonese School in Norton, Massachusetts to update the community on the results of the Remedial Investigation and Feasibility Study.

- On November 20, 2003, EPA held an informational meeting in Norton, Massachusetts to discuss the results of the Remedial Investigation.

- On June 18, 2004, EPA published a notice of Proposed Plan in the Attleboro Sun Chronicle. The plan was made available to the public on June 24, 2004 at the Norton Public Library (June 25th) and the EPA office repository.

- The Proposed Plan contained a proposed determination with regard to offsite disposal of PCB-contaminated material pursuant to the Toxic Substances Control Act (TSCA). The Proposed Plan also contained a draft finding that there is no practical alternative to conducting work in the wetland areas of the Site under Section 404 of the Clean Water Act and Executive Order No. 11990. There were no proposed waivers of ARARs included in the Proposed Plan.

- On June 23, 2004, EPA held an informational meeting to discuss the results of the Remedial Investigation and the cleanup alternatives presented in the Feasibility Study and to present the Agency's Proposed Plan to a broader community audience than those that had previously been involved at the Site. At this meeting, representatives from EPA, MA DEP, and the US Army Corps of Engineers answered questions from the public.

- On June 24, 2004, EPA made the administrative record available for public review at EPA's offices in Boston and on June 25th at the Norton Public Library. This will be the primary information repository for local residents and will be kept up to date by EPA.

- From June 24, 2004, the Agency held a 30-day public comment period to accept public comment on the alternatives presented in the Feasibility Study and the Proposed Plan and on any other documents previously released to the public. An extension to the public comment period was requested and as a result, the comment period was extended to August 25, 2004.

- On July 21, 2004, EPA published a notice of the extension of the comment period as well as a rescheduled public hearing date (August 4, 2004) in the Attleboro Sun Chronicle.

- On August 4, 2004, the Agency held a public hearing to discuss the Proposed Plan and to accept any oral comments. A transcript of this meeting and the comments and the Agency's response to comments are included in the Responsiveness Summary, which is part of this Record of Decision.

C. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

This Responsiveness Summary addresses comments pertaining to the Proposed Plan that were received by EPA during the public comment period (June 24rd to August 25, 2004). Many individuals submitted written comments. Six individuals, including Congressman Barney Frank, and Norton Board of Selectman Chairman Bob Kimball submitted oral comments at the public hearing on August 4, 2004. What follows are EPA's responses to these comments. Where possible, EPA has grouped similar comments, and prepared a single response. A copy of the public hearing transcript is included as Attachment A. Copies of the written comments are included as Attachment B.

A. Comments in Support of Alternative SC-3B

1) The overwhelming majority of the comments supported selection of Alternative SC-3B over EPA's proposed Alternative SC-2B. In support of these comments, commenters pointed to a number of factors:

    - Contamination should be taken off-site and not left on-site

    - Long-term integrity of the cap under SC-2B is unsure. The permanence of SC-2B is in doubt over the long term.

    - Volume and mobility reduction is superior under SC-3B versus SC-2B.

    - Reliability of fencing and institutional controls will be poor in the long run. Trespassers will be able to access the site despite fencing and institutional controls. The powerline transmission right of way through the site presents difficult issues as well in terms of restricting access. Fencing restricts wildlife movement.

    - Selection of SC-3B over SC-2B would allow reduction in monitoring and eliminate concern regarding trespassing thereby saving money.

    - Mobility of contaminants has been underestimated by EPA. Removal under SC-3B will be more protective.

    - Permanent elimination of contamination is the only complete way to address risk of harm from contaminants

RESPONSE TO COMMENT #1

After review of the comments received and taking into account the wishes of the community and the support of the Commonwealth of Massachusetts, EPA agrees that Alternative SC-3B should be the selected remedy for the Site. As outlined in the analysis of the nine selection criteria under CERCLA, SC-3B provides greater long term protection and permanence and also results in a greater reduction in volume mobility and toxicity by removing all material that presents an unacceptable risk from the site.

Although EPA uses institutional controls at sites to prevent exposure, EPA agrees that physical controls such as fencing are not as effective in the long term to restrict exposure in remote areas where trespassers are a concern, and are difficult to enforce at a site such as this. It should be noted that although the selected remedy will no longer require institutional controls to protect the integrity of the cap, it will still require institutional controls to restrict groundwater use and to make sure that residential housing is not permitted on the Site in the future. EPA believes these types of institutional controls are more easily enforced in the long-term than in situations where trespassing is a concern. In addition, EPA agrees that selection of SC-3B over SC-2B will allow a reduction in monitoring at the Site and will eliminate concern regarding trespassing thereby providing some slight cost savings.

Although EPA agrees that it is appropriate to remove all waste from the Site in this instance, it should be noted that EPA has wide regulatory authority in fashioning remedial cleanup plans at Superfund sites under CERCLA. The definition of "remedial action" under CERCLA is broad and does allow for a variety of response actions including capping waste in place. In this particular case, given the unusual nature and variety of materials present at this Site, as well as State and community support, EPA agrees that removal of this waste material to an off-site location is an appropriate response action. (See also discussion of presumptive remedy for landfill discussion below)

2) In providing comments supporting selection of Alternative SC-3B over EPA's proposed Alternative SC-2B, a number of commenters expressed concern with the long-term operation and maintenance (O&M) costs associated with Alternative SC-2B as they relate to funding, oversight and long term protectiveness. Included in these comments were the following concerns:

- oversight of site O&M is impracticable over the long term under scenario SC-2B
- the Town of Norton and or the State could be responsible for O&M and other future costs in the long term because private Potentially Responsible Parties (PRPs) may not be viable in the future
- the Town of Norton should not bear financial burden for the cleanup

RESPONSE TO COMMENT #2

Cost estimates in the Feasibility Study and Proposed Plan for the SC-2 alternatives did include an estimate of operation and maintenance costs. Notwithstanding, by selecting Alternative SC-3B, concerns raised by commenters regarding O&M have been addressed. Because all waste material that presents an unacceptable risk will be excavated and disposed of off-site, only limited monitoring will be required in the long-term to ensure that the remedy remains protective. As a result, the cost of this long term obligation is, compared to this obligation in Alternative SC-2B, quite small.

3) Several comments were received suggesting that it was not appropriate to catagorize the Shpack site as a "landfill" as it was really an essentially illegal unregulated dump. In addition, commenters noted that the nature of material disposed of at the Shpack Site was not consistent with materials disposed of at other landfills.

RESPONSE TO COMMENT #3

After review of the comments presented and information regarding the nature and extent of the contamination at this Site, EPA agrees that this particular Site presents several unique characteristics that distinguish it from typical landfills or municipal landfills.

Typical landfills/municipal landfills do not contain radioactive waste. At this Site approximately one-third (1/3) of the material that the Feasibility Study estimated must be addressed is radiological in nature. In addition, because a large portion of the remaining chemical waste material is located in wetland areas, wetland requirements necessitate that this material also be excavated and moved (placed under a cap as in SC-2B or taken off-site as required in SC-3B). Municipal landfill closures typically do not require significant excavation and movement and removal of large quantities of waste material to occur throughout the landfill prior to putting the cap in place, as is the case here.[12] As a results, the major premise of landfill closure, that all or most waste will be covered in place, does not exist here because of these unique site specific factors.

In addition, this Site is relatively small in size and the amount of waste material that must be addressed is also relatively small and near the surface when compared to most landfills. One of the major reasons that waste is covered in place at municipal landfills is that the size of the landfill and the quantity of waste that needs to be addressed is so large that it is not cost effective or practicable to remove the waste. In addition, the waste requiring corrective action at typical landfills is often buried at great depth, below the ground surface, making removal of the waste impracticable.

This is simply not the case at Shpack where the cap area would extend 2 to 3 acres in size and the waste that needs to be addressed is approximately 34,000 cu yds (including radiological and non-radiological waste). Compared to other landfill closures in Region I, the estimated volume of the material required to be removed in the selected remedy is relatively small. In addition, the material requiring excavation under the selected remedy is, in general, close to the surface for the "adjacent resident without groundwater consumption" exposure scenario selected here. These factors make removal of the waste above cleanup levels practicable.

4) Comments were also received noting that the Attleboro Landfill (ALI) is not properly capped and the State has not enforced its regulations with regard to that site, and that Alternative SC-2B presents the same type of uncertainty. For this reason Alternative SC-3B is preferred because it avoids the issue of effectiveness of capping in the long term.

RESPONSE TO COMMENT #4

By selecting Alternative SC-3B, concerns raised by commenters regarding enforcement of capping requirements have been addressed. Because all waste material that presents an unacceptable risk will be excavated and disposed of off-site, capping of the Site will no longer be required. As a result, there should not be any concern regarding EPA's ability to effectively oversee a capping remedy in the long term.

5) Several commenters also expressed concern that the proposed Alternative SC-2B did not take into account the community's desire that the Site be used for passive recreation in the future.

RESPONSE TO COMMENT #5

In evaluating alternatives for cleanup of this Site, EPA looked at four different exposure scenarios that could represent potential future uses of the Site:

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12 Some landfill closures might require small limited "hot spot" removals but not excavation and removal of large portions of landfill material as is necessary here (1/3 of the waste material at Shpack)

- Recreational User
- Adjacent resident w/out groundwater exposure
- Adjacent resident w/groundwater exposure
- On-site resident

Because each exposure scenario was based upon different assumptions regarding activities that would occur at the site in the future, the result was that different quantities of waste material were addressed under each scenario. As result, under the Recreational User scenario, the smallest amount of waste would be addressed. The On-site Resident required the most waste be addressed with the two Adjacent Resident scenarios requiring amounts in between these other two scenarios be addressed.

By proposing the "adjacent resident w/out groundwater exposure" scenario, EPA believed it was addressing the community's desire that the Site be safe in the future for passive recreational use because this scenario required more stringent cleanup levels be met than the "recreational user" scenario thereby ensuring that the Site was safe as well for passive recreational use.

Based upon the comments received, EPA now understands that what the community meant by expressing its preference for passive recreation was that not only would the Site be safe for these activities (EPA's view) but that also the physical nature of the cleanup activities not interfere with or present an impediment to passive recreational activities. Clearly based upon comments received, constructing a cap would require some restrictions on recreational activities that would not be acceptable to many in the community. Because EPA has selected Alternative SC-3B, the remedy will no longer present a physical impediment to the types of passive recreation envisioned by many in the community.

6) Commenters also expressed concern that installation of the water line will increase the development of land surrounding the Site thereby exposing an increased population to risks from the Site should Alternative SC-2B be selected

<u>RESPONSE TO COMMENT #6</u>

By selecting Alternative SC-3B, EPA has addressed this concern. All waste material that presents an unacceptable risk will be excavated and disposed of off-site. As a result, there should not be any concern that an increased population will be a risk in the future from the Site.

EPA notes, however, that both Alternatives SC-2B and SC-3B were based upon future use scenarios that envisioned residents living next to the site and that also visit the site periodically. As a result, EPA believes it has taken into account in scoping out both of these Alternatives the types of exposure likely to occur to people who live near the Site. That being said, regardless of how many people ultimately live near the site, EPA believes that either alternative would be protective of human health.

7) One comment was received that questioned whether Alternative SC-2B would be protective should an earthquake occur.

<u>RESPONSE TO COMMENT #7</u>

The likelihood of a seismic event large enough to adversely impact a properly designed landfill cover is considered remote, and in that unlikely occurrence, repairs could be made. In any case, Alternative SC-3B has been selected.

8) One comment was received stating that Alternative SC-2B did not take into account the effect future releases on drinking water that might be used by communities from a proposed water treatment plant on the Taunton River. Alternative SC-3B does address this concern.

RESPONSE TO COMMENT #8

No impact has been noted within Charley Pond, the closest open water body to the Site. In addition, given the large number of stream miles to the location in question, it is very unlikely any measurable impact could be detected at this proposed water treatment plant..

9) Comments were also received from parties concerned with the number of cases of cancer in the community and, as a result, the commenters believe Alternative SC-3B is the best alternative because it removes contamination from the community.

RESPONSE TO COMMENT #9

The RI document focused on current and future exposures and risks. The selected remedy is protective of the community now and in the future.

10) Commenters also expressed their belief that Alternative SC-3B is cost effective.

RESPONSE TO COMMENT #10

In selecting Alternative SC-3B, EPA agrees that the remedy is cost effective.

11) One comment was received that stressed that the concerns of Norton residents were more important than the concerns of Attleboro and other communities.

RESPONSE TO COMMENT #11

Under the Superfund law, EPA is required to take into account the wishes of the community in making decisions regarding how to clean up Superfund sites. In this case, EPA has received comments from various parties including residents or representatives of both communities and has taken all comments into account in reaching its decision regarding cleanup of the Site.

B. Conduct of the work

1) One commenter asked that completion of ALI capping and the work at Shpack be coordinated.

RESPONSE TO COMMENT #1 - ALI and the Shpack Landfill are being addressed by different government entities and under different environmental laws. The cleanup at ALI is being overseen by Massachusetts DEP under state law while the cleanup at Shpack is being overseen by EPA under the federal Superfund law. However, to the extent there are opportunities to coordinate activities as the clean up occurs, EPA will attempt to coordinate with appropriate State officials.

2.) Other comments were received asking that EPA coordinate with the local public safety officials regarding truck routes. A related comment suggested that rail transport should be arranged if possible to minimize impacts/risks to vehicular traffic.

<u>RESPONSE TO COMMENT #2</u> - EPA will work closely with the affected communities regarding short term impacts from the ongoing cleanup to ensure that impacts are minimized or eliminated and concerns addressed to the extent possible. As part of the remedial design, rail transport will be evaluated to see if it is a feasible alternative to transport of waste material by truck.

3) One commenter suggested that there would be significant costs savings if the waterline was extended from Attleboro rather than from Norton.

<u>RESPONSE TO COMMENT #3</u> - As part of the remedial design process, location of the waterline will be reviewed and options regarding location of the waterline evaluated.

4) A number of comments were received that addressed habitat and wetlands issues during the course of construction. These comments included the following:

- Rare Habitat, rare species, vernal pools and wetlands resources should be protected/impacts to these resources should be minimized during construction activities and these resources should be restored and/or replicated if impacted.

- Options for dewatering wetlands and a transportation and emergency spill contingency plan should be included in the ROD.

<u>RESPONSE TO COMMENT #4</u>

In response to these comments, additional requirements have been included in the description of the selected remedy to better address the protection of rare habitats, rare species, vernal pools and wetlands resources during the construction of the remedy. In addition, more detail has been added to the selected remedy regarding appropriate restoration and replication in these areas of special concern.

5) In addition, the Norton Conservation Commission has requested that certain activities obtain permits for work conducted in areas of the Site over which it has jurisdiction. The State National Heritage & Endangered Species Program (NHESP) has also requested plans be submitted to it for approval.

<u>RESPONSE TO COMMENT #5</u>

CERCLA Section 121(e)(l) reads :

"No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with this section"

Onsite, under the Superfund law, is defined as: "the area! extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action."

Because the work being conducted at the site is entirely onsite for purposes of the Superfund law, the permitting and approval requirements noted by the Conservation Commission and NHESP, do not apply. As a result, permits will not be applied for and documents and plans will not be forwarded for the purposes of obtaining formal approval.. However, EPA will provide the Conservation Commission and NHESP the information normally requested by their respective programs and provide them with a reasonable opportunity to review and comment regarding appropriate activities as cleanup work occurs at the Site.

6) Comments were also received requesting that Rare Animal Observation Forms and Vernal Pool Certification Forms be submitted

RESPONSE TO COMMENT #6

The substantiate requirements of the state and local wetlands protection programs, as well as those operated by the Massachusetts NHESP will be met during the course of the cleanup. The information required by these forms will be collected and the substantiative requirements of appropriate programs will be met.

7) The Board of Health stated that it may require specific monitoring during cleanup operations.

RESPONSE TO COMMENT #7 - EPA is not required to seek formal approval or permits when conducting work on-site under the Superfund statue. However EPA will, of course, work closely with the Board of Health to address their concerns during the construction phase of the remedy and meet the substantiative requirements of the regulatory requirements normally imposed by the Board of Health.

8) The Board of Health also expressed concern that local roads could not support truck operations.

RESPONSE TO COMMENT #8

One of the items to be considered during the remedial design will be the coordination of truck hauling routes with local officials to ensure that truck operations are operated in a safe manner. One of the issues to be considered is the routes taken to the disposal site.

9.) One comment was received asking how residents would be protected during removal of contaminated soil.

RESPONSE TO COMMENT #9

Standard dust suppression techniques which have been shown to be highly effective will be used during soil excavation. These could include, but are not limited to, frequent watering down of areas in which work is being accomplished, the use of foam suppressants, and limiting the size of the open face of excavation at any one time. In addition, air monitoring both at the work site and the perimeter will be conducted during construction activities to ensure that the work is conducted safely. Finally, trucks leaving the "hot zone" of contamination will be decontaminated before they are allowed to leave the contamination reduction zone and the site itself.

10.) One comment was received asking for clarification of the safety of the water supply around the site. In a related comment, requests were received for the remedy to include waterline hookups for 2 properties in Attleboro on Peckham street.

RESPONSE TO COMMENT #10

Water levels in monitoring wells screened in the shallow zone at the Shpack site suggest that groundwater flow is semi-radially outward toward the northwest, north, northeast, east, and southeast. The only direction in which water levels are higher immediately off the site is to the southwest, beneath the ALI Landfill. Although the groundwater contours for the shallow zone suggest that flow would be toward the private water supply wells north of the site at Union Road House 1 and Union Road House 2, the shallow groundwater flow is apparently predominantly downward at the site, into the deeper overburden. This concept is supported by both water level and water quality measurements.

The positions of these two homes relative to the site (in particular their close proximity to the site) and to highly contaminated wells make them potentially vulnerable to future contamination if hydrologic conditions change (e.g., water levels in nearby ponds and wetlands change, drainage characteristics at the Shpack or ALI sites are altered). Therefore, EPA has determined that a sufficient threat exists at the Site to support installation of a waterline to these two houses. This determination is consistent with EPA's 1988 "Guidance Document for Providing Alternate Water Supplies":

"In addition, remedial action may be taken based on the threat of future contamination in cases where these criteria are not yet exceeded ("MCLs"). If potable wells are not currently contaminated, it must be determined they will be threatened with contamination before a final remedy addressing ground water contamination can be implemented."

While sampling has detected MTBE and arsenic in residential drinking water wells in Attleboro on Peckham Street, EPA does not believed that these detections are related to the Shpack Site. Because the contamination in these wells is not related to the Shpack Site, EPA cannot address waterline hookups for these properties as part of this cleanup action.

11.) One comment was received from the Norton Police Department expressing concern that they would be required to patrol and have a security presence at the Site.

RESPONSE TO COMMENT #11

During the construction of the selected remedy, requirements will be put in place to ensure that the Site is secure and that traffic flow is consistent with public safety concerns. The project design will include planning with municipal officials regarding public safety concerns, including traffic concerns, and especially routes of trucks and other vehicles on public roads.

C. Comments in Support of Alternative SC-2B

Although the overwhelming number of comments supported selection of Alternative SC-3B, some comments were received in support of Alternative SC-2B.

1.) One commenter noted that landfills are typically capped in accordance with the presumptive landfill guidance. In a related comment, it was noted that EPA has effectively capped sites like this one in the past.

RESPONSE TO COMMENT #1 - EPA's initial thought when scoping out general response actions at the Site was that this Site might be an appropriate candidate for EPA's presumptive remedy guidance for municipal landfills. Numerous comments were received from members of the community objecting to this characterization of the Site. After a review of these comments as well as revisiting the nature and extent of contamination at the Site, EPA agrees with those commenters who believe that this is not an appropriate site to use EPA's presumptive remedy guidance.

The Shpack property has always been a privately owned and operated. The Shpack Site is also relatively small in nature 9.4 acres total in size. In addition, the nature of the waste found at the Site is unique in that it includes large quantities of radioactive waste, as well as smaller quantities of PCBs and dioxin in addition to chemical wastes. All alternatives evaluated in the Proposed Plan involved excavation and off-site disposal of radiological material. In addition, both the dioxin and PCB waste are required to be excavated under all alternatives except the no action alternative. These contaminants are located through out the site, not just limited to small discrete "hot spots", although some "hot spots" are present. Significant amounts of contamination are also present in wetland areas of the site and must be excavated under any cleanup scenario consistent with wetlands requirements. As a result, significant excavation and movement of contaminated soil throughout the Site will be necessary to excavate waste that exceeds cleanup levels for these contaminants. In addition, much of the material exceeding cleanup levels is located near the ground surface and can be excavated and removed from the site; whereas in typical much large municipal landfill sites, the depth and volumes of contaminants make such an effort impracticable. These factors, particularly when viewed together, clearly indicate that this Site is uniquely different from most municipal landfills. Given these factors, EPA has decided that the presumptive remedy guidance is not appropriate for use at this Site.

2.) Another commenter noted that SC-2B is preferable because of the hazards of transportation of waste off-site, and excavation hazards due to air borne contamination. In a related comment, concerns were raised regarding short term effects from Alternative SC-3C citing the increase in truck traffic etc. that would result from this cleanup plan.

RESPONSE TO COMMENT #2

While it is true that the selected remedy will require greater quantities of waste material be excavated and transported thru the community, EPA believes that the additional risks posed by these activities can be effectively addressed by proper air monitoring, dust suppression and health and safety requirements. Trucks leaving the site will be decontaminated. Excavation and off-site transportation of wastes have been safely conducted at numerous sites and measures to address associated impacts are routine in the waste disposal arena.

In addition, EPA believes this commenter has over estimated the short term impacts to the community from hauling off-site the estimated additional 24,000 cubic yards of material required to be shipped off-site under Alternative SC-3B. First, both Alternatives SC-2B and SC-3B require all radiological waste to travel thru the community for off-site disposal (approximately 12,000 cubic yards). While EPA agrees that Alternative SC-3B will have greater transportation needs than Alternative SC-2B, the magnitude of the impact on the community is not overwhelming. For example, assuming the commenter is correct that Alternative SC-3B would require 4,000 additional truck trips, these trips would be spread out over the several months estimated to complete Alternative SC-3B,[13] Also as discussed previously, part of remedial design will evaluate the use of rail transportation to remove contamination from the area to decrease the number of trucks using roads to carry the material. This could greatly impact the number of truck trips. Finally, although the Town of Norton and local residents expressed some concern regarding coordination regarding truck traffic there was little concern shown by the community regarding other short term impacts that would be borne by the community.

3) One comment was received supporting Alternative SC-2B because the commenter was concerned that shipping waste off-site would basically just be moving the problems at Shpack to a different location and the commenter concluded that the risks associated with this do not justify the result.

RESPONSE TO COMMENT #3

Although it is true that off-site disposal does, in some way move the problem from one location to another, the ultimate disposal location for this waste material is to a location engineered, designed and constructed to

13 Assuming 150 work days, for example, this would amount to <30 additional truck trips spread out over a typical 10-12 work day.

dispose of this material safely in the long term and regulated under the appropriate set of environmental laws and regulations. Any potential exposure that might occur during excavation and transportation can be addressed through proper engineering and safety practices. In addition, waste that is shipped off-site for disposal is required to meet stringent requirements for the transport of the material as appropriate.

4) One comment was received supporting Alternative SC-2B noting it will be protective of human health and the environment, most reliable from an implementation standpoint, has the fewest short term impacts and can be conducted in the shortest period of time.

RESPONSE TO COMMENT #4

EPA agrees that Alternative SC-2B is protective of human health and the environment. However, EPA does not agree that there are significant differences between Alternatives SC-2B and SC-3B in terms of implementability, short term impacts and construction time. EPA has conducted many excavation clean ups of this magnitude. Excavation does not involve complicated or innovated technologies. Regardless of whether Alternative SC-2B or SC-3B is selected, significant excavation would be required as both alternatives require excavation of the radiological, PCB and dioxin contaminated material from the Site, approximately 1/3 of the waste material which must be addressed. In addition, Alternative SC-2B requires moving significant amounts of contaminated soil during the consolidation phase. The difference in short term impacts between the two alternatives is not significant as risks can easily be addressed by sound engineering and safety practices. Again both alternatives require significant excavation and SC-2B also requires large amounts of contaminated material to be moved during the consolidation phase and capping phase. Finally, the estimated difference in construction time between the two Alternatives is negligible - 18-25 months for SC-2B versus 9-16 months for SC-3B (See additional Responses to Comment regarding reliability and implementation).

5) One comment was also received suggesting that the cap for Alternative SC-2B could be enhanced by planting a native New England wildflower meadow with additional wild life enhancements. In a related comment, such a use would ensure that the community has a stake in the future of the Site, thereby helping to ensure the remedy remains effective in the long term.

RESPONSE TO COMMENT #5

Although Alternative SC-2B has not been selected, the ideas presented are equally applicable to the selected remedy and will be considered during the remedial design. It is not clear to EPA that the beneficial reuse suggested significantly impacts either the long term effectiveness or permanence of this alternative.

6) One comment was also received questioning whether the selected remedy was "cost-effective" given that Alternative SC-2B provides greater net risk reduction . In a related comment, the commenter questioned whether selection of Alternative SC-3B as the remedy would be consistent with EPA Guidance.

RESPONSE TO COMMENT #6

After carefully reviewing the EPA guidance cited by the commenter, EPA strongly believes the selection of Alternative SC-3B is consistent with its guidance. First, as discussed in ROD, the selected remedy is cost-effective. More than one Alternative can be "cost-effective" when evaluating cleanup alternatives. Short term impacts under Alternative SC-3B would be controlled through the use of engineering controls such as dust suppressants, air monitoring and truck decontamination procedures common in the HAZMAT industry.

As a result, there are negligible differences in short term impacts between SC-2B and SC-3B. In addition, there are negligible differences in the implementability of either alternative as both involve routine waste management. EPA disagrees that Alternative SC-2B provides greater net risk reduction because under alternative SC-3B, waste exceeding cleanup levels is no longer present at the site. The selected remedy has greater long term effectiveness and permanence. EPA's presumptive remedy guidance is not applicable to this Site as discussed above, and, as a result, the related guidance regarding reuse of landfills is also not applicable.

7) A commenter noted that access to the Site under Alternative SC-2B can be achieved in ways other than locked chain link fencing. SC-2B provides greater net risk reduction. As an alternative a rock wall or a post and beam fence could be constructed.

RESPONSE TO COMMENT #7

Based upon EPA's experience, fences constructed around Superfund Sites to control access are typically eight feet high and many times include additional components such as barbed wire. EPA agrees that there are more aesthetically pleasing ways to restrict site access than chain link fencing. It is debatable however, whether post and beam fencing, for example, sufficiently restricts site access as it is easily dismantled, and provides limited deterrence to vehicular traffic, etc.. In addition, while a rock wall with limited openings for access, could be constructed around the site that could effectively restrict trucks and cars from access to the Site, it would be difficult to prevent other vehicular traffic (motor bikes and ATVs) while still allowing pedestrian traffic access to the landfill for passive recreation. In addition, there are components to Alternative SC-2B that could be subject to vandalism by individuals such as vents included as part of the landfill design.

EPA has included a temporary chain link fence as a component of the selected remedy to address health and safety requirements during the time that the remedy is being constructed. EPA has allowed flexibility in the selected remedy for the fence to remain or be removed once construction is completed.

8) One comment was received expressing concern that Alternative SC-3B does not provide equivalent or greater reduction in mobility of contaminants than Alternative SC-2B because residual material with contamination below cleanup levels will mobilize and perhaps result in an unacceptable risk in the future as our understanding of risk evolves. In a related comment, because residual waste remains at the Site, the permanence of the remedy is impaired. As a result, Alternative SC-2B provides greater long term protection than Alternative SC-3B.

RESPONSE TO COMMENT #8

Section 121©) of CERCLA was included in the Superfund law to address the concerns raised by this comment. This Section provides that remedial actions that result in hazardous substances, pollutants or contaminants remaining at a Site must be reviewed no less often than every five years to assure that human health and the environment continue to be protected by the selected remedy. Because both Alternatives SC-2B and SC-3B allow contamination to remain on site above levels that will allow unrestricted use, this five year review component was included as a requirement for both Alternatives. As part of this review, EPA evaluates changes in science that have occurred that would place into question the protectiveness of the remedy. As a result, action can be taken to address newly discovered risks.

In addition, Alternative SC-3B includes plans for continued monitoring to make sure that Site conditions do not unexpectedly change over time. Again, monitoring, was also required in Alternative SC-2B because of similar concerns. This commenter's theoretical concern that residual material left on site could present a risk in the future should later scientific assessments determine this contamination poses a risk would appear to be adequately addressed by both the five year review provision and continued monitoring of site conditions.

EPA notes that the concern regarding residual contamination and mobility raised by the commenter as to Alternative SC-3B, is also a concern with Alternative SC-2B. Under SC-2B, only a small portion of the 9 acre site will be capped (2-3 acres). Residual material will remain uncapped, capable of mobilizing under Alternative SC-2B on the majority of the Site.

EPA disagrees with the commenter's statement that leaving residual material below cleanup levels on site affects the permanence of Alternative SC-3B and that Alternative SC-2B likely provides greater overall protection. Both Alternative SC-2B and SC-3B leave the same amount of residual material on site. Alternative SC-3B provides greater overall protection because all waste material that presents an unacceptable risk will be permanently removed from the Site. Alternative SC-2B does not permanently remove chemical waste from the site or address it by treatment but rather leaves this contamination beneath a cap in the long term. Although EPA believes caps are effective from an engineering perspective, they are subject to deterioration over time and must be continually operated and maintained. Even with the most effective operation and maintenance, technical problems do occur from time to time and as a result, such technology is neither as permanent or effective in the long term as permanently removing the waste from the Site.

9) The same commenter also expressed concern that impacted source materials present at ALI could recontaminate materials left uncapped at Shpack under Alternative SC-3B.

<u>RESPONSE TO COMMENT #9</u>

This is a concern regardless of which alternative is selected - either this material will recontaminate the cap that has been put in place under Alternative SC-2B or the clean fill under SC-3B and would need to be included in the design of either alternative. As a result, this issue will be addressed as part of remedial design.

10) A comment was also made that EPA selected capping over excavation and off-site disposal in a similar situation at the Raymark Superfund Site.

<u>RESPONSE TO COMMENT #10</u>

EPA believes it is, at best, very difficult to compare the selected remedy at one site with the selected remedy at another as each site presents unique issues in terms of appropriate cleanup. That being said, the Raymark Site involved significantly different contamination, principally asbestos, than that found at Shpack. The principal risk associated with asbestos (a known carcinogen) is from inhalation of airborne fibers. Unlike Shpack, Raymark did not have radiological waste. Unlike Shpack, the off-site disposal alternative cited in the comment was limited in nature because Raymark is a much larger Site, both by volume and size and the depth of waste exceeding cleanup standards. As a result, the off-site disposal alternative cited by the commenter still required that the site be capped (i.e. most waste was left in place)[14].

As discussed previously, there are negligible differences in short term impacts between SC-2B and SC-3B. In addition, there are negligible differences in the implementability of either alternative as both involve routine waste management technologies.

11) One commenter noted that selection of Alternative SC-3B would trigger review by EPA's National Remedy Review Board (RRB). This would delay implementation of a protective remedy.

RESPONSE TO COMMENT #11

Because of some of the unique circumstances at the Shpack Site, Alternative SC-3B did not need to be reviewed by the National Remedy Review Board. Therefore, there will not be a delay due to involvement from the RRB.

12) Another comment was received expressing the belief that Alternative SC-3B poses multiple implementability challenges. In support of this, the commenter cites potential structural issues involved in excavating waste next to the ALI Landfill.

RESPONSE TO COMMENT #12

Each Superfund Site presents its own unique technical/engineering issues. The issue of engineering the excavation near the border with the ALI landfill will be addressed during the design phase of the project. The depth of excavation in this border region (near ERM 101-B, estimated depth 6-8 feet below ground surface) is relatively shallow. Excavating this material is neither impracticable nor technically infeasible. If there are issues with slope stability, they can easily be addressed with engineering controls.

13) A comment was also received concerned that the costs for Alternative SC-3B are disproportionate to risk reduction achieved. In a related comment, the commenter stated that Alternative SC-3B achieves less net risk reduction than Alternative SC-2B.

RESPONSE TO COMMENT #13

EPA believes, taking into account all appropriate factors, that the cost is proportional to its overall effectiveness. (See discussion of Cost-Effectiveness in Section H of the ROD).

In addition, EPA disagrees that Alternative SC-3B achieves less net risk reduction. In fact, risk reduction is greater because all waste exceeding cleanup levels is removed from the site under Alternative SC-3B. (See Response to Comments regarding risk reduction).

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14 In addition, EPA takes into account changes in science, technology and cost that have occurred when making remedy decisions at different points in time For example, the Raymark ROD was written almost 10 years ago and circumstances noted in the *Hardage* case cited by the commenter occurred over 15 years ago This commenter also cited to language in the *Hardage* decision for support that containment remedies are "superior" to excavation remedies In the *Hardage* decision, the court rejected EPA's plan to excavate 18,000 barrels and associated waste, a situation distinct from Shpack, in favor of a containment remedy The differences between the two sites are too numerous to note However, as pointed out by the commenter, substantial site specific evidence was introduced at trial to support the different remedial approaches Again, remedy decisions are site specific-- each decision based on its own unique facts including current science and technology

14) One comment was received noting that once the radiological, dioxin and PCB material is removed from the Site, Shpack will be just like any other municipal landfill.

RESPONSE TO COMMENT #14

EPA believes, however, proper remedy decisions can only be made at complex sites such as this by viewing the Site as a whole. To eliminate the excavation of this material from the evaluation of clean up alternatives is to ignore a major defining characteristic of this Site. The relative shallowness of the excavations of waste exceeding site cleanup levels, as well as the relatively small volume estimated in the FS to be exceeding these levels make this site very unique from most municipal landfill sites which have very large quantities of waste at inaccessible locations making removal of the waste impracticable.

A. The commenter has also included lists of sites from different EPA databases in support of this comment. The first such list is included in Table l of the comment and identifies 149 Sites where landfills have been capped.

RESPONSE TO COMMENT #14.A

EPA agrees that there are many landfills across the country where EPA concluded construction of a cap was the appropriate remedy. As discussed previously, it is hard to compare remedial responses at different sites with one another because each site presents unique factors, including community and state acceptance, that must be taken into account in the selection of the remedy. As a result, it is difficult to agree that EPA has effectively capped sites like the Shpack Site without taking into account other criteria, based upon the information in this Table. The relative shallowness of the waste exceeding site cleanup levels, as well as the relatively small volume estimated in the FS to exceed these levels make this site different from many sites which have very large quantities of waste at inaccessible locations. In addition, other unique factors may apply at individual sites.

B. This commenter also included a sample selection of sites in having "similar" contamination where waste has been left in place under a cap (Table 3 of comment).

RESPONSE TO COMMENT #14.B

Again it is impossible to compare limited features of sites (in this case "similar" contaminants) against one another without taking into account numerous other site specific factors that go into remedial decision making. None of these sites cited by the commenter, for example, have radiological waste, a most unique characteristic. In addition, there are numerous sites with "similar" contaminants where the waste has been excavated and disposed of off-site. In Region I, there are several NPL sites, including Atlas Tack, Kearsarge, Salem Acres, Plymouth Harbor, and most recently, Beede in which EPA issued Records of Decision calling for the off-site disposal of "similar" contaminants. Both Atlas Tack and Beede, more recent RODs, require significantly more waste material to be excavated and shipped off-site, 50,000 plus cubic yards at Atlas Tack and 80,000 cubic yards at Beede than that required at Shpack. In addition, there are numerous removal actions in Region I which have been taken in situations where large quantities of waste material exceeding cleanup levels have been excavated and removed from communities rather than capping it in place.

C. This commenter also included what is purported to be a list of sites in Region 1 where landfill capping remedies have been implemented.

RESPONSE TO COMMENT #14.C

This is not a correct characterization. Some of these sites are still in the investigation phase and no remedy has been selected. Some of these sites required waste to be treated on-site unlike the situation here at Shpack (Stamina Mills, W.R. Grace for example). Some of these sites required waste to be excavated and disposed of off-site. A defining factor at most of these sites is the size of the area addressed by the Record of Decision, significantly larger than that considered at Shpack.. None of these sites, with the exception of the Nuclear Metals Site (no cleanup plan has been selected), have radiological contamination. An area of the Nuclear Metals site was capped as part of a Superfund Removal Action, but this is considered an interim measure pending a full Remedial Investigation.

In conclusion, the Shpack Site presents its own unique set of factors, most significantly the presence of radiological contamination, the relatively small volume of waste that is estimated to exceed cleanup levels, and the fact that much of the contamination that must be addressed is near the ground surface that make it unique from many other sites that have been capped in place.

Enforcement

1) Some commenters noted that a significant portion of the Site cleanup costs will be borne by the US Army Corp of Engineers under the FUSRAP program. Other commenters noted that the Towns of Attleboro and Norton could end up bearing a significant portion of the costs in the future given their involvement at the Site as owners or operators. One comment was received saying a trust fund could be put in place to ensure the continued integrity of the cap, and other long term components of remedy.

RESPONSE TO COMMENT #1

Comments regarding who is or should be responsible for paying for the cleanup are basically comments regarding enforcement and are not appropriately addressed as part of this responsiveness summary. In addition, comments that relate to funding agreed to as part of an enforcement action are also enforcement issues and are not appropriately addressed as part of this responsiveness summary.

2. One comment was received supporting Alternative SC-3B because by removing the contamination at Shpack liability for additional contamination will probably belong to ALL

RESPONSE TO COMMENT #2

Comments regarding liability are comments on enforcement and are not appropriately addressed as part of this responsiveness summary.

Additional Comments

1) Comments were also received asking that ALI be addressed.

RESPONSE TO COMMENT #1

ALI is being addressed under separate regulatory authority administered by the State under its solid waste landfill program. EPA does not have authority under the Superfund program to address ALI at this time. Issues relating to ALI are referred to the Massachusetts Department of Environmental Protection.

RESPONSIVENESS SUMMARY
ATTACHMENT A
TRANSCRIPT OF PUBLIC HEARING
AUGUST 4, 2004

UNITED STATES OF AMERICA

ENVIRONMENTAL PROTECTION AGENCY

BOSTON REGION

In the Matter of:

PUBLIC HEARING:

RE: PROPOSED CLEANUP PLAN
SHPACK LANDFILL SUPERFUND SITE
NORTON/ATTLEBORO, MASSACHUSETTS

J.C. Solmonese School
315 West Main Street
Norton, Massachusetts

Wednesday
August 4, 2004

The above entitled matter came on for hearing, pursuant to Notice at 7:10 p.m.

BEFORE:

SUSAN STUDLIEN, Director
Office of Site Remediation & Restoration
DAVE LEDERER, Project Manager
U.S. Environmental Protection Agency
Region 1, New England
Office of Site Remediation & Restoration
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PROCEEDING S

(7:10 p. m.)

MS. STUDLIEN: Thanks to everybody for coming tonight.

My name is Susan Studlien. I'm the Director of the Environmental Protection Agency's New England Office of Site Remediation & Restoration, and I'm going to be the Hearing Officer for tonight's hearing on the proposed remedy for Shpack Landfill Superfund Site located on the Norton/Attleboro border.

The purpose of the hearing tonight is to accept formally oral comments on the proposed plan that was released to the public on June 23rd.

The protocol for these hearings is that we do not respond to comments tonight, but we will respond to them in writing after August 25th which is the close of the present comment period. The comment period was extended for 30 days in order to provide additional time for people to review the Feasibility Study and the proposed plan.

A public information meeting on the plan was held on June 23rd of this year, in this very room. At that meeting, information concerning the plan was presented and EPA responded to questions about the site.

I want to describe, just briefly, the format for the hearing. First, Dave Lederer, who is sitting to my left, the EPA Project Manager for this site, is going to give a very brief overview of the proposed Cleanup Plan for the site, and I know that some of you have already seen this. On the other hand, we are, we're concerned that some of the people coming tonight may not have seen it. So, we're, we're just going to do a brief overview.

Following the presentation, I will then accept oral comments for the record, and those of you who want to comment should have indicated your wish to do so by filling out an index card available from Angela Bonarrigo, who is waving her hand. If you haven't filled out a card and want to make a comment, just see Angela.

I'm going to call on people who want to comment in the order in which you signed up to speak. When you're called on, if you could come to the front of the room and sit at this table and use the microphones that are provided and the microphones that are taped to the table are for our, our stenographer.

I'm going to give you this microphone that I'm holding here just for amplification purposes for this room; so, the people sitting here can, can hear you well. The reason I am bending over this microphone like this is that, apparently, you have to come very close to putting it in your mouth in order for it to work. So, if you can state your name and address when you come and sit at the table, and your affiliation, it would be appreciated.

We are recording these proceedings verbatim; so, we need to get this information for the record, and, for that reason, if you could, actually, spell your name and give the full name of your affiliation, as opposed to, for example, an acronym or a, or the letters, that would be appreciated.

In order to, finally, in order to insure that everybody has a chance to speak, I hope you will limit your comments to ten minutes. If your comments will take longer than ten minutes, I would ask that you could summarize your major points and provide EPA with a copy of the full text of your comments. The text, in its entirety, will become part of the hearing's record.

After all the comments have been heard, I'll close the formal hearing, and if you wish to submit written comments, you can give them to me tonight, or you can mail them to our Boston office at the address that's in the prop -- in our proposed plan.

At the conclusion of the hearing, you can see any of the EPA representatives if you have any questions on how to submit comments. All of the oral comments that we get tonight, and the written comments that we receive during the comment period, will be addressed in a responsive summary and become part of the administrative record for this site.

That will be included with the record of decision on the remedy for the site.

Are there any questions?

(No verbal response.)

MS. STUDLIEN: Okay. We're going to start, then, with our very brief overview of the plan.

MR. LEDERER: Thank you, Susan.

My name is Dave Lederer. I'm the Remedial Project Manager for the Shpack Superfund Site, US/EPA.

I'm going to very, very quickly, and I mean quickly, go through the main points in the proposed plan so we have a starting point for people's testimony tonight.

This is a map of the layout of the site showing its features. The site consists of approximately 9.4 acres, about 3.4 acres are in Attleboro, and about six acres is in Norton, and is actually owned by the Town of Norton.

The former Shpack residence is located here. Power lines bisect the site thusly, and you, also, are surrounded by Chartley Swamp on the south and -- I'm sorry. On the east and the northeast, and by the Attleboro landfill, of course, on the west.

This slide, basically, just summarizes that same thing. ALI lies directly west of the site, about 110 feet higher above grade, above the grade established by Shpack.

There are two holes and private wells within about

500 feet of the site fence, and the site, itself, is relatively flat. It was formerly a wetlands area. There is a small material wetland that remains.

So, under our proposed plan, we are taking the following measures:

The public water line be extended to include the two residences adjacent to the landfill that are currently on private wells; approximately 10,500 cubic yards of soil contaminated with the radiological contaminants of concern, above cleanup levels, will be excavated and disposed of off site, and, under our proposal, approximately 2,250 cubic yards of dioxin and PCB contaminated sediment will be excavated and disposed of off site.

Continuing along, contaminated sediments in the wetland areas of the site will be consolidated to an upland area on site, and the disturbed wetlands will be restored and/or replicated to the extent practical.

The landfill will, then, be capped to prevent exposure to contaminated waste. The site fenced to control access and legal controls put in place to insure that the revenue remains protected in the long-term. Groundwater, of course, will be continued to be monitored and a cap maintained in the long-term.

That's, basically, an outline of the proposal before we take testimony. Now, I'll put the microphone right up here.

(Pause.)

MR. LEDERER: So, whoever is speaking can just sit right there in front of the mike.

MS. STUDLIEN: And you're welcomed to pick that microphone up if it's easier for you as well.

Okay. We'll, now, begin the formal hearing, and the first speaker is Congressman Barney Frank.

(Pause.)

MR. FRANK: Thank you. I appreciate the willingness of the EPA to continue to engage, we, also, continue to have disagreements, but I will say, our involvement, my office and others, we have found the Federal Agency, while we are not happy with the current plan, I do want to acknowledge that it represents significant progress from when we started, but we think the logic, which got us from originally here is important.

I guess the point to focus on is, in the summary, when you pointed out the plan to contain the contamination, consolidate and contain the contamination -- and I think that's clearly the nub of the disagreement. We believe the purpose of this should be to get rid of the contamination and not rearrange it.

Even though you do plan to rearrange it the way that makes it somewhat less damaging, the thrust of the

Superfund Program, to us, is to cleanup, and leaving a town in possession and perpetuity of contamination, even if it is somewhat more conveniently arranged, is not what we think should happen.

I want to acknowledge, again, that we've made some progress, and we've been involved, you know, legislatively and elsewhere.

The original proposal was to cap even the radiological material, and thanks to the legislation that Congressman McGovern I were able to get jointly, and the progress we've made, we've gotten beyond that.

I, also, want to note that this has been a case where the lead has been taken by the town, and I want to acknowledge the Board of Selectmen in the town, Heather Graf and the Advisory Committee. My office has learned a great deal from them. They have, at every point when we have consulted with them, been accurate in their information and responsible, and that leads me now to enthusiastically support the initial paper the town has put forward. I've submitted my own letter.

The nub is this: we believe that there ought to be a complete removal. We are talking, again, it is a narrower financial difference than when we started. The proposal that we are supporting will cost $50 million or perhaps a little more. The proposal that we are being given here, which is removal of the radiological material and containment of the contamination, would cost 30 million.

We should note 15 million of that comes from the Core of Engineers, and that is out of the federal budget, out of the program called FUSRAP, and the rest comes out of Superfund, but it's legally the responsibility of the PRP, which is, of course, a nice legal word for the people who put it there in the first place and having put it there and having made money putting it there, we think it is only fair that they now pay the cost of removing it.

So, we are talking about a difference of $25 million over a period of years, and we believe this is a charge that ultimately should not, and we hope will not be lodged against the federal government, but will go to the responsible parties.

Asking the town to continue the perpetuity to have contamination is, I think, a failure of those of us at the federal level to meet our responsibilities to these citizens who have worked so hard and are asking not for any great boon here, but simply to be left as they otherwise would have been before the contamination came here.

Now, the, the EPA correctly points out the, the potential which the groundwater, and you talked about monitoring to keep the groundwater clean. Well, what we are saying to the town, if that's what the federal government does, is we're going to leave here a potential danger to groundwater, but don't worry; your federal government is watching.

Now, I serve in the federal government. I'm not one to engage in easy denigration of it, but I don't think we will be reassuring the people here, the parents who are worried about the long-term effects on their children of drinking water, etcetera, if we say, "We acknowledge that there is a problem here," because that's what we're saying if we say that we're going to monitor the groundwater, we're acknowledging that we are leaving in situ a potential contamination. We think we've got it locked up. We think we've got it detained. I'm not going to challenge your engineering, but nobody can be sure of this. We're not dealing here with an area where there is any certainty.

We know there is migration, and the very fact that we expect to have to monitor it, and I would, also, add, as we talk about the cost, there is sometimes a problem in the way we budget, because a true comparison of cost would factor in, not simply the removal costs if we leave the contamination, but the monitoring costs, because we are talking, then, about the federal government having an ongoing responsibility. So, we believe this ought to be done outright, and I should add that I'd be talking about my responsibility, as a federal official, but I'm very pleased, because not only have we worked here, my office and others, with the town, but we've had very good multi-level, bipartisan cooperation.

The legislative delegation, Senator Sprague is here, Representative Travis and Representative Fourier. We have worked very closely together on this, and we, I believe, have come to an agreement, Representative Coppola and all the legislators, in the area, and myself agree.

We don't think it is asking too much; indeed, we think we would be failing our responsibilities to the people of Norton if we did not clean this site up, and that's what people expect of the Superfund, and cleaning it up means cleaning it up.

In no other area of people's lives, you know, if people's kids spill something at home, they don't tell the kid, "Okay, here's what you do. You spilled that, and that was too bad. Put it in a neat pile, and put something over it."

In fact, let me say, we have a metaphor for not doing a job. It's called, "Sweeping something under the rug." In other word for "Sweeping something under the rug," is containment. When we have dirt and dust and you sweep it under the rug, you've contained it.

Again, I don't mean to denigrate the goodwill. I realize that are not individuals working purely in the abstract. I will say that I regret the fact that the budget for EPA is not greater than it was. I regret the fact that we've got the tax on oil, which would have generated more money. That's our job, to find the money, but I don't think we can ask the citizens to Norton to bear that burden.

So, I ask that we follow the logic of the radiological issue, and go forward and not just sweep the contamination under the rug; albeit, it will be a thick rug, and it will be an attractively landscaped rug, but we'd still be sweeping it under the rug, and we would still run the danger of the contamination of the groundwater, and I believe it is entirely reasonable to ask that we do the whole job and not part of it.

I thank you for your attention.

(Applause.)

MS. STUDLIEN: Thank you, Congressman.

Our next speaker is State Senator Joann Sprague.

MS. SPRAGUE: Thank you, so much, Hearing Officer Studlien and Mr. Lederer, and I want to thank you, first of all, for the privilege of letting me speak to this issue, which is of great importance to my constituents from Norton and from Attleboro who are here tonight.

I am State Senator Joann Sprague, and I represent the people of the Bristol/Norfolk District, and I'd like to have my letter to Mr. Lederer entered in the record if I could, please.

Dear Mr. Lederer, I'm writing on behalf of my constituents and the Town of Norton, to strongly support the Town's choice of SC-3B as the best cleanup alternative for the Shpack Superfund Site.

I am steadfast in my opposition to the EPA's choice of SC-2B as the best cleanup alternative.

My constituents and I demand that the old Shpack dump property be returned to a safe enough condition that it can be used for passive recreation within the Norton Conservation Commission's Open-Space Plan. This use conforms to our understanding of what the town's use has meant during meetings between the ad hoc Shpack Committee, the Army Corps of Engineers and the United States Environmental Protection Agency.

The EPA Alternative, SC-2B, will remove only some elements of the waste and contain the remaining contaminant under a cap. We know that caps deteriorate, which could reinitiate the pollution cycle.

Also, SC-2B would not allow my constituents the kind of use they have been led to expect. The requirement of fencing and a "No Trespassing" sign is evidence that SC-2B would not be a full-fledged cleanup; therefore, the Town and its citizens would be left to bear the burden of fighting future contamination and policing the problem at the site.

The EPA's decision in this case should not be based on what the remediation costs, but on what is the best long-term interest for Massachusetts' citizens. All of whom who are taxpayers with a vested interest in a clean environment for families or friends and our neighbors.

Through the years, Madam Hearing Officer, my Norton constituents have paid millions of dollars of their hard-earned money in taxes to the state and federal government, and this way, the town's people, for years, have paid for government actions that benefit, not only themselves, but actions that provide, also, for the common good for citizens throughout this great country.

It is now time, Madam Hearing Officer, for the EPA to stand tall and acknowledge that the common good requires a permanent and proper cleanup of environmentally unsafe waste.

There is no better use for our citizen's tax dollars than to provide for the environmental safety of the citizens residing in this area now, for the generations to follow, both of which will ultimately be of benefit not only to this region but to all the citizens of our great country.

Mr. Lederer, my constituents, their local officials and I, along with other state and other officials, demand the government do the right thing for the environmental safety of us and future generations by adopting Choice SC-3B for the cleanup of the Shpack Superfund Site.

We will be proud to stand by you in this action, and, in doing so, we will be proud to say, "We won one for the environmental protection of our land and people."

Thank you, so much, again, for letting me represent my constituents at this hearing.

(Applause.)

MS. STUDLIEN: Thank you, Senator.

(Applause.)

MS. STUDLIEN: Our next speaker is Representative Philip Travis.

MR. TRAVIS: Thank you, Madam Director of the EPA.

For the record, my name is State Representative Philip Travis, T- R- A- V- I- S. I represent the Fourth Bristol District of the Commonwealth of Massachusetts, in the House of Representatives, Swansea, Seekonk, Rehoboth and the Precinct in Norton, Precinct One is where this landfill is located. It is in my district.

I want to join along with Congressman Barney Frank; Senator JoAnn Sprague, my Senator; Betty Pourier, the Representative, who, also, shares Norton with me; Michael Coppola is to be here this evening, and myself, State Representative Philip Travis, in saying, unequivocally, we do not go along with the citing as CS-2b as has been picked by the EPA to cleanup my site.

The people of Norton are owed much more. Contamination, in the form of radiation, going down 15 feet or more, had been put there during the 50's and 60's by making nuclear reactors for submarines. In it's time, it was necessary to protect our United States, but the waste that came from that work is now sitting in the soil, and we have a terrorist located in Norton in the form of this Shpack site. It can contaminate and do harm to the people of not only the Chartley Section, which I represent, but the entire area of Attleboro, and that section of Norton.

To remove partially and leave the rest, is a job, as was said by the Congressman, which is less than half finished. It makes no sense, in dollars, a $20 million differential, not to go in and remove the entire site and bring it back so it can be used by the people of the Town of Norton for whatever purpose they decide, recreation or otherwise.

Attleboro has a land site further to the west. They will be tapping that site to Massachusetts Department of Environmental Protection. They will be putting a cap on it, and they will be having trucks come in with materials from the south shore of Massachusetts to cap it and leave this town with those same tractor trailers empty and going back to a place that is 50 miles away from here.

How, in God's heaven, cannot we coordinator between a federal agency and a state agency? I know neither are intertwined in this issue, but Attleboro is working with EPA and the DEP, and we're working with you folks at the federal level.

The tractor trailer trucks will leave this community empty and go all the way down Route 123 and head back towards the Boston area to, in an empty form.

If we could utilize that and coordinate that activity to save money, you would have trucks coming in with fill from Attleboro dumping, coming through Norton to go back, and with material that is needed to be removed from my district to make it a cleaner and safer cleanup.

So, uranium and other things that are in the soil are not left to be, hopefully, not dissipate normally and not get into the water table and do more harm. It will do harm to the people of Norton, I'm sure, in the long haul; perhaps not today, maybe not next year, and maybe not 10 years from now, but I cannot serve in office and represent the people in that district and say, "I did my best, but I'm going with the lessor plan."

I go, as strongly as possible, to say to all of you that the plan you've accepted is not acceptable to me or my constituents, and I ask that you reconsider your alternative and go with SC-2B, which is the plan that is backed by the Ad Hoc Committee, appointed by the Board of Selectmen, and which we have worked with, as well as Barney, and my fellow colleagues at the State House, to have that plan implemented.

Thank you, very much, and our letter has been filed with you, but it will be read officially, in a few minutes, by my colleague, Betty Fourier, of North Attleboro.

Thank you, very much, Ma'am.

(Applause.)

MS. STUDLIEN: Thank you, Representative Travis.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is State Representative Betty Fourier.

MS. FOURIER: Thank you, very much.

I would like to add my gratitude for having the opportunity to speak tonight at this Public Hearing. This is my second Public Hearing as I've only represented Norton for one term, but I, certainly, had to do a quick study on what this site means to the community of Norton and all of the people that have lived with it for many, many decades.

Before I read, read my letter into the record, I would just like to make a few comments aside from that.

One of the things that disturbs me greatly is that the EPA proposed plan does not provide a permanent solution to this problem. It leaves it here for generations in the future to concern themselves with and worry about. Perhaps making it the responsibility, not only of the Town of Norton, but of the Commonwealth of Massachusetts, and, as a State Official, I would like, very much, to see that taken care of this time out, and not to have to address this at some unforeseen time in the future when it may pose, again, a problem.

This is not a cleanup of a contaminated area, but this is a coverup, and, as Congressman Frank, so aptly stated, this is a rug where contaminants have been swept under, and, now, we're putting a fence around it, and we're not going to allow anyone to walk on the rug, which brings me to my third point.

This is not at all what the community of Norton has requested. They would like to be able to use that property for recreational purposes, in combination with their Open-Space Plan, and this solution -- this SC-2B - - does not allow the community to be able to do that.

So, it, in no way, addresses the concerns that they mainly have, and that is eliminating the contamination, not covering it. Eliminating the responsibility for the Town of Norton, as well as for the Commonwealth of Massachusetts, and, also, being able to use that property for productive use and not fencing it off and keeping people away from the site.

Now, if you will permit me, I would like to read a letter that was submitted by myself, State Representative Betty Fourier -- I'm from the 14th Bristol District and represent all of North Attleboro, one precinct in Attleboro, one precinct in Norton, and two precincts in Mansfield, and it is, also, from my colleague, State Representative Michael Coppolla, who represents two precincts here in Norton, and Philip Travis, who has the Shpack site right in his own precinct. The letter reads: Mr. David Lederer – it's to Mr. Lederer, regarding the Shpack Landfill Superfund Site, Norton, Mass.

"Dear Mr. Lederer. We write in response to the US Environmental Protection Agency's proposal to cleanup the contamination of the Shpack Landfill Superfund Site in the Town of Norton. After reading information about the various cleanup alternatives, as well as attending Public Meetings on this issue, we strongly oppose the EPA's proposal known as Option SC-2B, at an estimated cost of $30 million.

"We believe that SC-3B is the better, more permanent solution to rid the landfill and the surrounding residential area of hazardous pollutants at an estimated cost of 55 million.

"To spend 30 million on a partial cleanup is money poorly spent and requires long-term monitoring and perpetual restriction on access; however, Option SC-3B is a complete cleanup of contaminants, and a total and permanent restoration of the former landfill requiring minimal monitoring and no access restrictions.

"The wishes of the Town of Norton, for the future use of the property for passive recreation have been totally ignored. An additional issue of great concern is the possibility, at sometime in the future, that the Town of Norton and the Commonwealth of Massachusetts could be held responsible for the operation, t he monitoring and the maintenance of the site. The possibility of these costs at some point in the future would far surpass the SC-3B option.

"Opposition, as legislators for the Town of Norton, is clear. We stand united with the Citizens Advisory Shpack Team in our opposition to EPA's preferred Alternative, SC-2B.

"We truly hope that you will take the concerns of the Town and its residents into consideration and choose Option SC-3B as the preferred Cleanup Plan for this landfill Superfund site.

"Thank you for your attention to this matter," and it's signed, "Sincerely, Michael Coppola, State Representative; Elizabeth Fourier, State Representative; and Philip Travis, State Representative."

I very much appreciate the opportunity to be able to present this to you. Thank you.

MS. STUDLIEN: Thank you, Representative.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is Jennifer Carling (sic).

MR. LEDERER: Carlino.

MS. STUDLIEN: What?

MR. LEDERER: It's Carlino.

MS. STUDLIEN: Oh, Sorry. Carlino. Excuse me. I'm sorry.

MS. CARLINO: It's all right.

(Pause.)

MS. CARLINO: I'm Jennifer Carlino. I'm Norton's Conservation Agent, and I would like to speak in support of Option SC-3B. This option will allow the town to actually use the property once the cleanup has been concluded. It improves the wildlife habitat value of the property, would not require a taking of the spotted turtle habitat and allow replication of the wetlands on site.

I'm, actually, fairly disappointed with the lack of information on the six vernal pools that are on the property and the rare species. There are about two sentences in the report.

MR. FRANK: This should help.

MS. CARLINO: All right. Thanks. Sorry.

So, I would like to request that the record of decision require that the wetland replication, the wetland replication should improve vernal pool habitat, include rare species habitat, should provide detailed plans and narratives for the Conservation Commission to review; including the soil types, the number, the size and the specific plants that will be used in the wetland replication and restoration; include a five year wetland monitoring program.

The record of decision should, also, require that the vernal pools and rare species habitat be investigated, and that all of the vernal pool documentation and the rare species incident forms should be filled out as requested by the Mass. Natural Heritage & Endangered Species Program in their letter of July 30th, 2004.

The record of decision should, also, require transportation and Emergency Spill Plan; so, that, if there is a spill anywhere on route, there is some sort of Contingency Plan for cleaning up those materials. They're right next to Chartley Swamp. They have to get over that railroad embankment. They're right next to Chartley Pond, and the dam that we have just repaired.

So, there should certainly be some type of requirement for a Contingency Plan and the Conservation

Commission would like to review that and comment as well.

The Wetland Replication Plan should, also, include options for dewatering. The Conservation Commission should be able to review those options and provide comments.

Also, like to see the detailed plans for the extension of the water line right next to Chartley Swamp, Chartley Pond, and provide comments on those.

The Conservation Commission should, also, be able to review the deed restriction language and provide comments on that.

We do have a couple of concerns about the cap. The cap, the reports document that the cap will limit infiltration. It will not stop it. We've seen information that the Attleboro landfill cap is leaking onto the Shpack site. The new cap, proposed cap for the Shpack site would be susceptible, still, to ALI contamination. We, certainly, don't want the newly replicated wetlands to be filled with more contaminants.

There is, also, a pretty serious question about who is responsible for the operation and maintenance and for the funding if you chose to go that way. We're still in full support of Option SC-3B.

The information that we have reviewed is not detailed enough on the operation and maintenance, and is that the same type of operation and maintenance that the

Attleboro landfill has been using and what assurance would
Norton have that the Shpack operation and Maintenance Plan
would be better implemented than ALI's?
Thank you.

MS. STUDLIEN: Thank you, very much.

(Applause.)

MS. STUDLIEN: Oh, I'm sorry. Representative - -
thank you.

State Representative Michael Coppola?

MR. COPPOLA: I'm sorry for being late.

MS. STUDLIEN: No problem.

MR. COPPOLA: I feel guilty. I walk in, and I get
to speak. All these people have been sitting all this time.

I, I did want to have an opportunity to express to
you what Representative Fourier has said in our letter, and
without being repetitive, I, I'd like to, certainly, bring
the high points, what I think the high points of our letter
is and of our concern.

As you know, the EPA's proposal is, is just a
containment of the contamination, and it does nothing, as
far as access those, as far as future use, for the area
goes, and there is, certainly, some question on whether we
really have taken care of the problem of contamination and
the, the effects of it for generations to come, and that's
what we're talking here.

We're not just talking for now. We're talking for generations to come, and, as you know, when it comes to landfills, there is a monitoring process of 20, 30 years, and, also, a, a, a situation where we all have a concern.

There is residents in the area, and we really feel the only right way of doing this, the only right way of spending the money appropriately is to do a complete and total cleanup. It does a number of things.

Besides the obvious, it makes us all feel that we've done the right thing. That we've really truly taken care of the environmental concerns of the community and of the neighborhood in particular, but we've, also, created a situation where we can now; hopefully, use the land, and use it for some access, rather than the very limited access that we'd get with the EPA's proposal.

So, we're talking about a number of things. We're talking about environment. We're talking about future use. We're talking about responsibility. We're talking about what's going to happen in generations to come.

I think it's very clear, among the State Representatives and among the Town officials and among the concerned citizens, that the appropriate and the best way of spending the millions of dollars that we're asking the government to spend, is to do a total cleanup, and I refer to the SC-B cleanup.

I think I said the last time I was here, you know, you can spend $20 million and do it halfway right, or you can spend the $50 mill -- $55 million and do it right, and do it right for now, and do it right for the future.

Thank you.

(Applause.)

MS. STUDLIEN: Thank you, Representative.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is Robert Kimball.

(Pause.)

MR. KIMBALL: I'm going to sit down. I believe it's cooler down here.

First of all, the Town would like to thank the EPA, members of the EPA representatives, along with Congressman Barney Frank, Senator Sprague, Representatives Travis, Fourier and Coppola for coming here tonight to support our position.

On behalf of its 18,000 residents, the Town of Norton Board of Selectmen hereby submits its response to the EPA's Proposed Plan for Cleanup of the Shpack Landfill Superfund Site, as presented at the June 23rd, 2004 public meeting.

The position of the Board and the citizens of the Town is clear. We are united and steadfast in our opposition to EPA's preferred Alternative SC-2B, which does not meet the needs of the community now or in the future. We are united and steadfast in our declaration that Alternative SC-3B is the only acceptable alternative for the Town of Norton.

OWNERSHIP AND LAND USE:

The Shpack property is owned by the Town of Norton, through its Conservation Commission, "for administration, control and maintenance as provided in Section 8C of Chapter 40 of the Massachusetts General Laws" (see deed, dated June 1st, 1981, transfer of property from Lea Shpack). As such, the land is designated as Open Space.

The Ad Hoc Shpack Committee, appointed by the Board of Selectmen to work with the Army Corps of Engineers on reuse scenarios for the Shpack Site (July 2002 - January 2003), selected the reuse option of Passive Recreation, with the Army Corps' approval. Those decisions are consistent with the Norton Conservation Commission's statutory charge and underpin the Town's Alternative SC-3B position. The Environmental Protection Agency's Directive Land Use in the CERCLA (Superfund) Remedy Selection Process, dated May 25th, 1995, states:

"The EPA believes that early community involvement, with a particular focus on the community's future uses of the property should result in a more democratic decision-making process; greater community support for remedies selected as a result of this process, and more expedited, cost-effective cleanups."

Further, the Environmental Protection Agency's Reuse Assessment Guide states:

"The scope and level of detail of the reuse assessment should be site-specific and tailored to the complexity of the site, the extent of the contamination... and the density of the development in the vicinity of the site."

"The Superfund land use Directive states that in cases where the future land use is relatively certain, the remedial action objective or objectives generally reflect, should reflect this land use."

"EPA is responsible for ensuring that reasonable assumptions regarding land use are considered in the selection of a response action."

EPA's current plan, which includes fencing off and securing the site, institutional controls and monitoring, with health, human health risk potential considered only for the adjacent residents and trespassers, clearly ignores the Town's intended reuse of the site; that being Passive Recreation within the Norton Conservation Commission's Open Space Plan.

Since December of 1999, when representatives from

EPA and the US Army Corps of Engineers came to Norton to discuss the renewed investigations at the site, and at 13 public meetings from February, 2000, to November, 2003, EPA gave the same presentation. The Army Corps of Engineers would first excavate and dispose of off-site all the radiological waste, including uranium and, and radium, and, then, the EPA, working with the "Possible Responsible Party" (PRP) Group, under Superfund, would clean up the remaining chemical and heavy metal contaminants.

We understood "clean up" to mean excavation and off-site disposal of all contaminated materials from the site that posed an unacceptable risk, not just the radiological waste, some dioxin and the PCB contaminated soil.

The EPA's preferred alternative does not accomplish this.

After the Army Corps has removed the radiological waste, the EPA's plan is to excavate only soil and sediment that is close to the surface in a certain wetland area, even though the waste extends to 15 feet below the water table in some wetland portions of the site, to consolidate this waste, and leave it in an upland area on site. Outside of the wetland area, EPA plans to remove only the soil that is contaminated with dioxin or PCBs for off-site disposal. The majority of the chemical and heavy metal contaminated soil (the responsibility of the EPA and PRP Group), and the aforementioned wetlands excavation would be transferred to an on-site location and be capped.

The only alternative acceptable to the Town of Norton, SC-3B would:

"Remove all radiological and chemically contaminated materials from the site that pose an unacceptable risk. As a result, Alternative SC-3 provides the greatest degree of overall protection."

"Both chemical and radiological source materials, exceeding cleanup levels would be permanently removed from the site; thereby, ensuring that this remedy remains effective in the long term."

"SC-3 would greatly reduce the toxicity of the material that remains at the site to acceptable levels. Because all site (sic) and sediment above cleanup levels will be removed from the property, both the volume and mobility of contamination is greatly eliminated."

EPA maintains that Norton's Preferred Alternative provides only "slightly greater protection at a significantly greater cost". We counter that the opposite is true. The difference in cost is insignificant compared with the enormous disparity between the two plans. EPA's strategy is to contain and cover; the community's chosen remedy is removal.

EPA's Preferred Alternative cost is approximately $29 million. The most expensive alternative considered under their Feasibility Study exceeds $126 million. At $55 million, the plan chosen by the Town of Norton is a compromise, already meeting EPA and the PRP Group halfway. It is not an unreasonable demand given the true magnitude of this problem.

The time frames and impacts on the community, between the two alternatives being considered for the EPA/PRP construction phase of the clean up, are not that different. "Both are easily implementable." "The personnel, equipment and materials required to implement each of these technologies are readily available." Impact to air quality and to the local roads can be managed by good construction practices and working with the community.

EPA's Preferred Alternative, which requires long-term monitoring of the still contaminated, capped parcel by the PRP Group, is unacceptable and could result in a permanent financial and regulatory burden for the Town of Norton. While the Town is given assurances that the PRP companies entering into the Consent Agreement are now financially stable, there is no guarantee that will hold true in the future.

Should those parties disappear from the corporate universe or simply bail out on Shpack, the Town of Norton, with the longest standing on the PRP list as owner of the property, could be left holding the bag. It is also possible that the State would be left with the responsibility of operation and maintenance of the site.

It is naive for the Environmental Protection Agency to believe that the Shpack Site can be secured with fencing. Over the last decade, neither EPA nor the PRP's have monitored the site for security, even though they knew the dangers posed to anyone who entered the property unprotected. Fences are broken, "No Trespassing" signs are faded or have fallen, and beer cans, shotgun casings, etc, provide evidence of trespassers onto the contaminated land; likely, others curious about an old dump site ventured there as well, individuals who had no idea what lay beneath them.

Under the EPA's plan, the Human Health Risk was calculated based on the adjacent residents entering the property and trespassers. The impact on human health are dependent on many variables, including age of the person, which is impossible to determine with the trespassers or the adjacent resident, as that person, or persons, will undoubtedly change.

The extension of Norton's water main to the end of Union Road at the Attleboro city line raises concerns over new development in the residentially zoned area near the site, which will expose more residents to EPA's "accepted minimum risks" at Shpack. Redevelopment of the 5-acre parcel of land on which the Shpack residence is situated is also likely.

In response to the rationalization that "typically" all landfills are capped, the Shpack site, if it is anything, is not typical. In fact, although residential and industrial waste were disposed of there in order to fill a wetland, the Shpack Superfund Site does not technically fit in the category of municipal landfills, and the standards and regulations applied to those licensed facilities (like the neighboring Attleboro Landfill, Inc.) should not be assumed the rule for Shpack, which was in fact a privately owned and operated illegal dump.

Once the Shpack Site is properly cleaned up, we do expect a cap, that being a cover of clean soil and grass, to return the land to as near a natural state as possible.

EPA's process, EPA's scheduling of this critical part of the process (the presentation of its clean up plan, the public comment period, and the public hearing) from the end of June through August is unfortunate. Attendance at the public meeting of June 23rd, 2004, in Norton was very low compared to past meetings. The low turnout can be attributed to summertime vacations and other pleasant distractions which preoccupy much of the public. However, neither the EPA nor the PRP Group should underestimate

Norton's resolve. We will exhaust all regulatory, political and legal means possible to effect the SC-3B solution.

In conclusion, the US Environment Protection Agency's Proposed Plan For The Cleanup of the Shpack Superfund Site, 2004, its Preferred Alternative SC-2B (The Capping Alternative) is unacceptable to the Town of Norton because:

It does not adequately address the community's planned reuse of the site, now or in the future. It appears, in fact, that contrary to the Agency's own stated policy, this was not a consideration in the selection of its response action.

EPA's Preferred Alternative is not as effective, in the long term or the short term, as Norton's Preferred Alternative.

EPA's Proposed Plan does not provide a permanent solution to our environmental concerns.

EPA's Preferred Alternative leaves the Town of Norton with a still contaminated site and a consequentially unacceptable level of residual risk.

The Town should not have to tolerate the stigma attached to a toxic waste Superfund Site any longer.

SC-2B results in a permanent financial and regulatory burden on the Town.

The EPA's Proposed Plan is not considered to be a

"Remedy".

It is the Board of Selectmen's position that Norton's Preferred Alternative, SC-3B, is a fair compromise, at a realistic cost to EPA and the PRP Group, with an acceptable time frame that provides a reasonable solution to the decade-old, decades-old problem of the Shpack Superfund Land Site.

Respectfully submitted by the Norton Board of Selectmen, Robert W. Kimball, Jr., Chairman. That's K- I- M - B- A- L- L.

Thank you.

MS. STUDLIEN: Thank you, Selectman.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is Richard Gomes.

(Pause.)

MR. GOMES: Good evening.

My name is Richard Gomes. Last name is spelled G- O- M - E- S. I'm the Deputy Fire Chief for the Town of Norton.

I'm just going to go into a little past history. It's going to be very short, but I will go somewhere with it.

In the 50's and 60's when the Shpack Site was in use, and I see it referred to very nicely as a landfill, it was a dump. There was no regulation for that type of operation. The Town was never involved. It was a private fill, private land use, and there was no regulatory stipulations at the time. There were no regulations for that type of use.

Over the years, when the dump was in operation, the Fire Department responded to many fires there; involving either rubbish or brush. Many fire fighters either ingested or absorbed or inhaled contaminants from that site. Over the years, several of the fire fighters have died of cancer since that site is closed. Now, we don't know if that had anything to do with that site.

The point is that, and this is where I'm going, it's that we don't know. If the site is cleaned up with the proposal as stated by the EPA, people who visit the site, trespass the site will not know.

The other thing I'd like to point out is that the, the people are being referred to "principally responsible parties". I consider them to be solely responsible parties, and the Fire Department would like to see you stay with the plan 3B to completely remove contaminants from the site, which will alleviate any problems in the future, either regulatory, financial or any other. It, it will bring the Town in to a fray if they have no, no business in the planning or having any party to it.

Thank you.

MS. STUDLIEN: Thank you, Mr. Gomes.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is Ron O'Reilly.

MR. O'REILLY: Ronald O'Reilly, O, apostrophe, R- E- I- L- L- Y.

I have lived on Union Road for 32 years. Six years before the existence of the Shpack Site was publicized. The 1998 (sic) discovery of nuclear waste at the Shpack Site, and the following 25 years of failed cleanup still plagues us to this evening.

In 1978, when a young student with a geiger counter went to the City Officials, in Attleboro, thinking that the land was located there, he was ridiculed. He was referred to in the paper as a lunatic. Each time he tried to bring attention to the problem, he became the problem.

No one from Texas Instruments stepped forward to investigate the possible problem. The community did not know that 1,000 pounds of nuclear material was missing from TI's Nuclear Processing Plant, but, surely, the people at TI knew that nuclear material was missing.

We have to assume that both Texas Instrument and the Department of Energy were aware of the missing 900, 1,000 pounds of enriched uranium pellets.

In 1980, the Department of Energy quietly removed in excess of 900 pounds of the enriched uranium pellets from the Shpack Site; however, no attempt was ever made to locate any pellets that may have been picked up by kids taking a shortcut from the dump through the Shpack property.

For those who are too young to remember, in those days, as was just stated, it was a dump. It was not a landfill. Many kids used to go there. There were always interesting things to be picked up. People used to go there for target practice. A shortcut from the Attleboro dump was through the Shpack property. The enriched uranium pellets were probably enticing, and I would imagine some of them were picked up at various times and taken home.

The Department of Energy erected a fence and tested the site in the early 80's, and they left the scene shortly after. After about five years, the brush overgrew the fence, and, eventually, the fence collapsed. Hunters were frequent visitors going duck hunting in the swamp, and ATV's coming along the electric company right of way used it as a turn around.

The fence on the site today, which was erected within the last five or six years, is fully over grown and is barely visible from the street, and it sits on the street.

These events show that despite the knowledge of nuclear hazardous waste, the government was unable to prevent trespassing at the site. There is no reason to believe that the future will be any different. Trespassers on that site will be a perpetual problem.

When we get to talking about capping, the Attleboro Landfill is a good example of problems with capping. The plan was approved by the Mass Department of Environmental Protection. The capping was done and was inspected as it was progressing by the Department of Environmental Protection; yet, despite a statutory requirement, no bond was posted to insure that the site would be maintained in the future.

Today we know the site needs to be recapped. Water runs off into the street. During the capping, there was an explosion and fire. It was not reported. Erosion of the capping material is evident from the street, and this is just an example of what's going to happen with capping. Capping is not a permanent answer.

The steep slope, the plans are in the works to reopen the cap and try to get it done right in the future. If it was done right, if they were able to do it right the first time, it would have been done. There is no reason to believe the Shpack will be done right the first time.

The Shpack Site is along an electric company right of way. It runs all the way to Fall River. It's highly traveled by ATV's and dirt bikes and motor bikes. The capping will create an inviting ramp and a jump for these vehicles. These are recreational vehicles, and they're always looking for a ramp or a jump. As a result of their using the ram -- the cap as a jump, the cap will deteriorate very quickly and expose the bikers to hazardous chemicals and fumes.

EPA has previously advocated Cleanup SC-2B using the justification that the PRP's will be around in the future if additional funds are needed. Texas Instruments is the primary PR -- is the PRP with the deepest pockets. Many of us remember when TI employed over 5,000 people in Attleboro. Today that number is scheduled to drop to 900.

Who knows if TI will even be in business in the United States in 20 years if additional funds are required? The time to cleanup the site is now or the Town of Norton will be liable in the future.

EPA sought citizen input, and the citizens advocated the cleanup identified as SC-3B. EPA now faces the cleanup proposed by the PRP, primarily Texas Instruments, the same Texas Instruments that stuck its head in the sand when 900 to 1,000 pounds of nuclear waste was missing for 25 to 35 years. There is no reason to believe the PRP's will be anymore responsive to the future problem. The only cleanup that should be consider is SC-3B.

Thank you.

(Applause.)

MS. STUDLIEN: Thank you, very much.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is Gary Covino.

MR. COVINO: Good evening. My name is Gary Covino. I'm the Health Agent for the Town of Norton. The Town - - sorry about that.

The Town of Norton Board of Health appreciates the opportunity to comment on the Proposed Cleanup Plan for the Shpack Landfill Superfund Site.

We cannot support any remediation alternative which does not provide the overall protection of human health and the environment. We are in general agreement, following the public information meeting, that the two alternatives deserving further consideration are SC-2 and SC-3 and their variations that provide protection to the adjacent resident without groundwater consumption.

That is SC-2B and the EPA's preferred alternative and SC-3B. Both of these alternatives include installation of a water line to two residences adjacent to the Superfund Site.

Recent history has shown that installation of a water line in the area where devel – excuse me. Where development could occur has invited residential development.

The Board will not allow residential portable water wells in the area of Superfund Site; however, we cannot deny, nor can the Water Department, connection to the water main installed adjacent to the property.

It has been noted that much of the open land, along with the water line rouse, is conservation land, but we believe any developable land will be developed following the water line installation.

We doubt that the restriction on connections would be enforceable, and we have to agree with the Water Department on the policy of sizing pipe installation for fire protection and future looping; so, any water line installed will have the capacity for development.

We are concerned with the difference between the two alternatives and the permanence of the solution and the effectiveness in protecting the recreational and occasional user of the site. The least protective of the two alternatives, SC-2B, consolidates waste as the new landfill area seals off from normal activities, provides the monitoring and maintaining of the new landfill.

The Board presently maintains and monitors a close landfill. It has been subject to trespass, vandalism and damage from natural causes. This is an ongoing concern that, at some time in the future, the Board will be required to meet some new regulations, deal with some previously undetected contaminants or spend the sum dealing with the bad laboratory data. These same ongoing maintenance costs and concerns would apply to the new landfill on the Shpack Superfund Site.

While the EPA can argue that the cost of all future maintenance and monitoring of the Shpack Superfund Site will be the responsibility of the PRP's, we are concerned that the Town of Norton is a PRP. The Town is the PRP with the longest history and we'll be around after all of the PRP's disappear from the corporate universe.

The Town cannot be sold off to another company and disburse its liability. Most importantly, should the Board be left holding the proverbial bag, as the last PRP somewhere in the distant future or even as, as one of several PRP's at the same point in time, the Commonwealth and federal governments have control of funding for the Town that could be used in simple maintenance required in compliance with future regulatory requirement.

The lack of permanence in the EPA's preferred alternative will result in permanent financial and regulatory burden for the Town of Norton.

The Town of, the Town of Norton Board of Health is concerned with the EPA's preferred Alternative SC-2B, which is not as effective as another Alternative SC-3B, in the long term or the short term.

While it could be argued that new landfill or Superfund Site, in Alternative SC-2B, will result in the better protection from the consolidated waste and less risk that the existing condition, the alternative will bring more people to the area when site development occurs along with the water line.

More residents living closer to the site will increase the recreational use, number of -- excuse me, number of EPA's accepted minimum risks. The increased development will, also, increase the number of potential trespassers and vandals entering the suppose to be secured land; thereby, increasing exposure, as well as maintenance costs.

This is not a result that would be particular Norton, and we would expect that you have seen a similar result in other locations where landfills have been consolidated in residential areas.

The Norton Board of Health cannot support the EPA's preferred alternative and strongly recommends implementation of a clean cleanup Alternative SC-3B, installation of a water line and removal of all radiological and chemically contaminated materials that pose the unacceptable risks.

The Norton Board of Health understands that there are potential impacts in the community from the implementation of the preferred cleanup plan and possibly more significant impacts from the alternative we recommend.

The impacts to air quality and to local growers by truck traffic can be managed by good construction practices and working with the community. The air quality of the area surrounding the Shpack Landfill Superfund Site will not be deteriorated by the cleanup activities in the site. Standard construction activities and strict monitoring can be specified and implementing the assuredness.

The Board of Health may require that monitoring reports be provided to the Board and may require specific monitoring during cleanup operations. Spillage from the trucks leaving the site will not be acceptable in the roads in the area of the Shpack Landfill Site. They are generally not in accordance to support long-term truck operations. Again, standard construction activities and strict monitoring will be specified and implemented to ensure the materials are not carried off of the site into local roads, and that transporting materials are not released from the trucks.

The Board recommends that rail transport, using the nearby rail lines be considered and implemented if at all possible. Activities at the Shpack Landfill Superfund Site and the adjacent Attleboro Landfill will require removal of materials and the import cover materials. The Board recommends that rail transport, using the nearby rail be considered and implemented if at all possible.

If rail trans -- transport can't be implemented an existing road network must be used. The Board recommends that all parties involved -- PRP, Corps of Engineers, Attleboro Landfill, Mass DEP, EPA -- work to improve specific roadways to a standard that will support the level of traffic needed.

The Board of Health will work with the local public safety officials and other Town Boards to reduce the impacts of truck traffic in the Town of Norton and its residents.

Respectfully, the Board of Health.

MS. STUDLIEN: Thank you, very much.

(Applause.)

MS. STUDLIEN: Thank you.

Our next speaker is Jim Mooney.

(Pause.)

MR. MOONEY: Good evening.

I do appreciate the opportunity to come before you tonight to discuss a little bit about Attleboro's idea of what should be done over there.

I'm not here to argue with or disagree with Norton's proposal for the SC-3. I think once we pass over to Norton, I think Norton should be the only one that should determine ultimately what happens there; however, in the Attleboro side, we roughly have two and a half acres. Most of the contamination is not in the Attleboro side. Most of it is on the Norton side.

Both alternatives, SC-2 and SC-3, will provide overall protection, health protection to the residents and to the people of both Attleboro and Norton.

SC-2, SC-2 is a good problem solver. It's done all over the United States. We have brown fields everywhere. I have brown fields in Attleboro. I have brown fields in Attleboro that are currently, now, recreational sites. I have contaminated sites in Attleboro that, within the last 27 years, have been covered, capped, and they're used as athletic fields, that are used as basketball courts, and they're used as a number of recreational type facilities for the general public. I believe that, at no time, have any of these individuals in Attleboro at risk by using these sites. It is an alternative that the, both state and federal government, even the City of Attleboro, has had to address many times in Attleboro.

This is not our first site to deal with. We've dealt with many sites in Attleboro. We did have a radioactive ball field years ago. It had Radon. Fortunately, legislature bailed us out, passed an immediate bond to the City of Attleboro and we were able to remove the radiation, cap the site and now, more than 125 kids play on that site every night.

I'm not opposed to having something done, and I want something done that will protect everyone. Whether you're a citizen of Attleboro or a citizen of Norton, I want everybody protected. Some things can be done with a lot of thought, a lot of science, to properly protect.

In Attleboro, the S-2 sites, since we have no interest, and I don't believe ALI or anybody over there has any interest in putting a house or a recreational field or anything on the two and a half acres on the Attleboro site, the S-2 site seems adequate enough to protect, certainly, the citizens of Attleboro and, hopefully, the citizens of Norton.

Norton officials and representatives and legislatures got up and said, "Hey, the best way to fix something is to completely remove it." That's true. So, for Norton, that may be their best proposal, and it may be the thing that needs to be done, but that two and a half acre site, I don't know it needs to be completely removed of all contamination. It's never going to be used.

Both sites, both proposals require that a water line, a 4,000 foot water line be extended down from Norton, down Union Road, to the Shpack House and to the house adjacent across the street. I think it's a great idea. Those two wells that have contamination should be protected.

However, I have two wells in Attleboro. I, also, have a well that was condemned years ago at the ALI site. So, if you want to be complete, there are actually three wells that have had some contamination. One no longer being used.

I reviewed the proposal to extend the water line 4,000 feet from Norton down to these two houses with a 10-inch main. They plan to go underneath the railroad tracks at a tremendous cost of $125,000.00. I've spoke with the Mayor or Attleboro. I've spoke with a number of councilmen. I've spoke with the superintendent of Water. We do have a. water service on the Peckham side. It's almost 500 to 700 feet closer to these two homes. We do not have to go under a railroad line to supply those units with, with water. There is an immediate savings of over $125,000.00.

What I propose is that, or have, at least, the EPA look at allowing the water line to come in from Attleboro. Attleboro is agreeable to that. We have an eight-inch main that we can send down there. There is more than enough water to supply the two houses in, in Norton.

I don't think the water bill is going to be much different than what it is in Attleboro. We're talking pennies. That would save a tremendous cost. I believe that, that $660,000.00 cost to extend the water line could be reduced by as much as $250,000.00 if the Town of Norton and the City of Attleboro and the EPA agree to this.

You've got to remember that we're all part of this. We're all going to pay the cost of this. We're all PRP's. As your agent just informed you, whatever the cost of this, it's not going to be paid by TI. It's going to be paid equally by all the PRP's. Whether we want to spend, initially, the cost of $128 million to clean this site, there isn't that many PRP's out there. It's going to be an equal cost to all of us, the City of Attleboro, the Town of Norton.

You have to look at how many PRP's are out there. There is about a dozen PRP's. If this project goes on, and we go with 50 or a 100 million dollar cost, it's going to be divided by all the PRP's. The Town of Norton could be faced with a five, three to five million dollar cost. So, I'm just, I just hope that the Town of Norton recognizes that. The City of Attleboro recognizes that.

The cost is going to be directed through the town because the citizens of Attleboro and the Town of Norton did use the Shpack Site, as did the City of Attleboro. When I say, "The Shpack Site," I mean that little two and a half acre pie that's considered part of the Shpack Site. It's part of Attleboro.

I don't know if the residents are aware of this. I don't know if the Town officials are aware of this, but there is a hell of a liability to your town, as there is to Attleboro. I will not do anymore talking about Norton because I think you make your own decision, and my thoughts, privately, I have thoughts about what I'd like to see you people do, but from may authoritarian point of view, my jurisdiction ends at the property line.

The first alternative I think is acceptable to ALL I think what would happen to ALI, the City of Attleboro, I think what would happen with the capping probably would happen with ALI, but it would probably be somewhat corrected by an extension of another two and a half acres of filling; hopefully, that addressed some of the problems they have over there, and the rest of it I leave up to Norton, but I would entertain that the federal government look at saving some money and look at putting the water line through the City of Attleboro.

MS. STUDLIEN: Thank you, very much.

(Applause.)

MS. STUDLIEN: Our next speaker is Heather Graf.

MS. GRAF: My name is Heather Graf. I'm the Coordinator of the Citizen's Advisory Shpack Team. The spelling is G- R- A- F, as in Frank. One F.

To Dave Lederer comments. The US Environmental Protection Agency has always referred to the Shpack Site as a landfill. We never paid much mind to the use of this word, but, in hindsight, we should have because, now, the EPA and the Massachusetts Department of Environmental Protection Agencies are attempting to justify their cover and cap proposal for Shpack by saying, "All landfills are capped."

Well, we would not argue that landfills are typically capped, but we do counter that the Shpack Site is not a landfill, and cannot be designated or treated as such, and while Isadora Shpack accepted any wastes that needed disposing of in order to fill his wetland property, this site was, in fact, a privately owned and operated illegal dump. The Shpack Superfund Site must be classified and correctly dealt with for what it is, a toxic waste dump, not a landfill.

The Shpack dump site, also, differs from landfills in having commingled waste materials; that being a mixed up mess of both radiological contaminants, uranium and radium, chemical wastes, some of which are classified as carcinogenic, volatile inorganic and organic compounds, as well as high levels of heavy metals; including lead and arsenic.

The presence of high grade radioactive materials had complicated the cleanup process at Shpack. Since 1979, when the RAD contamination was first detected, numerous agencies were called upon to investigate the site; including the Nuclear Regulatory Commission and the US Department of Energy. The acronym for that is DOE.

In 1980, the DOE removed approximately 800 pounds of radiological contaminated material from the surface of the site. Ultimately, the responsibility for dealing with the uranium and radium fell to the US Army Corps of Engineers, ACE. Their plan is to excavate, remove and dispose of, off site, all radiological wastes that exceeds standard levels for human health and safety.

Considering the fact that these hot spots are not isolated or centralized, but widely scattered all over the property, a map identifying the hot spots looks like a bad case of the measles, and the fact that the radiological contamination does not lie on the surface but goes to a depth of up to 20 feet, it is safe to assume that the activities undertaken by the Army Corps, the first responders on this site, will greatly decrease the amount of waste material left for the EPA.

Is it logical even to a layman, just glancing at the big picture, to see that the lion's share of the waste material on this site will be taken away by the Army Corps.

In most of the dump, the contaminants are commingled. The radiological with the chemicals and heavy metals. The construction crew working for the Army Corps must continue digging and removing until they reach the perimeter where soil tests indicate they are clear of radiological contamination.

Even in the EPA's current plan, their estimated volume of RAD material expected to be removed by the ACE is several thousand yards less than the Corps' estimate, and a spokesman for the Army Corps admits that their own estimates always fall short of the actual amount of material they windup removing.

The excavation, removal and disposal by the Army Corps of all the radiological contaminates, which cover the site heterogeneously and go to considerable depth, will also take out and away much of the chemical and heavy metal waste leaving less material for the Environmental Protection Agency to have to deal with.

To those reviewing the Feasibility Study, FS, intended to support EPA's chosen plan, it does not appear that this has been given adequate attention.

Also, in the FS, has the draft considered the most or likely that most, or likely all of the soil with combing of waste will already have been removed from the site by the Corps, or did the authors of this report factor in disposal costs that the contractor working for the possible responsible party, PRP Group under EPA, will be charged factoring it at the highest cost, which is associated with combing of the waste?

It is apparent that the Feasibility Study is flawed in overestimating the amount of contaminated material the PRP's working with EPA will be left to deal with and, also, overestimating, on top of that, the disposal costs. In fact, the cleanup alternative preferred by the Town of Norton would cost considerably less than reports for the EPA indicate.

It should be noted here that the draft final Feasibility Study, dated June 17th, 2004, was prepared by ERM, Environmental Resources Management, "For the Shpack Steering Committee."

I expect many people reading this testimony understand that the Shpack Steering Committee is, in fact, the PRP Group, responsible parties; six companies being held responsible for the contamination at Shpack and the cost to cleanup the contamination that is not radiological.

The Shpack, the Shpack Steering Committee should not be viewed as unbiased. They are a special interest group whose goal must be to get EPA to accept a cleanup plan that lets them off the hook as quickly, easily and cheaply as possible.

It is obvious that EPA has complied choosing the alternative that, above all, satisfies the PRP needs, but still, according to EPA officials, meets the criteria for their task under Superfund. it would appear a new line time has been added to the EPA's list of qualifying criteria; that being PRP satisfaction.

Why would the US Environmental Protection Agency go in this, go in this direction? Perhaps, because having the Shpack Site still on their national priority list of Superfund Sites, after almost 2G years, is an embarrassment.

More embarrassing for EPA and incomprehensible is the fact that after four and a half years of working with the Town of Norton, or so we thought; after 13 public meetings in the Town of Norton, and five smaller meetings where the Ad Hoc Shpack Technical Committee discussed reuse scenarios for this site the agency pretends it just doesn't get it.

At the llth hour, they pull the rug out from under us with this stupid plan. Instead of negotiations occurring between EPA and the PRP Group, which were suppose to start after the upcoming record of decision and take one to two years, the Environmental Protection Agency has instead put the Town of Norton in the extremely difficult position of having to negotiate for an acceptable cleanup plan.

Although fully engaged in this process for the entire period, I never saw this coming. Had there been an inkling to us during the four and a half year process, that, in the end, this cover and cap plan would be EPA's preferred alternative for remedial action at the Shpack Superfund Site, we would have had an opportunity to fight back and time to change the course of EPA's decision.

In four and a half years of discussions with EPA, the project manager, who has been on this Superfund Site since the beginning, never, ever, in our presence, uttered the word "cap".

While I would not be here tonight if I thought it was too late to alter their course, obviously, EPA has put the Town of Norton at a tremendous disadvantage. One of the criteria the US Environmental Protection Agency must consider, must consider in their record of decision for cleanup of Superfund sites is community acceptance.

Let us all be perfectly clear here. The Town of Norton is united and steadfast in our opposition to EPA's preferred Alternative SC-2B, which does not meet the needs of the community now or in the future. It does not provide a remedy, does not allow reuse of a site for passive recreation, does not have permanence as in a permanent solution, and places an unfair burden on the Town.

The Town, further, the Town of Norton is united and steadfast in our declaration that Alternative SC - -

SC-3B is not only the preferred alternative of the Town, it is the only acceptable alternative for the Town.

Any alternative which provides a level of cleanup lower than the SC-3B will be unacceptable. We do expect EPA's final chosen plan of action and record of decision to support Alternative SC-3B for remedial action at the Shpack Superfund Site.

Finally, if my state tax dollars are going to the Massachusetts Department of Environmental Protection, DEP, to support this plan, I'm not going to pay, and if my federal tax dollars are going to the US Environmental Protection Agency to propose this dumb plan, I'm not going to pay.

Thank you.

(Applause.)

MS. STUDLIEN: Angela, are there any other speakers?

MS. BONARRIGO: No, that's it.

MS. STUDLIEN: Pardon?

MR. LEDERER: No one else has signed –

MS. STUDLIEN: I'm sorry. Is there any other person that wants to speak?

(No verbal response.)

MS. STUDLIEN: Okay. Thank you, very much, for participating in the hearing, and, please, remember that the public comment period for making written comments doesn't close until August 25th.

This hearing is now officially closed.

(Whereupon, on August 4th, 2004, at 8:45 p. m., the above-entitled public hearing is closed.)

CERTIFICATE OF REPORTER AND TRANSCRIBER

This is to certify that the attached proceedings

in the Matter of:

RE: PROPOSED CLEANUP PLAN

SHPACK LANDFILL SUPERFUND SITE

NORTON/ATTLEBORO, MASSACHUSETTS

Place: Norton, Massachusetts

Date: August 4, 2004

were held as herein appears, and that this is the true, accurate and complete transcript prepared from the notes and/or recordings taken of the above entitled proceeding,

Kate Soukonnikov	08/04/04
Reporter	Date
Susan Hayes	08/12/04
Transcriber	Date

RESPONSIVENESS SUMMARY
ATTACHMENT B
WRITTEN COMMENTS RECEIVED

C. P. Rich Plumbing Co.,
PO Box 293
Norton, MA 02766

Here's the Fax:

To:	Dave Lederer	From:	Butch Rich
Company:	US EPA	Company:	C P Rich Plumbing Co.
Date:	7-28-04	Pages:	2 (including cover)
My Fax Number is: 508-285-4817		My Phone number is: 508-285-4304	

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

SDMS DocID 000211324

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of
The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

August 2004

I am writing to express my firm opposition to the EPA's proposed plan for the 'cleanup' of the Shpack Superfund Site.
EPA's preferred alternative (SC-2b) is unacceptable for reasons too numerous to detail here. Most objectionable is the fact this option does not provide "permanence" and is therefore not a "remedy". It would leave the Town of Norton with a still contaminated site, and the responsibility & burdens of dealing with it, in the near and distant future.
In the face of the promise the Environmental Protection Agency made to the town, EPA's chosen course of action, is reprehensible.
If community acceptance, plays any role in the EPA's decision making process for the cleanup of Shpack, please give serious consideration to these comments, and select Alternative SC-3b, which will at long last, give residents of this community the peace of mind they deserve.

Signature

Print Name Selectmen Clarence Rich

Address 79 West Main Street
Norton, Ma. 02766

COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS SENATE
STATE HOUSE, BOSTON 02133-1053

Site: SHPACK
Break: 4.9
Other: ______

SENATOR JO ANN SPRAGUE
BRISTOL AND NORFOLK DISTRICT
ATTLEBORO: WARD 3, PRECINCT B, WARD 4,
WARD 5, WARD 6, MANSFIELD, NORTON, REHOBOTH,
SEEKONK, DOVER, FOXBOROUGH, MEDFIELD,
SHARON, PRECINCTS 1, 4, AND 5, WALPOLE

305 ELM STREET
WALPOLE, MA 02081
TEL. (508) 668-6511
FAX (508) 668-5713

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FAX (617) 722-1056

COMMITTEES:
WAYS AND MEANS
PUBLIC SAFETY
TAXATION
EDUCATION, ARTS & HUMANITIES
PUBLIC SERVICE
SCIENCE & TECHNOLOGY
LOCAL AFFAIRS
E-Mail JSprague@senate.state.ma.us

August 5, 2004

Mr. David Lederer
US EPA
One Congress Street, Suite 1100 (HBO)
Boston, MA 02114

RE: Shpack Superfund Site Cleanup

Dear Mr. Lederer:

I am writing on behalf of my constituents in the Town of Norton to strongly support the Town's choice of SC-3b as the best cleanup alternative for the Shpack Superfund Site. I am steadfast in my opposition to the EPA's choice of SC-2b as the best cleanup alternative.

My constituents and I demand that the old Shpack Dump property be returned to a safe enough condition that it can be used for passive recreation within the Norton Conservation Commission's Open Space Plan. This use conforms to our understanding of what the term "use" has meant during the meetings between the Adhoc Shpack Committee, the Army Corps of Engineers and the U.S. EPA.

The EPA alternative, SC-2b, will remove only some elements of the waste and contain the remaining contaminants under a cap. We know that caps deteriorate, which could re-initiate the pollution cycle. Also, SC-2b would not allow my constituents the kind of use they had been led to expect. The requirement of fencing and a "No Trespassing" sign is evidence that SC-2b would not be a full fledged cleanup, therefore, the Town and its citizens would be left to bear the burden of fighting future contamination and policing problems at the site.

The EPA's decision in this case should not be based on what the remediation costs, but on what is in the best long term interest for Massachusetts citizens, all of whom are taxpayers with a vested interest in a clean environment for our families, friends and neighbors.

Through the years, my Norton constituents have paid millions of dollars of their hard earned money in taxes to the state and federal government. In this way, the townspeople, for years, have paid for government actions that benefit not only themselves, but actions that provide, also, for the common good for citizens throughout this great country.

It is now time for the EPA to stand tall and acknowledge that the common good requires a permanent and proper clean-up of environmentally unsafe waste. There is no better use for our citizens' tax dollars than to provide for the environmental safety of the citizens residing in this area ***now***, for ***the generations to follow,*** both of which will ultimately be of benefit to all the citizens of our country.

Mr. Lederer, my constituents, their local officials and I, along with other state and federal officials demand that government do the right thing for the environmental safety of us and future generations by adopting choice SC-3b for the cleanup of the Shpack Superfund Site.

We will be proud to stand by you in this action, and in doing so we will be proud to say we won one for the environmental protection of our land and people.

Sincerely,

Jo Ann Sprague

Jo Ann Sprague
State Senator

The Commonwealth of Massachusetts
MASSACHUSETTS SENATE

JO ANN SPRAGUE
BRISTOL & NORFOLK DISTRICT
WAYS AND MEANS COMMITTEE

ROOM 206, STATE HOUSE
BOSTON, MA 02133-1053
TEL (617) 722 1222

305 ELM STREET
WALPOLE, MA 02081
DISTRICT TEL (508) 668 6511

E Mail JSprague@senate.state.ma.us

August 4,2004

Heather A. Graf
Citizens Activist, Town of Norton
229 N. Worcester St.
Norton, MA 02766
Ph.(508) 226-0898
FAX (508) 226-2835

To - Dave Lederer
US EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

Comments On the US Environmental Protection Agency's "Proposed Plan For Cleanup Of The Shpack Landfill Superfund Site, June 2004"

The US Environmental Protection Agency has always referred to the Shpack Site as a "Landfill". We never paid much mind to the use of the word. In hindsight, we should have. Because now the EPA and the Massachusetts Department of Environmental Protection Agency are attempting to justify their Cover & Cap proposal for Shpack, by saying - "all landfills are capped". While we would not argue that landfills are typically capped, we counter that the Shpack Site is not a landfill, and cannot be designated or treated as such.

And while Isadore Shpack, accepted any waste that needed disposing of, in order to fill his wetland property, this site was in fact a privately owned & operated Illegal Dump.

The Shpack Superfund Site must be classified (and correctly dealt with) for what it is - A Toxic Waste Dump, Not A Landfill!

The Shpack Dump Site also differs from landfills in having "Commingled Waste Materials", that being - a mixed up mess of both radiological contaminants (uranium& radium), chemical wastes (some of which are classified as carcinogenic), volatile inorganic & organic compounds, as well as high levels of heavy metals (including lead & arsenic).

The presence of high-grade radioactive materials has complicated the cleanup process at Shpack. Since 1978, when the rad contamination (including enriched uranium) was first detected, numerous agencies were called upon to investigate the site, including the Department of Environmental Quality Engineering (DEQE), the Nuclear Regulatory Commission (NRC), & the US Department of Energy (DOE). In 1980 the DOE removed approximately 900 pounds of radiological contaminated material from the surface of the site, which was transported to the Oak Ridge National Laboratories in Tennessee.

Ultimately the responsibility for dealing with the uranium & radium fell to the Us Army Corps of Engineers (ACE). Their plan is to excavate, remove and dispose of (off site) all radiological waste that exceeds standard levels for human health & safety.

Considering the fact that these hot spots are not isolated or centralized, but widely scattered all over the property (a map identifying the hot spots looks like a bad case of the measles), and the fact that the radiological contamination does not lie on the surface, but goes to a depth of up to 20 feet, it is safe to assume that the activities undertaken by the Army Corps (first responders on site) will greatly decrease the amount of waste material left for the EPA. It is logical, even to a layman, just glancing at the big picture, to see that the lion's share of the waste material on this site, will be taken away by the Army Corps.

In most of the dump, the contaminants are commingled, the radiological with the chemicals and heavy metals. The construction crew working for the Army Corps must continue digging & removing until they reach the perimeter where soil tests indicate they are clear of radiological contamination. Even in the EPA's current plan, their estimated volume of rad material, expected to be removed by the ACE, is several thousand yards less than the Corps' estimate. And a spokesman for the Army Corps admits that their own estimates always fall short of the actual amount they wind up removing.

The excavation, removal & disposal (by the Army Corps) of all the radiological contaminants (which cover the site heterogeneously, and go to considerable depth) will inevitably also take out and away - much of the volatile organic & inorganic compounds, including chemical & heavy metal waste, leaving far less material for the Environmental Protection Agency to deal with. To those reviewing the Feasibility Study (FS), intended to support EPA's chosen plan, it does not appear that this has been given adequate attention, in fact it has been ignored.

Also in the FS, Question? - Has the draft considered that most (or likely all) of the soil with commingled waste will have already been removed from the site by the Corps? Or did the authors of this report factor in disposal fees (that the contractor working for the Possible Responsible Party (PRP) Group, under EPA) - will be charged, at the high cost associated with commingled waste?

It is apparent that this Feasibility Study is flawed, in over estimating the amount of contaminated material the PRPs (working with EPA) will be left to deal with, and over estimating (on top of that) the disposal costs. In feet the cleanup alternative preferred by the Town of Norton would cost considerably less than reports for the EPA indicate.

It should be noted here that the "Draft Final Feasibility Study" dated June 17,2004 was prepared by ERM (Environmental Resources Management) "For The Shpack Steering Committee". I expect many people reading this testimony, understand that the Shpack Steering Committee - is in fact the PRP Group (responsible parties), six companies being held responsible for the contamination at Shpack and the cost to clean up the contamination that is not radiological.

The Shpack Steering Committee should not be viewed as unbiased. They are a special interest group, whose goal must be to get EPA to accept a cleanup plan mat lets them off the hook as quickly, easily and cheaply as possible. It is obvious that EPA has complied - choosing the alternative that above all satisfies the PRPs' needs, but still (at least according to EPA officials) - meets the criteria for their task under Superfund. It would appear a new line item has been added to the EPA's list of qualifying criteria - that being PRP satisfaction!

Why would the US Environmental Protection Agency go in this direction? Perhaps, because having the Shpack Site still on EPA's "National Priority List (NPL) of Superfund Sites", after almost 20 years is an embarrassment.

In its haste to de-list the Shpack Site, the Environmental Protection Agency (in a mad dash to the September 30,2004 finish line), is rushing to approve a plan which ignores EPA's stated goals & responsibilities. In choosing SC-2b as their "Preferred Alternative" the Environmental Protection Agency has given notice that it is renouncing its commitment to the Town of Norton.

What should be most embarrassing for the EPA, and what I find incomprehensible, is the fact that after 4 & l/2 years of working with the Town of Norton (or so we thought), after 13 public meetings in the Town of Norton, and five smaller meetings - where the Ad Hoc Shpack Technical Committee discussed reuse scenarios for the site, this agency pretends it just didn't get it!

And at the eleventh hour, they pull the rug out from under us with this stupid plan. Instead of negotiations occurring between EPA & the PRP Group (which were supposed to start after the Record of Decision, and take 1 to 2 years), the Environmental Protection Agency has put the Town of Norton in the extremely difficult position of having to be the ones negotiating, just to get an acceptable cleanup plan. Although fully engaged with this project for the entire 4 and ½ year period, I never saw this coming.

Had there been an inkling among any of us involved with the process, that in the end - this "Cover & Cap Plan" would be EPA's preferred alternative for remedial action at the Shpack Superfund Site, we would have had an opportunity to fight back and time to change the coarse of EPA's decision. Since December 1999, in the 4 & ½ year period of discussions with EPA, the Project Manager (who has been on this Superfund Site since the beginning) never, ever, in our presence (prior to June 2004) uttered the word "cap". While I would not be here tonight, if I thought it was too late to alter their coarse, obviously EPA has put the Town of Norton at a tremendous disadvantage.

One of the criteria me US Environmental Protection must consider in their Record of Decision for cleanup of Superfund sites is - "Community Acceptance". Let us all be perfectly clear on this critical point -

The Town of Norton is united and steadfast in its opposition to the EPA's Preferred Alternative SC-2b, which: does not meet the needs of the community now or in the future, does not provide a remedy, does not allow reuse of the site for the community's intended use - passive recreation, does not have permanence (as in a permanent solution), and places an unfair burden on the town, now and in the future.

The Town of Norton is united and steadfast in its declaration that alternative SC -3b is not only the Preferred Alternative OF the town, it is the only acceptable alternative FOR the town.

Any alternative, which provides a level of cleanup lower than SC-3b will be unacceptable to the Town of Norton.

We do expect EPA's final chosen plan of action, and Record of Decision to support Alternative SC -3b for "Remedial Action" at the Shpack Superfund Site.

Should the US Environmental Protection Agency choose to ignore our reasonable demand -

Be it resolved - The Town of Norton will have DO reservations about appropriating the necessary funds to take whatever legal action which may be required to secure the SC-3b REMEDY.

It is our obligation now to ensure that the Shpack Toxic Waste Dump is not left as a legacy to future generations, and we will not be deterred.

Finally, if my state tax dollars are going to the Massachusetts Department of Environmental Protection,
To Support EPA's Proposed Plan -
I’m Not Going To Pay!

And if my federal tax dollars are going to the US Environmental Protection Agency
To Propose This Dumb Plan -
I’m Not Going To Pay!

Heather A. Graf

Heather A. Graf

July1, 2004

Heather A. Graf, Coordinator
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Dave Lederer
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Re: Public Comment Period for EPA's Proposed "Cleanup Plan for the Shpack Landfill Superfund Site"

Please consider this a formal request (in a timely fashion), on behalf of the Town of Norton - for a 30 day extension of the Public Comment Period, on EPA's "Proposed Plan for the Shpack Landfill Superfund Site, Norton, MA" dated June 2004.

Thirty days is not nearly enough time to review, digest and discuss: (1) The "Draft Final phase IB Remedial Investigation Report" (Prepared by ERM, under contract with the "Shpack Steering Committee", AKA - The PRP Group), dated June 17, 2004, (2) The "Draft Final Feasibility Study for the Shpack Landfill Superfund Site" (Prepared by ERM, under contract with the "Shpack Steering Committee", AKA - The PRP Group), dated June 17, 2004, (3) "The Baseline Human Health Risk Assessment" (Prepared by Metcalf & Eddy, under contract with EPA), dated June 2004, and (4) The "Draft Baseline Ecological Risk Assessment" (Prepared by Metcalf & Eddy, under contract with EPA), dated June 14, 2004.

Thirty days is certainly not enough time to formulate logical, intelligent, concise & coherent comments on this plan, or the voluminous documents in support of EPA's Plan.

Assuming the original deadline for public comments was ("postmarked by") July 26, 2004, extending the period another 30 days (60 day total) - should make the new deadline, as requested here - no earlier than August 24, 2004.

This request sent by FAX, Thursday, July 1, 2004 at 4: 15 PM. Hard copy to follow.

Heather A. Graf

Heather A. Graf

Cc: CAST Distribution List

Richard Krumm
<RLK117@peoplepc.com>
07/28/2004 06:01 PM

To: Dave Lederer/R1/USEPA/US@EPA
cc:
Subject: Shpack Proposed "Cleanup"

My dear Mr. Lederer,

Just whose environment are you supposed to be protecting? Certainly not the environment in Norton, where you propose leaving a site that is badly contaminated for future residents to deal with.

How on earth can you in good conscience propose such a "solution" to this problem after promising for years that your agency will clean up the site?

The citizens of Norton strongly oppose your proposed plan. Our elected representatives, both at the state level as well as at the federal government level, also have expresessed their opposition.

You claim that you will take under advisement the will of the citizens in arriving at your decision.

I hope that you are sincere in that promise.

If so, I think you should reconsider your recommended plan and opt instead for your Alternative CS-3b.

Richard L. Krumm

Heather A. Graf,
Coordinator Citizens Advisory Shpack Team
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Norton, MA 02766
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To - Dave Lederer
US EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

Position Paper For The Citizens Advisory Shpack Team (CAST) Comments On the US Environmental Protection Agency's "Proposed Plan For Cleanup Of The Shpack Landfill Superfund Site, June 2004"

Our position is clear. We are united and steadfast in our opposition to EPA's "Preferred Alternative - SC-2b", which does not meet the needs of the community now, or in the future.

We are united and steadfast in our declaration that Alternative SC-3b is not only the Preferred Alternative Of The Town of Norton, but the Only Acceptable Alternative For The Town of Norton.

Please make note under EPA's "Modifying Criteria" for approval of the cleanup plan - (that being) "Community Acceptance", that EPA's Preferred Alternative SC-2b gets an "unsatisfactory rating".

We expect EPA's final chosen plan of action, and Record of Decision to support the modification requested here - changing to Alternative SC-3b for "Remedial Action".

EPA's Preferred Alternative SC-2b does not provide a remedy, as promised by the Agency. (Ref. Numerous documents - including meeting handouts etc., EPA's web page- New England Superfund Site, Shpack Landfill, 8/31/00 - "Cleanup Approach, The site is being addressed in a long-term remedial phase focusing on cleaning up the entire site." Remedy is understood to mean "the removal of evil, to make right, correct". It is not intended to be a partial or temporary fix, but a total and permanent restoration of the property to a safe condition for reuse.

Quote from EPA spokesman John Sebastian "The goal is to return the property to a safe enough condition so that it can be used again". (Boston Globe, 8/11/91)

The Shpack property is owned by "The Inhabitants of the Town of Norton, through its Conservation Commission - for administration, control & maintenance as provided for in Section 8C of Chapter 40 of the Massachusetts General Laws". (Ref. Deed signed June 1, 1981, transfer of property from Lea Shpack to the Town of Norton). As such the land is designated as Open Space, intended for Passive Recreation.

The Ad hoc Shpack Committee, appointed by the Board of Selectmen, to work with the Army Corps of Engineers, on Re-Use Scenarios for the Shpack Site (July 2002-Jan. 2003) selected the reuse option of Passive Recreation, with the Army Corps' approval.

According to The Environmental Protection Agency's Directive - "Land Use in the CERCLA (Superfund) Remedy Selection Process" 5/25/95 "The EPA believes that early community involvement, with a particular focus on the community's future uses of property should result in a more democratic decision-making process; greater community support for remedies selected as a result of this process; and more expedited, cost-effective cleanups."

According to The Environmental Protection Agency's - "Reuse Assessment Guide", "The scope and level of detail of the reuse assessment should be site-specific and tailored to the complexity of the site, the extent of contamination... and the density of development in the vicinity of the site."

It should be noted here that there has been a tremendous increase in residential development on Maple St. (at the rear of the Shpack site). And an increase is also anticipated on Union Rd., once the town water main is extended.

"The Superfund land use Directive states that in cases where the future land use is relatively certain, the remedial action objective(s) generally should reflect this land use."

"Reuse assessments should have greatest applicability to sites with waste materials on the surface and/or contaminated soil."

"EPA is responsible for ensuring that reasonable assumptions regarding land use are considered in the selection of a response action."

Workshops were conducted with the Army Corps, and the committee appointed to represent the Town of Norton & City of Attleboro, to consider reuse scenarios for the property. The Project Manager for EPA attended these 5 meetings, and was aware of Norton's intentions for future use of the site. Still, there was no effort by EPA personnel to discuss with, or involve the community in "assumptions regarding land use" of the site.

It was only after EPA announced their preferred alternative, June 23, 2004 (at the 14th public meeting, 4+ years after the first public meeting), that Norton officials & citizens realized the Environmental Protection Agency was not factoring in to the selection of their "cleanup" plan - the community's intent for future use. EPA's plan - which includes fencing off & securing the site to restrict access, institutional controls & monitoring, with human health risk potential considered only for an adjacent resident and "trespassers", made it clear that EPA had totally ignored the Town's intended reuse of the site (that being passive recreation, within the Norton Conservation Commission's Open Space Plan).

The Environmental Protection Agency's own standards for - "Selection of a Response Action" had been absent from the EPA process in the assessment of the Shpack Site. (A process, which in its most recent running with the public in Norton has taken 4 & 112 years).

Since December 1999, when representatives from EPA and the US Army Corps of Engineers came to Norton, to discuss renewed investigations at the site, and at 13 public meetings from February 2000 to November 2003, EPA gave the same presentation: The Army Corps would first excavate and dispose of (off-site) all the radiological waste (uranium & radium), then the EPA, working with the "Possible Responsible Party" (PRP) Group, under Superfund, would cleanup the remaining contaminants (chemicals & heavy ' metals).

We understood cleanup to mean "removal (excavation and off-site disposal) of all contaminated materials from the site that pose an unacceptable risk", not just the radiological waste, and some dioxin & PCB contaminated soil. The EPA's preferred alternative does not accomplish this.

EPA's plan (after the Army Corps has removed the radiological waste), is to excavate only soil & sediment that is close to the surface in a certain wetland area (even though EPA admits "the waste extends to 15 feet below the water table in some wetland portions of the site"), to consolidate waste from the one wetland and leave it in an upland area on site. EPA plans to remove only the soil that is contaminated with dioxin or PCB for off-site disposal. The majority of the chemical & heavy metal contaminated soil (the responsibility of EPA & PRP Group), in addition to that transferred from the wetlands to a central on-site location, would be left in place, some portion of which would be covered over with a cap.

The only alternative acceptable to residents of the Town of Norton SC-3b would - "Remove all radiological and chemically contaminated materials from the site that pose an unacceptable risk. As a result, alternative SC-3 provides the greatest degree of overall protection." "Both chemical and radiological source materials exceeding cleanup levels would be permanently removed from the site, thereby ensuring that this remedy remains effective in the long-term." "SC-3 would greatly reduce the toxicity of the material that remains at the site to acceptable levels. Because all soil and sediment above cleanup levels will be removed from the property, both the volume and mobility of contamination is greatly eliminated".

EPA maintains that Norton's preferred alternative provides only "slightly greater protection at a significantly greater cost". We counter that the opposite is true.

The difference in cost (EPA's preferred alternative at $30 million & Norton's selected remedy at $50 million) is insignificant compared with the enormous disparity between the two plans. EPA's - "Capping Alternative" = Contain & Cover.

The community's chosen remedy = Removal.

Considering the most expensive alternative in the Feasibility Study, rings in at $126 million, the plan chosen by the Town of Norton is a compromise, already meeting EPA & the PRP Group halfway. It is also not an unreasonable sum of money to expect for this project.

Along the way, we were reminded that the contract between the PRPs & EPA was for the investigative phase only, no design or construction of remedial measures, and that negotiations for the actual cleanup could take 1-2 years. Norton officials & citizens accepted this, expecting that the Environmental Protection Agency's "high standards" would require an extensive cleanup, at a fairly high cost to the responsible parties. Given the EPA's preferred alternative - actually the least expensive, easiest and quickest action, that could be reasonably considered, the PRP Group should jump at it. Nowhere in the EPA's list of criteria for approval of their cleanup plan, is - 'PRP Satisfaction'.

But it does appear that The Environmental Protection Agency is making PRP Satisfaction a top priority, and placing the Town of Norton in the totally unexpected and extremely difficult position of having to be the ones negotiating with the EPA, now at the eleventh hour.

The time frames, and impacts on the community, between the two alternatives being considered for the EPA/PRP construction phase of the cleanup, are not that different. "Both are easily implementable." "The personnel, equipment and materials required to implement each of these technologies are readily available". Impacts to air quality and to local roads can be managed by good construction practices and working with the community.

On this issue, we do request that EPA consult with Town Officials: the Board of Selectmen, Board of Health, Norton Police Department and Norton Fire & Rescue, with regard to truck routes and times of transport.

EPA's preferred alternative, which requires long-term monitoring of the still contaminated capped parcel - by the PRP Group, is unacceptable, and could result in a permanent financial and regulatory burden for the Town of Norton. While the town is given assurances that the PRP companies, entering into the consent agreement with EPA, are financially stable at that time, there is no guarantee that will still be the case "long-term".

Should those parties disappear from the corporate universe, or simply bail out on Shpack, the Town of Norton (with the longest standing on the PRP list - as owners of the property) could be left holding the bag. The other scenario, we are told could occur, is for the State to be left with the responsibility of Operation & Maintenance of the site.

It is irresponsible for the Environmental Protection Agency to maintain the Shpack Site can be secured with fencing. Even though it has been on the EPA's National Priority List of Superfund sites since 1986, the Consent Order was signed with the PRPs in 1990, and extensive investigative work was done on site by ERM (under contract with the PRP Group) in 1993, neither EPA nor the PRPs were monitoring the site for security, even though they knew the dangers posed to anyone who entered the property unprotected.

The old fence (put up in the 1980s) was busted through, the small green "No Trespassing" sign was falling down (and hardly threatening even in its better days), a small person could slip through the chain-connected gate, and the property could be entered from the ALI side. The Environmental protection Agency is fully aware of the unsafe, unsecured state the Shpack Superfund Site was left in, for a period of at least ten year - while supposedly on EPA's watch.

Beer cans, shot gun casings etc. provided evidence of trespassers onto the contaminated land, likely others curious about an old dump site ventured there as well, individuals who had no idea what lay beneath them.

Under the EPA's plan, the Human Health Risk was calculated based on the adjacent resident entering the property, and trespassers. The impacts on human health are dependent on many variables, including age of the person, which is impossible to determine with "trespassers", or even adjacent resident, as that person, or persons will undoubtedly change.

The 5-acre parcel of land, on which the Shpack residence sits, not including the house was valued at $86,700 in the year 2000 (in spite of its location). Even if the house falls down, a family could build a new home there - not inconceivable down the road, particularly with town water being supplied under EPA's plan, and land at a premium in Norton.

The extension of the town water main to the end of Union Road, (Attleboro Line), also raises concerns over increased development in the residentially zoned area near the site, which will expose more residents to EPA's "accepted minimum risks" at Shpack. It will likely also bring an increased number of trespassers & vandals, thereby increasing exposures, as well as maintenance and policing costs. The burden of monitoring & ensuring security at the site will fall on the town. Additionally, and significantly - the Norton Fire Department could be called upon, should an emergency (fire, explosion, personal injury etc.) occur on the site.

Capped sites do present additional problems: with the buildup of gases beneath the liner, venting of gases - which creates air pollution & odors, maintaining the security and efficient operation of the systems, the noise associated with operations, as well as the threat of an explosion or fire.

The residents of this area have already endured the hardships & health hazards associated with the capping of ALI (Attleboro Landfill Inc.), which abuts the Shpack Site.

There is legitimate concern that flooding (particularly at this location, adjacent to Chartley Pond), erosion or other natural occurrences, as well as man made factors, will cause deterioration of the cap. Even if we could trust some entity, outside the town, to guarantee effective monitoring, operation & management of the site for 30 years, what happens after that? Will Norton still be stuck with a mess that needs to be cleaned up, at some unbearable cost to the town?

We did not invite or encourage this blight on our community. It is not our responsibility to clean up a mess we had no part in making. But it is our problem (a problem many of us feel has had serious consequences, and will continue to have - if not dealt with properly).

In response to the rationalization that "typically" all landfills are capped - The Shpack Site, if it is anything - It is not typical. In fact, although residential & industrial waste was disposed of there (in order to fill a wetland), the Shpack Superfund Site does not technically fit in the category of municipal landfills, and the standards and regulations applied to those licensed facilities (like the neighboring ALI), should not be assumed the rule for Shpack, which was in fact a privately owned & operated illegal dump.

Once the Shpack Site is properly cleaned up, we do expect a "cap" - that being a cover of clean soil and grass, to return the land to as near a natural state, as possible.

EPA's scheduling of this critical part of the decision making process (the presentation of their cleanup plan, the public comment period and the public hearing) - from the end of June through August, is unfortunate. It was evident at die public meeting held June 23, 2004 in Norton (two days after school recessed), that attendance and interest had diminished. This can be partially attributed to formerly interested parties - being sick & tired of all things Shpack, or bored (after four years and thirteen public meetings - rehashing the same old stuff). The decline in attendance for the end of June meeting can also be attributed to summer vacations and other pleasant distractions, which occupy much of the public's time.

The Environmental Protection Agency's announcement of their proposed plan - June 23, 2004, and the timing of the comment period & public hearing, is such that - (intentionally, or not), the EPA & PRP Group can feel fairly confident that the number of commenters will be significantly lower, than at any other time of the year.

In Conclusion: The US Environmental Protection Agency's Proposed Plan For The Cleanup of the Shpack Superfund Site, 2004, their "Preferred Alternative SC-2b" (The Capping Alternative) - Is Unacceptable To The Town Of Norton Because:

It does not adequately address the community's planned reuse of the site. It appears (contrary to the Environmental Protection Agency's own stated policy), this was not a consideration by EPA in the selection of their response action.

EPA's preferred alternative is not as effective in the long or the short term, as Norton's preferred alternative.

EPA's proposed plan does not provide a permanent solution.

The contaminants left on site pose an unacceptable level of residual risk.

EPA's preferred alternative leaves the Town of Norton with a still contaminated site.

The Town should not have to tolerate the stigma attached to a toxic waste Superfund Site any longer.

The EPA's proposed plan places an unfair burden on Norton's Police & Fire Departments.

It could also result in a permanent financial & regulatory burden on the Town.

The Norton Board of Health cannot support the EPA's preferred alternative, and strongly recommends implementation of cleanup alternative SC-3b (Ref. Letter July 8, 2004)

The Norton Board of Selectmen voted to support EPA's alternative SC-3b (July 14, 2004 meeting).

The EPA's Proposed Plan is not considered to be a "Remedy".

It is our position that Norton's Preferred Alternative, SC-3b is a fair compromise, at a realistic cost to EPA & the PRP Group. This alternative is easily implementable, with an acceptable time frame, to provide a reasonable and permanent solution - to the decades old problem of the Shpack Superfund Site.

Finally, we hope the US Environmental Protection Agency is sincere when it says "**YOUR OPINION COUNTS**!" "If you have comments regarding EPA's proposed cleanup plan for the site, we want to hear from you before making a final decision."

Heather A. Graf

Heather A. Graf

Paul Farrington, PE. Chairman
Frederick J. Watson, RS Clerk
Robert Curry, Health Agent
Gary Covino, Health Agent
Phone: (508) 285-0263
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Norma Napoleone, RN, C
Public Health Nurse

TOWN OF NORTON

Commonwealth of Massachusetts

Board of Health

70 East Main Street Norton, MA 02766

July 8, 2004

Dave Lederer
U.S. EPA
1 Congress St, Suite 1100 (HBO)
Boston MA 02114

Re: Comments
Proposed Cleanup Plan
Shpack Landfill Superfund Site

Dear Sir,

The Town of Norton Board of Health appreciates this opportunity to comment of the Proposed Cleanup Plan for the Shpack Landfill Superfund Site

We cannot support any remediation alternative, which does not provide and overall protection of human health and the environment. We are in general agreement, following the Public Information Meeting, that the two alternatives deserving further consideration are SC-2 and SC-3 m their variations that provide protection to the Adjacent Resident without Groundwater Consumption. That is SC-2B, the EPA s preferred alternative and SC-3B.

Both of these alternatives include installation of a waterline to two residences adjacent to the Superfund Site. Recent history has shown that installation of a waterline in an area where development could occur has invited residential development. The Board will not allow residential potable water wells in the area of the Superfund Site. However, we cannot deny, nor can the Water Department, connection to a water main installed adjacent to a property. It has been noted that much of the open land along the waterline routes is conservation land. But, we believe any developable land will be developed following the waterline installation. We doubt that a restriction on connections would be enforceable and we have to agree with the Water Department policy of sizing pipe installations for fire protection and future looping. So, any waterline installed will have capacity for development

We are concerned with the differences between the two alternatives in permanence of the solution and effectiveness in protecting the recreational or occasional user of the site. The least protective of the two alternatives, SC-2B, consolidates waste is a new landfill area, seals if off from normal activities and provides of monitoring and maintaining the new landfill. The Board presently maintains and monitors a closed landfill It has been subject to trespass, vandalism and damage from natural causes. There is an ongoing concern that, at some time in the future, the Board will be required to meet some new regulation, deal with some previously undetected contaminant, or spend an inordinate sum dealing with bad laboratory data. These same ongoing maintenance costs and concerns would apply to a new landfill on the Shpack Superfund Site.

While EPA can argue that the cost of all future maintenance and monitoring of the Shpack Superfund Site will the responsibility of the PRPs, we are concerned that the Town of Norton is a PRP. The Town is the PRP with the longest history and will be around after all the other PRPs disappear from the corporate universe. The Town cannot be sold off to another company and disperse its liability. Most importantly, should the Town be left holding the proverbial bag as the last PRP somewhere in the distant future or even as one or several PRPs at some point in time, the Commonwealth and Federal governments have control of funding to the Town that could be used to coerce simple maintenance requirement or compliance for with some future regulatory requirement.

The lack of permanence in the EPA's preferred alternative will result in a permanent financial and regulatory burden for the Town of Norton.

The Town of Norton Board of Health is concerned that the EPA's preferred alternative SC-2B is not as effective as the other alternative, SC-3B, in the long term or short term. While it could be argued that the new landfill on the Superfund Site in alternative SC-2B will result in better protection from the consolidated wastes and less risk than the existing condition, the alternative will bring more people to the area of the site as development occurs along the water line. More residents living closer to the site will increase the "recreational" use site and number of residents exposed to the EPA accepted minimal risks.

The increased development will also increase the number of potential trespassers and vandals entering what is supposed to be a secured landfill area thereby increasing exposures as well as maintenance costs. This is not a result that would be peculiar to Norton and we would expect that you have seen similar results in other locations where landfills have been consolidated in residential areas.

The Norton Board of Health cannot support the EPA's preferred alternative and strongly recommends implementation of cleanup alternative SC-3B - installation a water line and removal of all radiological and chemically contaminated materials that pose and unacceptable risk.

The Norton Board of Health understands that there are potential impacts to the community from the implementation of the preferred cleanup plan and possibly more significant impacts from the alternative we recommend. The impacts to air quality and to local roads by truck traffic can be managed by good construction practices and working with the community.

The air quality of the areas surrounding the Shpack Landfill Superfund Site will not be derogated by any cleanup activities on the site. Standard construction activities and strict monitoring can be specified and implemented to assure this. The Board of Health may require that monitoring reports be provided to the Board and may require specific monitoring during cleanup operations.

Spillage from trucks leaving the site will not be acceptable and the roads in the area of the Shpack Landfill Superfund Site are generally not in a condition to support long term truck operations. Again, standard construction activities and strict monitoring can be specified and implemented to assure that materials are not carried off the site onto local roads and that transported materials are not released from trucks. The Board recommends that rail transport using the nearby rail lines be considered and implemented if at all possible.

Activities at the Shpack Landfill Superfund Site and the adjacent Attleboro Landfill will require removal of materials and the import of cover materials. The Board recommends that rail transport using the nearby rail lines be considered and implemented if at all possible. If rail transport cannot be implemented and the existing road network must be used, the Board recommends that all parties involve, PRP, Corps of Engineers, Attleboro Landfill Inc , Mass DEP, EPA work to improve specific roadways to a standard that will support the level of traffic needed. The Board will work with local public safety officials the other Town boards to reduce the impacts of truck traffic on the Town of Norton and its residents during construction work at the Shpack Superfund Site.

Respectfully submitted

Town of Norton Board of Health

Frederick J. Watson, R. S.
Clerk

CC: Town Manager
Board of Selectmen
CAST
Congressman - Barney Frank

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

July 30, 2004

David O. Lederer
Remedial Project Manager
USEPA, Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

RE: Shpack Landfill Superfund Site Remediation
Norton & Attleboro
NHESP File No. 03-11882

Dear David:

Thank you for providing the Natural Heritage & Endangered Species Program (NHESP) of the MA Division of Fisheries and Wildlife with the Draft Final Phase 1B Remedial Investigation Report for the Shpack Landfill Superfund Site (dated 6/17/04). The NHESP would like to offer the following comments.

As indicated in the Shpack Landfill Habitat Assessment, the remediation site provides actual habitat for the SpottedTurtle (*Clemmys guttata*), a state-protected rare species. In addition, the Marbled Salamander (*Ambystoma opacum*) has been documented to occur in the vicinity of the proposed project site, and the site contains potential habitat for this species. The Habitat Assessment also documents the presence of four vernal pools on the site. Vernal pools provide important habitat for the Spotted Turtle and Marbled Salamander, and amphibians occurring within vernal pools are a significant food source for the Spotted Turtle.

We request that any proposed remediation be designed to minimize impacts to the above-listed rare species and their habitats, including vernal pools. In addition, a plan should be developed to restore rare species habitats once the remediation is complete. The impact minimization and habitat restoration plan should be submitted to the NHESP for review and approval prior to start of work. Finally, if they haven't done so already, we also request that Environmental Resources Management submit Rare Animal Observation Forms and Vernal Pool Certification Forms to the NHESP, in order to document their observations reported in the Habitat Assessment.

If you have any questions about this letter, please call Jon Regosin, Ph.D. at (508) 792-7270, ext. 316.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

cc: David Buckley, DEP
Norton Conservation Commission
Attleboro Conservation Commisssion

TOWN OF NORTON

BOARD OF SELECTMEN

70 EAST MAIN STREET

MUNICIPAL CENTER, NORTON, MASS. 02766

TELEPHONE (508) 285-0210

POSITION PAPER FOR THE TOWN OF NORTON

Comments on the U.S. Environmental Protection Agency's
Proposed Plan For Cleanup Of The Shpack Landfill Superfund Site, June 2004

On behalf of its 18,000 residents, the Town of Norton Board of Selectmen hereby submits its response to the EPA's *Proposed Plan For Cleanup Of The Shpack Landfill Superfund Site*, as presented at the June 23, 2004, public meeting.

The position of the Board and the citizens of the Town is clear. We are united and steadfast in our opposition to EPA's Preferred Alternative – SC-2b, which does not meet the needs of the community now or in the future. We are united and steadfast in our declaration that Alternative SC-3b is the only acceptable alternative for the Town of Norton.

OWNERSHIP/LAND USE

The Shpack property is owned by the Town of Norton, through its Conservation Commission, "for administration, control and maintenance as provided for in Section 8C of Chapter 40 of the Massachusetts General Laws" (see deed signed June 1, 1981, transfer of property from Lea Shpack). As such, the land is designated as Open Space.

The Ad Hoc Shpack Committee, appointed by the Board of Selectmen to work with the Army Corps of Engineers on reuse scenarios for the Shpack Site (July 2002 – January 2003), selected the reuse option of Passive Recreation, with the Army Corps' approval. Those decisions are consistent with the Norton Conservation Commission's statutory charge and underpin the Town's Alternative SC-3b position. The Environmental Protection Agency's Directive *Land Use in the CERCLA (Superfund) Remedy Selection Process* (5/25/95) states:

> "The EPA believes that early community involvement, with a particular focus on the community's future uses of property should result in a more democratic decision-making process; greater community support for remedies selected as a result of this process; and more expedited, cost-effective cleanups."

Further, the Environmental Protection Agency's *Reuse Assessment Guide* states:

> "The scope and level of detail of the reuse assessment should be site-specific and tailored to the complexity of the site, the extent of contamination ... and the density of development in the vicinity of the site."
>
> "The Superfund land use Directive states that in cases where the future land use is relatively certain, the remedial action objective(s) generally should reflect this land use."
>
> "EPA is responsible for ensuring that reasonable assumptions regarding land use are considered in the selection of a response action."

EPA's current plan, which includes fencing off and securing the site, institutional controls and monitoring, with human health risk potential considered only for an adjacent resident and trespassers, clearly ignores the Town's intended reuse of the site, that being Passive Recreation within the Norton Conservation Commission's Open Space Plan.

CLEAN UP

- Since December, 1999, when representatives from EPA and the U.S. Army Corps of Engineers came to Norton to discuss renewed investigations at the site, and at 13 public meetings from February, 2000, to November, 2003, EPA gave the same presentation. The Army Corps of Engineers would first excavate and dispose of off-site all the radiological waste, including uranium and radium, then the EPA, working with the "Possible Responsible Party" (PRP) Group, under Superfund, would clean up the remaining chemical and heavy metal contaminants.

We understood "clean up" to mean excavation and off-site disposal of all contaminated materials from the site that pose an unacceptable risk, not just the radiological waste, some dioxin and PCB contaminated soil.

The EPA's preferred alternative does not accomplish this.

After the Army Corps has removed the radiological waste, the EPA's plan is to excavate only soil and sediment that is close to the surface in a certain wetland area, even though the waste extends to 15 feet below the water table in some wetland portions of the site, to consolidate this waste, and leave it in an upland area on site. Outside of the wetland area, EPA plans to remove only the soil that is contaminated with dioxin or PCBs for off-site disposal. The majority of the chemical and heavy metal contaminated soil (the responsibility of the EPA and PRP Group), and the aforementioned wetlands excavation would be transferred to an on-site location and be capped.

The only alternative acceptable to the Town of Norton, SC-3b would:

> "Remove all radiological and chemically contaminated materials from the site that pose an unacceptable risk. As a result, alternative SC-3 provides the greatest degree of overall protection."
>
> "Both chemical and radiological source materials exceeding cleanup levels would be permanently removed from the site, thereby ensuring that this remedy remains effective in the long term."
>
> "SC-3 would greatly reduce the toxicity of the material that remains at the site to acceptable levels. Because all soil and sediment above cleanup levels will be removed from the property, both the volume and mobility of contamination is greatly eliminated."

EPA maintains that Norton's Preferred Alternative provides only "slightly greater protection at a significantly greater cost". We counter that the opposite is true. The difference in cost is insignificant compared with the enormous disparity between the two plans. EPA's strategy is to contain and cover; the community's chosen remedy is removal.

EPA's Preferred Alternative cost is approximately $29 million. The most expensive alternative considered under their Feasibility Study exceeds $126 million. At $55 million, the plan chosen by the Town of Norton is a compromise, already meeting EPA and the PRP Group halfway. It is not an unreasonable demand given the true magnitude of this problem.

The time frames and impacts on the community, between the two alternatives being considered for the EPA/PRP construction phase of the clean up, are not that different. "Both are easily implementable." "The personnel, equipment, and materials required to implement each of these technologies are readily available." Impacts to air quality and to local roads can be managed by good construction practices and working with the community.

POST CLEAN UP

EPA's Preferred Alternative, which requires long-term monitoring of the still contaminated, capped parcel by the PRP Group, is unacceptable and could result in a permanent financial and regulatory burden for the Town of Norton. While the Town is given assurances that the PRP companies entering into the Consent Agreement are now financially stable, there is no guarantee that will hold true in the future.

Should those parties disappear from the corporate universe or simply bail out on Shpack, the Town of Norton, with the longest standing on the PRP list as owner of the property, could be left holding the bag. It is also possible that the State would be left with the responsibility of operation and maintenance of the site.

It is naïve for the Environmental Protection Agency to believe that the Shpack Site can be secured with fencing. Over the last decade, neither EPA nor the PRPs have monitored the site for security, even though they knew the dangers posed to anyone who entered the property unprotected. Fences are broken, "no trespassing" signs are faded or have fallen, and beer cans, shot gun casings, etc., provide evidence of trespassers onto the contaminated land, likely others curious about an old dump site ventured there as well, individuals who had no idea what lay beneath them.

Under the EPA's plan, the Human Health Risk was calculated based on the adjacent resident entering the property and trespassers. The impacts on human health are dependent on many variables, including age of the person, which is impossible to determine with trespassers or the adjacent resident, as that person, or persons, will undoubtedly change.

The extension of Norton's water main to the end of Union Road at the Attleboro city line raises concerns over new development in the residentially zoned area near the site, which will expose more residents to EPA's "accepted minimum risks" at Shpack. Redevelopment of the 5-acre parcel of land on which the Shpack residence is situated is also likely.

In response to the rationalization that "typically" all landfills are capped, the Shpack site, if it is anything, is not typical. In fact, although residential and industrial waste were disposed of there in order to fill a wetland, the Shpack Superfund Site does not technically fit in the category of municipal landfills, and the standards and regulations applied to those licensed facilities (like the neighboring Attleboro Landfill, Inc.) should not be assumed the rule for Shpack, which was in fact a privately owned and operated illegal dump.

Once the Shpack Site is properly cleaned up, we do expect a cap, that being a cover of clean soil and grass, to return the land to as near a natural state as possible.

PROCESS

EPA's scheduling of this critical part of the process (the presentation of its clean up plan, the public comment period, and the public hearing) from the end of June through August is unfortunate. Attendance at the public meeting of June 23, 2004, in Norton was very low compared to past meetings. The low turnout can be attributed to summertime vacations and other pleasant distractions which preoccupy much of the public. However, neither the EPA nor the PRP Group should underestimate Norton's resolve: We will exhaust all regulatory, political, and legal means possible to effect the SC-3b solution.

CONCLUSIONS

The U.S. Environmental Protection Agency's Proposed Plan For The Cleanup of the Shpack Superfund Site, 2004, its Preferred Alternative SC-2b (The Capping Alternative) is unacceptable to the Town of Norton because:

It does not adequately address the community's planned reuse of the site, now or in the future. It appears in fact that, contrary to the Agency's own stated policy, this was not a consideration in the selection of its response action.

EPA's Preferred Alternative is not as effective, in the long term or the short term, as Norton's Preferred Alternative.

EPA's proposed plan does not provide a permanent solution to our environmental concerns.

EPA's Preferred Alternative leaves the Town of Norton with a still contaminated site and a consequentially unacceptable level of residual risk.

The Town should not have to tolerate the stigma attached to a toxic waste Superfund Site any longer.

SC-2b results in a permanent financial and regulatory burden on the Town.

The EPA's Proposed Plan is not considered to be a "Remedy".

It is the Board of Selectmen's position that Norton's Preferred Alternative SC-3b is a fair compromise, at a realistic cost to EPA and the PRP Group, with an acceptable time frame that provides a reasonable solution to the decades-old problem of the Shpack Superfund Site.

Respectfully submitted,

NORTON BOARD OF SELECTMEN

Robert W Kimball Jr

Robert W. Kimball, Jr., Chairman

mtb

BARNEY FRANK
4TH DISTRICT, MASSACHUSETTS

2252 RAYBURN HOUSE OFFICE BUILDING
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(202) 225-5931

29 CRAFTS STREET
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Congress of the United States
House of Representatives
Washington, DC

558 PLEASANT STREET
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NEW BEDFORD, MA 02740
(508) 999-6462

THE JONES BUILDING
29 BROADWAY
SUITE 310
TAUNTON, MA 02780
(508) 822-4796

August 4, 2004

Robert W. Varney, Regional Administrator
Environmental Protection Agency
One Congress Street
Boston, MA 02114

Dear Mr. Varney:

I would like to submit the following comments conveying my strong support for the town of Norton and its preferred cleanup alternative known as SC-3B for the collection and removal of both chemical and radiological contaminants at the Shpack Superfund Site. As you are aware, the Shpack landfill has the distinction of being both a Superfund Site under the cleanup authority of the Environmental Protection Agency (EPA) and a Formerly Utilized Site Remedial Action Program (FUSRAP) site under the cleanup authority of the Army Corps of Engineers (ACOE). The final decision on a cleanup alternative has caused an understandable amount of worry for the citizens of Norton. They are not only concerned about the actual cleanup of Shpack, but the long term public safety and reuse potential of a fifty year old dump site that has soil contaminated with radiological, chemical and heavy metal wastes.

The legislation authorizing the radiological cleanup of Shpack through FUSRAP was originated by Congressman McGovern and me to ensure that a responsible and permanent remediation of harmful radioactive waste would occur. This authorizing legislation was passed by Congress in 2002 and the federal government, through the ACOE, is now responsible for a significant amount of the final clean up cost outlined in the EPA's proposed plan.

The ACOE recently agreed to work under the EPA's Record of Decision and is scheduled to commence work on the collection and removal of more than 13,000 cubic yards of radiological waste as early as 2005. The town of Norton has asked that the EPA oversee the removal of collected chemical waste to a level that would provide a true passive recreational use. However, the EPA's preferred alternative for cleanup, or SC-2B, provides only a limited removal of chemical material and would cap most contaminants on site. The subsequent fencing, monitoring, and trespass restrictions resulting from such an option would require a level of perpetual oversight that is both impractical and difficult, if not impossible, to enforce over a long period of time. Town officials have raised legitimate concerns that they might ultimately be responsible for this type of management.

Obviously, the EPA has given significant consideration to the cost of each cleanup option in choosing a preferred alternative. The agency's preferred option is one of the least expensive. The town's request is not only the safest solution, but a financially sensible one that is comparatively reasonable when one looks at the variety and level of contamination on site. It is also far less expensive than other costly alternatives that were considered.

For more than four years, I have hosted and/or participated in many meetings with the EPA, ACOE, state officials, and local officials at various times to facilitate the lengthy process that has brought us to where we are today, i.e., making final decisions on cleanup proposals for use in a Record of Decision. The town, which has a voice in a final removal determination through the EPA's Community Acceptance component, should be protected through the best option under Superfund. No one person or agency can say with absolute certainty that with the passage of time the integrity of capped materials would not become compromised through a variety of potential degradations, natural or man made.

Again, the government is making a significant financial commitment to the FUSRAP portion of this project under a cleanup that involves the removal of collected radiological material. Also, the ACOE plans on removing more material than those options being considered by the EPA which should further reduce the costs associated with the chemical cleanup as commingled contaminants, chemical and radiological, are not only collected, but removed by the ACOE.

The citizens of Norton have every right to expect the EPA will oversee the collection and removal of the chemical and heavy metal wastes at the Shpack site with the cost shared among those companies already identified with the responsibility of its cleanup. Therefore, I urge EPA's approval of SC-3B to provide a comprehensive cleanup and removal of both chemical and radiological contaminants and afford the greatest level of protection possible to the people and their surrounding environment.

Sincerely,

BARNEY FRANK
Member of Congress

The Commonwealth of Massachusetts
HOUSE OF REPRESENTATIVES
STATE HOUSE, BOSTON 02133-1054

MICHAEL J. COPPOLA
FIRST BRISTOL DISTRICT
P.O. BOX 346
FOXBOROUGH MA 02035
(508) 543-3138

STATE HOUSE, ROOM 542
(617) 722-2488
Rep.MichaelCoppola@hou.state.ma.us

Committees:
Energy
Taxation
Housing and Urban Development
Public Safety

LEGISLATIVE AIDE
LAUREN BARNES

July 30, 2004

Mr. David Lederer
U.S. Environmental Protection Agency
One Congress Street, Suite 1100 (HBO)
Boston, MA 02114

RE: Shpack Landfill Superfund Site, Norton, MA

Dear Mr. Lederer:

We write in response to the U.S. Environmental Protection Agency's (EPA) proposal to clean up the contamination of the Shpack Landfill Superfund site in the Town of Norton.

After reading information about the various cleanup alternatives, as well as attending public meetings on this issue, we strongly oppose the EPA's proposal known as option SC-2B, at an estimated cost of $30 million. We believe option SC-3B is a better, more permanent solution to rid the landfill, and the surrounding residential area, of hazardous pollutants, at an estimated cost of $55 million.

To spend $30 million on a partial clean-up (option SC-2B) is money poorly spent and requires long-term monitoring and a perpetual restriction on access. However, option SC-3B is a complete clean-up of contaminants and a total and permanent restoration of the former landfill, requiring minimal monitoring and no access restrictions.

The wishes of the Town of Norton for the future use of the property - passive recreation - have been totally ignored. An additional issue of great concern is the possibility, at some time in the future, that the Town of Norton and the Commonwealth of Massachusetts could be held responsible for the operation, monitoring and maintenance of the site. The possibility of these costs, at some point in the future, would far surpass the SC-3B option.

Our position, as legislators for the Town of Norton, is clear. We stand united with the Citizens Advisory Shpack Team in our opposition to the EPA's "Preferred Alternative SC-2B.

We truly hope you will take the concerns of the town and its residents into consideration and choose option SC-3B as the preferred clean-up plan for the Shpack Landfill Superfund site.

Thank you for your attention to this important matter.

Very truly yours,

Michael Coppola

MICHAEL COPPOLA
State Representative

Elizabeth A. Poirier

ELIZABETH A. POIRIER
State Representative

Philip Travis

PHILIP TRAVIS
State Representative

Mr. Dave Lederer
U.S.E.P.A.
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114

Re: Shpack Landfill Superfund Site – Formal Comment on the proposed RI/FS

Dear Mr. Lederer,

As a concerned citizen of Attleboro, MA, I am writing to **support EPA's proposed plan** to remediate the Shpack Landfill Superfund site using the EPA proposed clean up scenario (SC-2B). I believe this provides the necessary protection for the environment, the town and the citizens who live there. In fact I believe the risk of a total material removal (option SC-3B, C or D) would in fact result in a higher risk to town citizens because of the required additional excavation activities and material transport issue through the town.

Thank you for allowing me the opportunity to provide you with formal comments regarding the Shpack Landfill RI/FS proposal.

Sincerely,

Lisa M Tommasello
850 West St
Attleboro MA

Superfund Records Center
SITE: SHPACK
BREAK: 4.2
OTHER:

Mr. Dave Lederer
U.S.E.P.A.
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114

Re: Shpack Landfill Superfund Site – Formal Comment on the proposed RI/FS

Dear Mr. Lederer,

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Thank you for allowing me the opportunity to provide you with formal comments regarding the Shpack Landfill RI/FS proposal.

Sincerely,

Mark Burla

12 CRESTWOOD DR.
NORTON, MA.

Leanne & Stevens Cobb
166 Plain Street
Norton, MA 02766

MR. Dave Lederer
U.S.E.P.A.
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114

Re: Shpack Landfill Superfund Site – Formal Comment on the proposed RI/FS

Dear Mr. Lederer,

"Think globally, act locally". Important words to environmentally concerned organizations. As a concerned citizen of Norton, MA, I too live by these words but I use them in a much different context than most other "environmentalists" would. I am writing in **SUPPORT of EPA's proposed plan** to remediate the Shpack Landfill Superfund site using the proposed SC-2B clean up scenario.

I interpret this saying **"think globally, act locally"** to mean that: global environmental problems must be addressed, and to accomplish that goal, they should be addressed by whatever means are available at a local level. In the case of the Shpack landfill, removing the radioactive waste and constructing a suitable "engineered landfill cap" with long term monitoring provisions, meets that need.

It would appear to me that exposure (therefore risk) is at it's lowest by leaving the material where it is! If it is excavated as proposed by alternative SC-3A, B, C and D there is a possibility for exposure during excavation activities. It then must be transported through our town (more exposure possibilities), and transported hundreds (maybe even thousands) of additional miles, with many opportunities for exposing more citizens of the country during that activity. Finally, the material would be placed in another landfill (exposing workers and potentially any community surrounding that landfill) and covered with an "engineered landfill cap". The additional opportunities for exposure do not make sense AND the material will be protected exactly the same (and therefore apparently result in the same risk) at this proposed, remote, final disposal location, as it would be if it were left in the ground at the Shpack landfill. Again, **"think globally, act locally"**.

The companies that PAID to have that waste disposed of at Shpack in a completely lawful manner 30 to 40 years ago, did nothing wrong. The town benefited by having a local, low cost landfill for disposal of its trash. And in its early life, the landfill was actually on the tax rolls of the town as a privately owned landfill, which benefited the town. Times change. Science now tells us this is not the optimum way to dispose of these types of waste. The total material removal scenario (SC –3A, B, C and D), I suspect, would encounter opposition at the remote landfill site from a local 'Concerned Citizens' group near that landfill, BUT that group has no voice in the Shpack clean up process. They will be concerned about their increased risk from this new waste being brought to their Town by the removal and again does nothing to support the **"think globally, act locally"** philosophy. The other proposed alternatives do nothing to support this philosophy, either.

Thank you for allowing me the opportunity to provide you with formal comments regarding the Shpack Landfill RI/FS proposal.

Sincerely,

Leanne E.S. Cobb

Stevens L. Cobb

TEKNOR APEX COMPANY

July 7, 2004

Mr. Dave Lederer
U.S.E.P.A.
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114 - 2023

Re: Shpack Landfill Superfund Site – Formal Comment on the proposed RI/FS

Dear Mr. Lederer,

As a recipient of a "Potentially Interested Party" letter regarding the Shpack Landfill clean up proposals, Teknor Apex would like to respond to the recently published RI/FS. Teknor Apex Company is writing in **support of EPA's proposed plan** to remediate the Shpack Landfill using proposed clean up scenario (SC-2B). This proposal reduces risk to acceptable levels for all reasonable foreseeable uses. Additionally, given the fact that the proposal to cap the former landfill site is in agreement with past EPA decisions regarding landfill clean ups, continuing that methodology makes sense from all points of view.

Thank you for the opportunity to provide you with formal comments regarding the Shpack Landfill RI/FS proposal.

Sincerely,

David F. Yopak

David F. Yopak
Director of Regulatory Affairs

cc: file

505 CENTRAL AVENUE • PAWTUCKET, RHODE ISLAND 02861-1900
TELEPHONE: (401) 725-8000 • FAX: (401) 725-8095 • www.teknorapex.com

Mr. Dave Lederer
U.S.E.P.A.
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114

Re: Shpack Landfill Superfund Site – Formal Comment on the proposed RI/FS

Dear Mr. Lederer,

As a concerned citizen of Attleboro, MA, I am writing to **support EPA's proposed plan** to remediate the Shpack Landfill Superfund site using the EPA proposed clean up scenario (SC-2B). I believe this provides the necessary protection for the environment, the town and the citizens who live there. In fact I believe the risk of a total material removal (option SC-3B, C or D) would in fact result in a higher risk to town citizens because of the required additional excavation activities and material transport issue through the town.

Thank you for allowing me the opportunity to provide you with formal comments regarding the Shpack Landfill RI/FS proposal.

Sincerely,

Donald S. [signature]
29 Mitchell Terrace
Attleboro, MA 02703

Mr. Dave Lederer
U.S.E.P.A.
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114

Re: Shpack Landfill Superfund Site – Formal Comment on the proposed RI/FS

Dear Mr. Lederer,

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Thank you for allowing me the opportunity to provide you with formal comments regarding the Shpack Landfill RI/FS proposal.

Sincerely,

Joseph Surette
7 Kimberly Court
Attleboro, Ma 02703

michart@onebox.com
08/10/2004 09:41 PM

To: Dave Lederer/R1/USEPA/US@EPA
cc:
cc:
Subject: Shpack Comments

I live at 13 Shelly Road in Norton and would like to offer my comments about the Shpack cleanup.

How are area residents protected if you remove the contaminated soils? For example, in the removal process, how are procedures in place so that disturbed particles of soil do not get distributed in our area while in transit?

Is the water supply beyond the site affected now, and will it be affected during the cleanup? How can we feel confident as patrons of the businesses around the site, ie. the Chartley Store, the Creamery, the Rainbow Kids Day Care? I have to admit that I am hesitant to shop at those businesses and decided not to put my daughter into the Rainbow Day Care because I was concerned about their water.

I support 23B because of the statement that it is the "most effective".

Michelle

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

August 2004

I am writing to express my firm opposition to the EPA's proposed plan for the 'cleanup' of the Shpack Superfund Site.

EPA's preferred alternative (SC-2b) is unacceptable for reasons too numerous to detail here. Most objectionable is the fact this option does not provide "permanence" and is therefore not a "remedy". It would leave the Town of Norton with a still contaminated site. and the responsibility & burdens of dealing with it, in the near and distant future.

In the face of the promise the Environmental Protection Agency made to the town, EPA's chosen course of action, is reprehensible.

If community acceptance, plays any role in the EPA's decision making process for the cleanup of Shpack, please give serious consideration to these comments, and select Alternative SC-3b, which will at long last, give residents of this community the peace of mind they deserve.

Signature Rosemarie Hoyle

Print Name ROSEMARIE HOYLE

Address 47 PINE ST
NORTON, MA. 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
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Signature Wayne a. Graf

Print Name WAYNE A. GRAF

Address 229 N. WORCESTER ST.
NORTON, MA 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
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Signature Steven J Arcanti

Print Name STEVEN J. ARCANTI

Address 12 BOWDITCH RD
BOSTON MA 02130

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
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Signature James A Harrod

Print Name James A. Harrod

Address 10 Blueberry Lane
Sharon, MA 02067

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

August 2004

I am writing to express my firm opposition to the EPA's proposed plan for the 'cleanup' of the Shpack Superfund Site.
EPA's preferred alternative (SC-2b) is unacceptable for reasons too numerous to detail here. Most objectionable is the fact this option does not provide "permanence" and is therefore not a "remedy". It would leave the Town of Norton with a still contaminated site, and the responsibility & burdens of dealing with it, in the near and distant future.
In the face of the promise the Environmental Protection Agency made to the town, EPA's chosen course of action, is reprehensible.
If community acceptance, plays any role in the EPA's decision making process for the cleanup of Shpack, please give serious consideration to these comments, and select Alternative SC-3b, which will at long last, give residents of this community the peace of mind they deserve.

Signature Kathleen Rodrigues

Print Name Kathleen A. Rodrigues

Address 67 Hummingbird Ln
Swansea, Ma 02777

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of
The Shpack Superfund Site, Norton/Attleboro, MA

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Signature

Print Name JOHN M. RODRIGUES

Address 67 HUMMINGBIRD LN
SWANSEA MA 02777

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The Shpack Superfund Site, Norton/Attleboro, MA

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Signature [signature] & Judith A. Raffety

Print Name Donald G. & Judith A. Raffety

Address PO Box 224

Block Island, RI 02807

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of
The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
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Signature Anne Rodrigues

Print Name ANNE RODRIGUES

Address 10 Tippins Place
Norton Ma 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
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Signature John J. Willcutt

Print Name John J Willcutt

Address 45 Maple St.
Norton MA 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of
The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
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Signature Tom + Kaci Canning

Print Name Tom + Kaci Canning

Address 64 Maple St.
Norton, MA 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
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Signature Nancy M. Webber

Print Name NANCY M WEBBER

Address 34 Richardson Ave
NORTON, MA 02766

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U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
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Signature James R Paille

Print Name JAMES R PAILLE

Address 73 CROSS ST

NORTON, MA 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer 8-1325
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

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Signature Alice H. Paille

Print Name Alice H. Paille

Address 73 Cross St.

Norton, MA 02766

CONSERVATION COMMISSION
70 EAST MAIN STREET
NORTON, MA 02766-2320
(508) 285-0275
Fax (508) 285-0277

Site: SHPACK
Break: 4.9
Other:
from DocuLink

August 10, 2004

David Lederer
US EPA
One Congress Street, Suite 1100 (HBO)
Boston MA 02114

Dear Mr. Lederer,

The Conservation Commission has reviewed the "Draft Final Feasibility Study, Shpack Superfund Site, Norton/Attleboro MA" as well as the "Draft Final Phase 1B Remedial Investigation Report" dated June 17, 2004 prepared by ERM, the Shpack Steering Committee's consultant. The Conservation Commission voted at its regular meeting of August 9, 2004 to strongly support the option SC-3B for the clean up of the Shpack. Any option less than SC-3B will not result in an acceptable clean up level. Option SC-3B allows the Town of Norton to utilize the property for passive recreation after the clean up while the SC-2 options do not. Option SC-3B also allows for a full restoration of the spotted turtle (Special Concern on the Massachusetts Endangered Species List) habitat and vernal pools while the SC-2B options are highly likely to result in a "taking" of rare species habitat.

During the recent investigations, it has been documented that the Attleboro landfill (ALI) is not functioning properly and contaminants from ALI are entering the Shpack site. The Town of Norton is not confident that the proposed capping in the SC-2 option will result in an acceptable level of clean up. The necessary repairs to the ALI cap must be immediately addressed and adequately to cease to pollute the Norton site. The ALI site ceased in being a "separate issue" with the acknowledgement of ALI's contamination of the Shpack site. The Town of Norton will not accept a capping solution when the adjacent cap has failed and there has not been sufficient action to repair it. Option SC-3B will be the only option for the Town of Norton.

The SC-2 options list an Operation and Maintenance (O & M) component. It is unclear whom the responsible party for the O & M will be. The feasibility study does not give the Town of Norton any assurances that the Shpack O & M will be better implemented than the ALI O & M. It is unclear whom will be responsible for funding the O & M. It will be fiscally irresponsible to approve a plan that requires the Town of Norton to maintain a parcel of land that cannot be utilized for public uses. Option SC-3B eliminates the need for future maintenance of a capped site and is the only suitable option for the town.

In reviewing the Feasibility Study it is clear that several items do not include adequate detailed information. These items must be required in the Record of Decision. The Conservation Commission respectfully requests that the following items be included as requirements in the Record of Decision.

1. The vernal pool and spotted turtle habitat appear to be grossly overlooked in the feasibility reports despite conversations regarding the potential negative impacts the clean up actions could have on the ability of the wetland and buffer zone to provide such habitat. The rare species survey should specifically focus on the spotted turtle, potential for the vernal pools to provide significant wildlife habitat for the spotted turtle and marbled salamander and should evaluate the habitat for any other rare species that may be found on the Shpack site. The Rare Animal Observation Forms and the Vernal Pool Certification Forms for all vernal pools should be completed and submitted to the Mass Natural Heritage and Endangered Species Program (NHESP) as requested by NHESP in their letter of July 30, 2004 (enclosed). The Conservation Commission should be involved in all evaluations and any Conservation Permit applications required by NHESP.

2. The wetland replication and restoration must comply with the Wetland Protection Act Regulations 310CMR10.55 and 310CMR10.59. The wetland replication/restoration must include at a minimum, detailed plans illustrating all existing and proposed contour elevations; soil profiles for imported soils; a construction schedule; a planting plan including the number, size and species of all plants; groundwater elevations; description of the replicated wetland functions and values; physical features that replicate the vernal pool habitat and rare species habitat functions of the existing wetlands including coarse woody debris, snags and pit and mound topography; and a 5-year monitoring plan. The Record of Decision must specifically state that the wetland replication/restoration should commence in the first growing season of the construction activity and should not be left as the last aspect of the clean up or the Town of Norton should receive a cash bond to ensure that the wetland replication/ restoration will actually be accomplished according to the Regulations. The Conservation Commission should be consulted for the appropriateness of the proposed replication/restoration projects, have the opportunity to provide comments on the plans and have the ability to conduct site inspections.

3. Options for dewatering the wetland areas must be evaluated. The Conservation Commission should be consulted and be able to provide comments for all options of dewatering.

4. A transportation and emergency spill contingency plan must be required in the Record of Decision. All materials proposed for removal to off-site facilities will be transported past Chartley Swamp, Chartley Pond and over the recently renovated

Chartley Pond Dam. The plan, at a minimum, must map the transportation routes, identify all wetland resource areas along the transportation routes, list the emergency spill materials to be stored on each truck in the event of a spill, a contact phone list in the event of a spill, and available funds for the immediate purchase of materials necessary to deal with a spill. The Conservation Commission should be able to provide comments on any such plan.

5. Any proposal to extend a water line down Union Road must file the appropriate permit applications under the Wetland Protection Act and Regulations. The Conservation Commission feels that the extension of the water line would require a separate permit under the Wetland Protection Act and the Record of Decision should specifically require a Notice of Intent be filed with the Conservation Commission for this portion of the proposed Shpack clean up. The water line extension must include at a minimum, detailed plans of the water line, elevations and inverts, all wetland resource areas, dewatering methods and the options for installing the water line at the railroad crossing.

6. The ALI cap must be repaired.

7. The Conservation Commission manages the Shpack property for passive recreation and wildlife habitat uses consistent with the Conservation Commission Act, MGL. Chapter 40, Section 8C. Therefore, the Conservation Commission should be consulted on the deed restriction language. The Shpack Future Use Committee should also be consulted and be able to provide comments.

8. A plan should be created to prevent access of motorized vehicles onto the Shpack site. Motorized vehicle use is not consistent with the Conservation Commission Act and must be addressed in the future use plan.

The Conservation Commission reiterates their desire for Option SC-3b as the most appropriate clean up option for the Shpack Superfund site. If you have any questions please do not hesitate to contact me. Thank you.

Sincerely,

Jennifer Carlino

Jennifer Carlino
Conservation Agent

CC: Congressman Barney Frank
Senator Jo Ann Sprague

Representative Coppola
Representative Poirier
Representative Travis
Heather Graf, CAST
James P. Purcell, Norton Town Manager
Tom French, MA NHESP
Ken Munney, US F& W
David Buckley, MA DEP
Ed Tanner, Attleboro Conservation Commission
Francis Veale, Texas Instruments

Jonathan O'Reilly
29 Union Road
Norton, Massachusetts 02766

Site: Shpack
Break: 4.7
Other:

August 24, 2004

Dave Lederer
U.S. EPA
One Congress Street
Suite 1100 (HBO)
Boston, MA 02114

I am writing to express my firm opposition to the EPA's proposed plan for the 'clean-up' of the Shpack Superfund site.

EPA's preferred alternative (SC-2b) is unacceptable for reasons too numerous to detail here. Most objectionable is the fact this option does not provide "permanence" and is therefore not a "remedy." It would leave the Town of Norton with a still contaminated site, and the responsibility and burdens of dealing with it, in the near and distant future. In the face of the promise the Environmental Protection Agency made to the town, EPA's chosen course of action, is reprehensible.

If community acceptance plays any role in the EPA's decision making process for the clean-up of Schpack, please give serious consideration to these comments and select Alternative SC-3b, which will at long last, give residents of this community the peace of mind they deserve.

Yours truly,

Jonathan E. O'Reilly

NORTON FIRE RESCUE

CHIEF
GEORGE F. BURGESS

August 24, 2004

Mr. David Lederer
United States EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

RE: Comment on Shpack Superfund Site

The site on Union Road is referred to as a landfill, but it must be remembered that it is really a dump in that there was no regulatory oversight. It operated as a pre-regulation dump where known and unknown waste was dumped randomly and obviously commingled.

Over the years the fire department responded to and extinguished fires of various types including rubbish and brush. It was not known during those years of operation, or subsequent years, what was handled there. When our personnel were working fires on the site (or anywhere else for that matter) they were coming in contact with solid materials, dust, products of smoke, etc. They have inhaled, ingested, and absorbed the results of this activity. From the start of the operation of the site until and after its closing, Norton firefighters have had and/or died from various types of cancer. Obviously we have no way of knowing for sure what was the cause or contributing factor in those cancers. The point is we did not know.

The proposed remedy by your agency, alternative SC-2b, is to remove some types of contaminants and stockpile others. A cap would be installed and monitored. In future years visitors, trespassers, and the fire department will not be aware of any hazard, and certainly will not know if the cap has deteriorated, or functioning properly. Ground water contamination will not, and really cannot, be detected until contamination occurs. Future generations will not know, just as the fire department did not know of any hazards.

The towns preferred plan of action, alternative 3b, would serve the future generations of residents in a permanent way. I see little benefit short term, and no permanent benefit as release and/or contamination is possible by "condensing" contaminated material on site. The fire department officially supports the board of selectmen and the advisory committee in selecting alternative 3b.

70 E. Main Street • Norton, MA 02766
508-285-0249 • Fax: 508-285-9633

The town had no regulatory authority in the beginning of the use of the site, and is really involved by taking over the site in response to the contamination found more than twenty years ago. To now put the town in a position to have to live with contamination on site and possible future health and financial risks is unnecessary.

Thank you for the opportunity to comment on this issue.

Yours truly,

R J Gomes

Richard J. Gomes
Deputy Fire Chief

Copy: Advisory Committee
File

NORTON FIRE RESCUE

CHIEF
GEORGE F. BURGESS

Dave Lederer
U.S. E.P.A.\
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

August 24, 2004

Dear Mr. Lederer,

I am writing this letter to express my strong opposition to the proposed cleanup plan for the Shpack super fund site. I have attended many a classroom session as well as many committee meetings as a representative of the Norton Fire/Rescue Department. While I realize there is a time and place for "capping" of material, the Shpack site is not one of them. If you are already excavating the material, there is no legitimate justification for not removing the material from the site. I say legitimate, because the added cost to do this job "right" when factored over future generations is not a justifiable factor. The E.P.A.'s proposal to use Alternative SC-2b should be abandoned for **Alternative SC-3b**. This true "long term" cleanup proposal, will provide the Town with the minimal level of cleanup that will guarantee that future generations need not "re-visit" the Shpack site.

As a member of the Ad Hoc advisory committee appointed by the Selectman, we discussed many different "use" scenarios. We discussed at many of the sessions, the scenario referred to as the "residential farmer scenario". We decided not to push for this scenario because of the huge cost and logistics in making it happen. It was a "Major" concession on the Town's part. **Alternative SC-3b** is the best alternative for all parties involved. It prevents the need for future concerns on the PRP's part as well as the Town's part.

For the record, I have spent most of my life growing up in Chartley and own a considerable piece of property in the Chartley section of Town. I want to see my future generations be able to enjoy the Chartley pond area without fear of health risks associated with contaminants "capped" in place. I hope you will do what is right for the future generations of this Town and scrap Alternative SC-2b for, at the minimum, **Alternative SC-3b**. While this level of cleanup doesn't truly restore the property to its "pristine" state, or allow the use of water from on site, it does offer a truly permanent solution.

Sincerely,

Paul J. Schleicher

Paul J. Schleicher
Lieutenant

SDMS DocID 00213804

70 E. Main Street · Norton, MA 02766
508-285-0249 · Fax: 508-285-9633

Site: Shpack
Break: 4.9
Other:

Janet O'Reilly
29 Union Road
Norton, Massachusetts 02766

August 24, 2004

Dave Lederer
U.S. EPA
One Congress Street
Suite 1100 (HBO)
Boston, MA 02114

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Yours truly,

J. O'Reilly

NORTON FIRE RESCUE

CHIEF
GEORGE F. BURGESS

Dave Lederer
U.S. E.P.A.\
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

August 24, 2004

SHPACK
4.9

Dear Mr. Lederer,

I am writing this letter not just as the Town of Norton's Fire Chief throughout this whole Shpack affair, but also as a life long resident of Chartley. I am totally opposed to the E.P.A.'s proposed plan to handle the cleanup of the Shpack property. To think that you, as a government agency, would even think of just "sweeping the contaminants under the carpet" as a long term solution to an ongoing nightmare is <u>ludicrous</u> at best. The E.P.A's preferred alternative (SC-2b) is not a permanent solution to the problems at the Shpack superfund site.

The minimum proposal that should be considered for the site is **<u>Alternative SC-3b</u>**, which will give a level of cleanup that the Town can feel comfortable with for generations to come. Even a t this level of cleanup, the site is still not back to "virgin territory". The Town has made concessions in not going for the "residential farmer" scenario which would cost over twice what SC-3b will cost. When you look at the cost difference between the E.P.A's proposed plan and the plan acceptable to the Town, the cost difference, when amortized over time, is minimal at best.

I want to go on record as being strongly opposed to the plan SC-2b and hope that you will do what is right and just for the Town of Norton in cleaning the site to the SC-3b alternative.

Sincerely,

George F. Burgess
Chief

70 E. Main Street • Norton, MA 02766
508-285-0249 • Fax: 508-285-9633

NORTON POLICE DEPARTMENT

82 EAST MAIN STREET
NORTON, MASSACHUSETTS 02766

BRUCE R. FINCH, JR.
CHIEF OF POLICE

ADMINISTRATIVE (508) 285-3300
ADMINISTRATIVE FAX (508) 285-3337
PATROL FAX (508) 285-3338
DETECTIVE FAX (508) 285-3339

SHPACK
4.9

TO: DAVE LEDERER
FROM: LIEUTENANT STANLEY J. WALASAVAGE
DATE: 08/20/2004
RE: SHPACK SUPERFUND SITE

Dear Mr. Lederer,

The Norton Massachusetts Police Department recently became aware of clean up work to be done at the Shpack Superfund Site located on Union Road in Norton. This clean up and future security of the property is apparently different than what had been originally proposed. Please be advised that this agency is small in size, numbering approximately 27 officers. As you can imagine, we are constantly under pressure to stay within budget restrictions. Officers do routinely patrol the area of the clean up but because of the remote location and lack of calls into the area, this area may not have the number of officers patrolling as would other high crime areas. If this department becomes burdened with having to patrol and maintain a security presence at the site, we would quickly deplete our budget and in all likelihood not be able to provide officers. I am still unclear on how the clean up will affect public safety, but assuredly the Police Department would become over-burdened and under-funded if asked to maintain a police presence.

Respectfully Submitted,
Lt. Stanley J. Walasavage
Lt. Stanley J. Walasavage
Norton Police Department

Town of Norton

Emergency Management Agency

22 August 2004

SHPACK 4.9

David Lederer,
US EPA
One Congress Street, Suite 1100 (HBO)
Boston, MA 02114

<u>Comments on the US EPA's "Proposed Plan For Cleanup of the Shpack Superfund Site, June 2004</u>

These comments are to express my firm opposition to EPA's plan for the 'cleanup' of the Shpack Superfund Site.

The Boston College Weston Observatory, analysis of earthquakes that occurred between 1989 and 1998, there is a "66%" chance that the next earthquake of magnitude 2.7 or greater will occur in one of the shaded zones shown on the map that was released after the study. Norton lies within a shaded zone in southeastern Massachusetts. This area of New England has been classified a "red" zone for possible serious earthquake for many years. While the fault line may be deep – no one can predict when one will occur. Thus, in the interest of safety all the mixed up waste of radiological contaminants and carcinogenic chemical wastes, volatile and inorganic compounds, as well as the heavy metals must be removed from this illegal dumpsite.

Staying with Alternative SC-3b of the "Feasibility Study" for the Shpack Site will ensure that when the earthquake does occur Norton will not have to be concerned of the impact of an otherwise contaminated site.

EPA's preferred alternative (SC-2b) is unacceptable for other reasons to numerous to detail here. The fact this option does not provide "permanence" and cannot be a "remedy" can cause other problems than the earthquake alone. SC-2b would leave the Town of Norton with a still contaminated site and the financial and physical burdens and responsibility of dealing with it. Remembering the promise the Environmental Protection Agency made to the Town, EPA's chosen course of action, is culpable.

If community acceptance, plays any role in the EPA's decision making process for the cleanup of Shpack, please give serious thought to these comments, and select *Alternative SC-3b*, which will finally, give the residents of this community the peace of mind they merit

Respectfully,
Howard B Baker
Howard B Baker,
Director, NEMA
258 Plain Street
Norton, MA 02766
508.285.4454

8/16/04

SHPACK
4.9

Please add this to Comments received from the Town of Norton - on EPA's Proposed Plan for the cleanup of the Shpack Superfund Site.

William Gouveia is a long time resident of Norton and former Selectman.

Sent in courtesy of Heather Graf's office.

Norton Mirror 8/13/04
Editorial

Plan sweeps it all under the bed

When I was a kid, my mother would send my brother and me upstairs to clean our room. This was not our favorite activity.

We would go up and perform our own version of "cleaning." Primarily, this involved shoving as much stuff under our beds as we could fit.

When we were done, the room looked pretty good. The floor would be free of clutter, no dirty laundry would be visible, and unless my mother took the time to actually bend down and look under the bed (which unfortunately she often did) it appeared we had done our job and solved the problem.

Little did the two of us know then that our actions might well be preparing us for a glorious career in the EPA (Environmental Protection Agency.) Apparently the people charged with protecting our environment, and through that our health and safety, also grew up shoving stuff under the bed.

AN INSIDE LOOK

BILL GOUVEIA

How else can you explain the EPA's proposal for cleaning up Norton's Superfund site, the Shpack property near the Attleboro landfill? The EPA has proposed to mitigate the problem of hazardous material located on the Norton site by pretty much sweeping the stuff under the bed and leaving it there. And they propose to spend about $20 million to do it.

The Shpack property is a parcel of land adjoining the Attleboro Landfill off Union Road near the Attleboro border. It was contaminated with radioactive materials in the 1950's, dumped there by a company that eventually became Texas Instruments.

Norton took ownership of the site in the early 1980's in hopes of removing obstacles to the cleanup of the property and getting it on the national Superfund list. The property was placed on the Superfund list in 1986.

Since that time, the wheels of bureaucracy have been grinding in agonizingly slow motion. There have been studies, tests, hearings, proposals and reports. It has been more than 20 years of slow progress, federal foot-dragging, and extreme patience by local residents and abutters.

After all that, the EPA has suggested the life-threatening materials buried on the property merely be covered up. Greatly simplified, they want to cap the materials and throw a nice cover over it. If their proposal is adopted and instituted, the Shpack property will look beautiful upon completion. You would never know there was a problem there.

Sort of like how my room looked clean when my mother would poke her head in. But Mom didn't let us get away with that. She knew that, sooner or later, that stuff we shoved under the bed would be a problem. She knew that just because it couldn't be seen and couldn't be smelled today, after a while things would change.

"You're just making more work for yourselves when you do this," she would lecture to us patiently. "You might as well do it right the first time and save yourselves a lot of time and trouble."

Mom was right back then, and Norton's federal, state and local officials — along with a wonderful group of concerned citizens — are right today. Like Mom, they don't want the stuff under the bed — or in this case under the ground — to come back and cause Norton problems in the future. They know the only way to solve the problem is to do the clean up right.

The EPA should immediately abandon their proposal to simply sweep contaminants on the Shpack site under the bed and lull us into a false sense of security. It is their job to solve the problem, not merely cover it up. While the cost in dollars to do this may be double the cost of merely hiding it, the cost in quality of life for Norton citizens could be considerably higher should they not.

In the meantime, I believe the mothers of these EPA officials should come testify at the next public hearing. I want to know just what it looks like under their beds, and how comfortably they sleep at night.

Bill Gouveia is a columnist for the Norton Mirror. He can be reached at AnInsideLook@aol.com.

August 25, 2004

SHPK
49

5 Goldenwood Dr.
Norton, MA 02766

Dave Lederer
U.S. EPA
1 Congress St., Suite 1100 (HBO)
Boston, MA 02114

RE: Shpack Landfill Superfund Site, Norton, MA

Dear Mr. Lederer,

After carefully reviewing the Feasibility Study performed in regards to the Shpack Landfill, along with the EPA's Proposed Plan and our attendance at the town meeting held on August 4, 2004, we are writing to express opposition to the EPA's proposed plan SC-2B. Although this plan does remove the radiological contaminants along with dioxin and PCB contaminated sediment, the remainder of the chemicals will be left on site under a cap. While the cap would be impermeable, groundwater may still come into contact with contaminants. Due to the close proximity of many Norton residents, this is concerning. The worry about safety may result in a diminished interest to live in the area which will result in hardship on the town. Additionally, it would not be a permanent long term fix. Based on the utilization of caps at other landfills, it seems that the longevity of caps is questionable. We feel that the EPA's plan which includes the ongoing monitoring of the groundwater proves that this is true.

We support the alternative plan SC-3B as it proposes to remove radiological and chemical waste, thereby providing a permanent solution. A permanent solution is needed to ensure the safety of current and future residents.

The EPA states in the Proposed Plan that both plans are easily implementable and technologies for both plans are readily available. Although a cap may be cost beneficial at this time, a cost will remain for water and site monitoring. In the long run we believe that the benefits of a complete site clean up under SC-3B greatly outweighs the potential savings of plan SC-2B.

Respectfully Yours,

Charles and Katie Magri

Ronald O'Reilly
29 Union Road
Norton, Massachusetts 02766

August 24, 2004

U.S. EPA
Mr. Dave Lederer
1 Congress Street, Suite 1100 (HBO)
Boston, MA 02114

Dear Sirs:

I am writing to express my opposition to the Environmental Protection Agency's (EPA) "Proposed Plan" (The Plan) for the clean-up of the Shpack Landfill Superfund Site (SLSS) in Norton, Massachusetts. EPA proposes a limited clean-up and capping of the SLSS identified as alternative SC-2B.

Judicial Intent:

EPA is using criteria for the SLSS clean-up that apply to landfills. This approach is a procedural error and is contrary to judicial intent when Title 42, Chapter 82 was passed by Congress. The Shpack Dump operated for over twenty-five (25) years. The Shpack site was operated as an unregulated dump and was never in compliance with the regulations promulgated under Title 42, Chapter 82, Sub-chapter IV, Section 6945.

The legislative intent to treat landfills and dumps differently is obvious in the way the legislation was written. Title 42, Chapter 82, Sub-chapter IV, Section 6944 prescribes the criteria for sanitary landfills. Section 6945 of the aforementioned promulgates the criteria for closing open dumps. Section 6945 differentiates dumps from landfills. The judicial intent is that landfills and dumps are different and requires that they be treated differently.

EPA's approach to the clean-up of SLSS is an erroneous attempt to treat a dump as though it is a landfill which is contrary to the judicial intent of Title 42, Chapter 82, Sub-chapter IV, Sections 6944 and 6945.

DEP's Inability to Enforce Its Regulations:

EPA's proposed limited clean-up of the site is based on the erroneous assumption that the engineering and execution of the work will be performed flawlessly. The history of the adjacent Attleboro Landfill, Inc. (ALI) shows these assumptions to be based on fiction. ALI was capped beginning in 1996. Eight years later, the Massachusetts Department of Environmental Protection (DEP) is attempting to correct the work that has taken place under its supervision. The capping of ALI is an example of the inability of regulatory agencies such as DEP and EPA to control such a complex engineering feat.

The capping plan for ALI was approved by DEP two years after capping commenced. During the capping, there was an explosion and fire that burned over an acre of the membrane. DEP, The Norton and Attleboro Fire Departments were not aware of the explosion and fire until I notified them a week after it happened. I waited a week to see if DEP would notice the incident during DEP's scheduled weekly visits. DEP either failed to visit the site weekly or missed a one-acre hole in the membrane.

After the capping was completed, DEP became aware that the slopes were too steep to prevent erosion. The slopes were too close to the street to control water run off and the applicant failed to post the required bond to insure the site would be properly maintained.

All of the aforementioned deficiencies occurred while the capping was being closely monitored by DEP or were missed in DEP's review of the capping plan. The personnel ranks of DEP have been drastically reduced over the past five years. DEP is currently staffed to respond to emergencies only. The department does not have sufficient, qualified and experienced staff to monitor the capping and continue to inspect the cap in the future. More importantly, the failure of DEP to enforce its regulations at ALI is proof that the DEP is not competent to perform the same task at SLSS.

The serious deficiencies of the ALI capping are not a matter of conjecture. Plans are currently being prepared to reopen the ALI cap to correct the aforementioned deficiencies. DEP is negotiating with a third party to allow the site to be reopened as a landfill. The revenue from the reopened ALI would be used to remove the existing cap, reduce the slopes, install a water collection system, recap the entire site and purchase a bond to finance maintenance of the new cap and the monitoring wells.

Additional evidence of the inadequate capping of ALI is EPA's acknowledgment that run-off from ALI is continuing to contaminate SLSS.

There is no reason to assume that the capping of SLSS will be any more successful than the capping of the adjacent ALI. DEP has less staff now than it did during the ALI capping. To avoid a recurrence of the debacle at ALI, EPA should select alternative SC-3B as the preferred clean-up under The Plan.

Fencing of the Site:

The Department of Energy (DOE) erected a fence around SLSS in the early 1980's. When the Army Corp of Engineers (ACE) began fieldwork in 2000, the fence was broken open in several places. There was much evidence of trespassing on the site. This was a site known to be a nuclear and hazardous waste dump.

The fence had been allowed to fall into disrepair despite DOE, EPA and DEP having knowledge of the nuclear and hazardous waste at the site. The site is relatively small and out of the way. Much of the site is not visible from the road. Currently, the vegetation has overgrown the fence to such an extent that a trespasser inside the fence cannot be seen from the street.

In the future, trespassers will not have to be concerned about the nuclear waste and under EPA's proposed clean-up; the hazardous waste will be contained under a cap. Trespassers will be able to enter from the rear by accessing the highly traveled high tension wire right of way.

A fence will restrict wildlife that passes through the area including deer, coyotes, fox, waterfowl, large snapper turtles and an endangered species, the spotted turtle, which have been observed around the Chartley Swamp. The failure of the fencing in the past will be repeated. The present fence is so overgrown it can be easily scaled and the vegetation shields trespassers. This condition exists after only two years since the last cutting of vegetation from this fence.

The need for a fence would be obviated by EPA selecting alternative 3C-3B under The Plan

Massachusetts Electric Right of Way:

SLSS is bordered on one side by a Massachusetts Electric Right of Way. This right of way is used like a bike path, but it is used by ATV's, motor bikes, snow mobiles and trail bikes. The right of way runs for miles in both directions. It is accessible from many area roads in North Attleboro, Attleboro, Norton, Rehoboth and Seekonk, to name only a few towns. The long distance that can be traveled along this right of way makes it a popular trail for these vehicles particularly at night and on weekends.

These vehicles used SLSS as a meeting place when the old fence deteriorated. No warning signs on the fence were visible because of the over-growth of vegetation. Hunters chased deer into the opening in the fence. A deer carcass was found at SLSS when ACE began to survey the site in 2000.

The varied unauthorized uses of this site have been underestimated by EPA. There is no reason to believe this site will be able to be secured in the future as would be required under the EPA proposed limited clean-up and capping under alternative SC-2B.

The use of alternative SC-3B under The Plan would eliminate this problem.

Cap/Jump Ramp

As noted above, the site is along a highly traveled right of way for off-road vehicles. The cap will be the ultimate challenge for these off-road vehicles that are always looking for a new ramp to jump. The location of the ramp will be posted on Internet chat sites and will be a gathering point for large numbers of these vehicles because of its easy access.

In time, the cap will be damaged and the material disbursed over SLSS. These vehicles will easily pull the fence down from the back side and will not be visible from the road due to the overgrown vegetation.

EPA has failed to consider unauthorized use of the SLSS by off-road vehicles even though the failure of the fence erected by DOE is well known and documented.

The use of alternative SC-3B under The Plan would eliminate the reason for these vehicles to use the site for jumps.

Future Maintenance of the Site:

Under EPA's proposed, limited clean-up, alternative SC-2B, there will be significant future maintenance costs. The most significant costs in addition to monitoring wells will be maintenance of the cap and the fence in perpetuity.

The cost of this maintenance cannot be quantified with any reasonable certainty. Experience at many such sites has shown the estimates of the engineers to be substantially below actual costs shortly after completion of the capping.

The future maintenance costs can be substantially reduced by eliminating the need for a fence and cap using alternative SC-3B. This approach would remove much of the uncertainty in estimating future maintenance costs.

It is unreasonable to believe that the maintenance costs can be estimated for a site in perpetuity. In the future, it is likely that EPA and DEP will shift these costs to the Town of Norton. In forty or fifty years, it will be the taxpayers of Norton who will be required to shoulder this burden. There is no reason for this to happen and it can be avoided by selecting alternative SC-3B.

Norton Water Supply:

The SLSS is surrounded by the Chartley Swamp which drains to Chartley Pond. The outflow of Chartley Pond eventually flows to the Taunton River.

The Town of Norton has signed a contract with a firm which proposes to construct a desalinization plant on the Taunton River to supply water to the Town of Norton and the City of Brockton. This firm is actively soliciting other communities to purchase drinking water produced at the proposed water treatment plant on the Taunton River.

EPA's proposed limited clean-up of SLSS has not considered the effect of a future chemical release into Chartley Swamp on the drinking water of the communities that will be processed from the Taunton River.

The preferred alternative, SC-3B, would remove SLSS as a potential source of contamination of the drinking water for a number of communities in southeastern Massachusetts.

Incidents of Cancer:

There are numerous instances of cancer in residents of the immediate area of SLSS which have not been adequately considered or the causes identified.

In the two house nearest SLSS, all four residents died of cancer in the late 1970's to mid-1980. The brother of one of these families lived further down Union Road. Both that brother and his wife died of cancer in the late 1970's. Two unrelated residents of Union Road were stricken with stomach cancer, a statistically unlikely event unless caused by the environment. Both were long-time residents of Union Road. In 2002, two long-time residents of the area died of pancreatic cancer within a few months of one another. A physician advised me that this was a statistical impossibility unless there was an environmental cause.

In June 2003, numerous former residents attended a public meeting to hopefully learn the cause of their or a relative's cancer. Residents of Sturdy Street in the 1950's to 1970's reported extremely high incidences of cancer in their families. The same was true of long-time residents of Maple Street. Two former residents of Maple Street told of multiple incidents of cancer among their siblings in their 20's and 30's.

Although no definitive cause of these incidences of cancer in the area has yet been identified, it is unreasonable to deny that a causal relationship exists and the environment appears to be the cause.

EPA's proposed limited clean-up would leave the hazardous chemicals known to cause cancer at SLSS. The preferred alternative SC-3B would remove these cancer causing chemicals from the area and eliminate this potential risk for future generations.

ALI Run-Off:

EPA and ACE acknowledge that currently ALI is a continuing source of contamination at SLSS. EPA's proposed limited clean-up of SLSS will allow ALI to avoid liability as to the future source of contamination at SLSS.

In the future, ALI will claim that contamination at SLSS is caused by the material left on site under EPA's proposed clean-up under SC-2B. Using alternative SC-3B would remove hazardous chemicals from the site. Future contamination could then be traced back to its likely source, ALI.

Prospective Responsible Parties:

Texas Instruments (TI) is the leader of the Steering Committee for the Prospective Responsible Parties (PRP). This position contrasts with TI's reluctance to step forward in 1978 when a young college student discovered the presence of nuclear material in the vicinity of SLSS and ALI. The student attempted to report his discovery to Attleboro City officials who refused to investigate his findings. The local newspaper carried articles ridiculing his findings. He became the problem--not his discovery of a dangerous nuclear waste dump.

No one from TI stepped forward to investigate the possible discovery of nuclear material at SLSS even though TI had a Nuclear Materials Division that produced such material. TI must have known that one thousand (1,000) pounds of enriched uranium pellets used to fuel nuclear submarines had been missing for more than twenty-five years. DOE was also a party to hiding the fact that 1,000 pounds of enriched uranium pellets were missing for 25 years in the Attleboro area.

TI's silence and inactivity at the time the young student was being ridiculed for making such a preposterous find indicates that TI expected the problem to "go away" quietly and at no cost.

Today, as the leader of the PRP Steering Committee, TI is still trying to minimize the company's financial exposure, an understandable position for a publicly traded corporation. The financial difference to TI would be the cost differential between alternatives SC-2B and SC-3B. The difference is estimated to be $30,000,000 to be shared by the PRP's in proportion to their contribution to the problem. TI earned over $1,100,000,000 in 2003. The total cost differential to TI alone is insignificant and even less when allocated among all the PRP's.

EPA has the responsibility to consider input from local officials and residents of the Town of Norton and the effect on the environment today and in the future. The cost of the proposed clean-up alternative should not be the determining factor in the selection process.

The preferred clean-up alternative under The Plan is SC-3B.

Citizen Input:

For the past four-and-one-half years, EPA has held a number of public meetings in Norton to explain the status of the SLSS studies. ACE requested that the Town of Norton form a technical committee of Norton residents to provide input for the future use of SLSS.

EPA has chosen to ignore all input from the technical committee and every official of the Town who has expressed an opinion on the preferred clean-up alternative. The Town of Norton officials and citizens have stated on the record that alternative SC-3B is the preferred alternative under The Plan. EPA has chosen to ignore the input of residents; officials of the Town of Norton and the Town's state and federal representatives.

The aforementioned are significant reasons that EPA should consider in selecting the alternative clean-up method under The Plan. The only logical clean-up for SLSS is the Plan alternative SC-3B.

Yours truly,

Ronald O'Reilly

Ronald O'Reilly

Taunton River Watershed Alliance, Inc.
PO Box 146 Bridgewater, MA 02324
Telephone (508) 697-5700
Internet: http://tauntonriver.tripod.com
E-mail: trwa@adelphia.net

August 23, 2004

SHPACK 4.9

Mr. Dave Lederer
U.S. E.P.A.
1 Congress Street, Suite 1100 (HBO)
Boston, MA 02114

Subject: Comments on Proposed Cleanup Plan
Shpack Site
Norton, MA

Dear Mr. Lederer:

The Taunton River Watershed Alliance (TRWA) is providing comments on the Proposed Cleanup Plan for the Shpack Superfund Site located on the border between the Town of Norton and the City of Attleboro, MA.

The TRWA is a non-profit alliance of concerned individuals, businesses and organizations who are dedicated to protecting and restoring the Taunton River watershed--its tributaries, wetlands, floodplains, river and lake corridors and wildlife. The Taunton River watershed drains water for all or part of 38 communities in southeastern Massachusetts, providing the essential sponge for drinking water aquifers, flood storage areas, and habitat for wildlife in this part of the State. The Taunton River is currently being studied for inclusion into the National Park Service, National Wild and Scenic Rivers Program (www.TauntonRiver.org). It is considered by many to be one of the most ecologically diverse water bodies in the Commonwealth.

Chartley Swamp in the western part of the watershed feeds the Wading River which drains into the Three Mile River, a primary tributary to the Taunton River. Chartley Swamp has been impacted with dangerous toxic chemicals and radioactive water from many years of illegal dumping at the Shpack site. Based upon EPA's own risk assessments, contaminated sediments in Chartley Swamp currently present an "unacceptable risk to wildlife" and contaminants in groundwater present a carcinogenic risk of exposure to humans via drinking water consumption. It is apparent to this organization that the only complete way to prevent fully risk of harm from contaminants at the site is the permanent elimination of contamination that exceeds cleanup levels at the Shpack site. That scenario is provided only in Cleanup Alternative SC-3B.

Therefore TRWA strongly supports Cleanup Plan SC-3B as the only real plan that would lead to the achievement of a Permanent Solution and provide protection and preservation of resources in this portion of the Taunton River watershed. We thank you for consideration of our concerns.

Sincerely,

Joseph Callahan

Joseph Callahan
TRWA Board of Directors

CF: Cathy Kuchinski, TRWA President
Robert W. Davis, TRWA Director of Advocay

Wednesday, 25-Aug-2004

SHPACK 4.9

Mr. Dave Lederer
U.S. Environmental Protection Agency
1 Congress Street, Suite 1100 (HBO)
Boston, MA 02114

Dear Mr. Lederer,

I am writing this letter to express my concern and dismay regarding the EPA's proposal for applying Alternative SC-2B as the preferred cleanup alternative for the Shpack FUSRAP/Superfund site in Norton, MA.

As a member of the Ad Hoc Shpack Technical Committee, I was closely involved with the Committee's endorsement/recommendation for the Passive Recreation, Adjacent Resident without Groundwater Consumption, most closely mimicked as Alternative SC-3B in the EPA's proposal. As a Committee, we worked in good faith given the information provided by Cabrerra Engineering Services, the Army Corps of Engineers, and the EPA. We carefully weighed all of the various concerns for public safety, worker safety, future community liability, and yes, even cost. We did not opt for something as restrictive as a resident farmer scenario or neighborhood daycare center. We concluded it inappropriate to apply the concept of "not a single atom shall remain", and made a concerted effort to balance costs in terms of monetary expenditure, ecological impact, and worker safety with the benefits of acceptable dose risk, and felt the resident farmer scenario was not a practical consideration. I hesitate to use the word, but yes, we "compromised" in our decision making process. We weighed all of the costs and benefits, and put forth our best and most logical recommendation for a cleanup alternative that we felt was appropriate and acceptable. Again, we worked in good faith to arrive at our proposal, and recommended it to the Town of Norton, the Army Corps of Engineers, and the USEPA. We feel that anything short of Alternative SC-3B violates our "good faith" approach, and negates the diligent efforts of the Ad Hoc Committee.

From a technical standpoint, I feel the SC-2B proposal falls short in the long-term. Several examples were raised at the 04-Aug-2004 Town Meeting regarding the responsibility and liability for future monitoring efforts. By its very nature, the deliberate onsite "disposal" of some of the material would require greater levels of monitoring effort out into the future. Although Alternative SC-3B would not be devoid of future monitoring concerns, the fact that less material would remain onsite would help diminish the need for monitoring. Certainly, the monitoring efforts could be scaled back accordingly under the SC-3B Alternative. All of these arguments can be also made for the case of controlling personnel access. Taking on the burden of perimeter fence upkeep and trespasser control into the foreseeable future under SC-2B just doesn't make sense in comparison to SC-3B, where such controls and upkeep would be unnecessary. The actual monetary cost for additional monitoring and upkeep under Proposed Alternative SC-2B could actually exceed the total cost associated with Alternative SC-3B.

Also from a technical foundation, I would question the rationale for choosing to leave additional contaminants onsite, as proposed in SC-2B. Although the proposed grade and cap barrier pictured in the EPA Handout employs all of the sound engineering features designed to isolate wastes, the presence of left-behind wastes under this cap raises the potential consequences of any future failure or breach of this barrier. Although it is widely recognized that radionuclides such as uranium, thorium, and radium, and to a certain extent heavy metals, are relatively immobile once they are bound to soil, adequate consideration has not been given to the other factors that could impact future isolation of the contaminants. Organic acids resulting from the breakdown of organic materials may increase the mobility of these contaminants. The RESRAD computer models used to assess the dose impacts from the various treatment alternatives most likely assumed default soil transfer coefficients and leachability characteristics. As such, the potential impact for higher-than-expected contaminant mobility as modified by organic decay products may not have been addressed. While this argument could be made for both Alternatives SC-2B and SC-3B, the ramifications of such an oversight are greatly diminished under Alternative SC-3B, because less material and contaminants will remain onsite.

Again, I wish to express my concern and dismay regarding the EPA's endorsement of cleanup Alternative SC-2B. Adequate technical justification has not been put forth to elevate it above the SC-3B Alternative recommended by the Ad Hoc Technical Committee, based on the reasons stated above. I therefore respectfully request that the U.S. Environmental Protection Agency reconsider their proposal, and adopt and implement Alternative SC-3B.

Sincerely,

Kenneth J. Sejkora, Ph.D.
Health Physicist/Radiological Environmental Specialist
136 Pine Street
Norton, MA 02766

Cc: Heather Graf, Ad Hoc Shpack Technical Committee
James P. Purcell, Norton Town Manager
Robert W. Kimball, Jr., Chairman, Norton Board of Selectmen

BARNEY FRANK
4TH DISTRICT, MASSACHUSETTS

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August 4, 2004

SHPACK
4.9

Robert W. Varney, Regional Administrator
Environmental Protection Agency
One Congress Street
Boston, MA 02114

Dear Mr. Varney:

I would like to submit the following comments conveying my strong support for the town of Norton and its preferred cleanup alternative known as SC-3B for the collection and removal of both chemical and radiological contaminants at the Shpack Superfund Site. As you are aware, the Shpack landfill has the distinction of being both a Superfund Site under the cleanup authority of the Environmental Protection Agency (EPA) and a Formerly Utilized Site Remedial Action Program (FUSRAP) site under the cleanup authority of the Army Corps of Engineers (ACOE). The final decision on a cleanup alternative has caused an understandable amount of worry for the citizens of Norton. They are not only concerned about the actual cleanup of Shpack, but the long term public safety and reuse potential of a fifty year old dump site that has soil contaminated with radiological, chemical and heavy metal wastes.

The legislation authorizing the radiological cleanup of Shpack through FUSRAP was originated by Congressman McGovern and me to ensure that a responsible and permanent remediation of harmful radioactive waste would occur. This authorizing legislation was passed by Congress in 2002 and the federal government, through the ACOE, is now responsible for a significant amount of the final clean up cost outlined in the EPA's proposed plan.

The ACOE recently agreed to work under the EPA's Record of Decision and is scheduled to commence work on the collection and removal of more than 13,000 cubic yards of radiological waste as early as 2005. The town of Norton has asked that the EPA oversee the removal of collected chemical waste to a level that would provide a true passive recreational use. However, the EPA's preferred alternative for cleanup, or SC-2B, provides only a limited removal of chemical material and would cap most contaminants on site. The subsequent fencing, monitoring, and trespass restrictions resulting from such an option would require a level of perpetual oversight that is both impractical and difficult, if not impossible, to enforce over a long period of time. Town officials have raised legitimate concerns that they might ultimately be responsible for this type of management.

Obviously, the EPA has given significant consideration to the cost of each cleanup option in choosing a preferred alternative. The agency's preferred option is one of the least expensive. The town's request is not only the safest solution, but a financially sensible one that is comparatively reasonable when one looks at the variety and level of contamination on site. It is also far less expensive than other costly alternatives that were considered.

For more than four years, I have hosted and/or participated in many meetings with the EPA, ACOE, state officials, and local officials at various times to facilitate the lengthy process that has brought us to where we are today, i.e., making final decisions on cleanup proposals for use in a Record of Decision. The town, which has a voice in a final removal determination through the EPA's Community Acceptance component, should be protected through the best option under Superfund. No one person or agency can say with absolute certainty that with the passage of time the integrity of capped materials would not become compromised through a variety of potential degradations, natural or man made.

Again, the government is making a significant financial commitment to the FUSRAP portion of this project under a cleanup that involves the removal of collected radiological material. Also, the ACOE plans on removing more material than those options being considered by the EPA which should further reduce the costs associated with the chemical cleanup as commingled contaminants, chemical and radiological, are not only collected, but removed by the ACOE.

The citizens of Norton have every right to expect the EPA will oversee the collection and removal of the chemical and heavy metal wastes at the Shpack site with the cost shared among those companies already identified with the responsibility of its cleanup. Therefore, I urge EPA's approval of SC-3B to provide a comprehensive cleanup and removal of both chemical and radiological contaminants and afford the greatest level of protection possible to the people and their surrounding environment.

Sincerely,

BARNEY FRANK
Member of Congress

City Of Attleboro, Massachusetts

OFFICE OF THE MUNICIPAL COUNCIL
Government Center, 77 Park Street
Attleboro, Massachusetts 02703
508-223-2222 • Fax 508-222-3046

August 24, 2004

Certified Mail
Return Receipt Requested

Mr. David O. Lederer
United States EPA – Region I
One Congress Street
Suite 1100 (HBO)
Boston, MA 02114 – 2023

RE: Shpack Superfund Site Remedial Action Plan Proposal

Dear Mr. Lederer:

As President of the Attleboro Municipal Council, I am along with my colleagues, Councilors Peter Blais, Robert Schoch, Carolyn Tedino, Kate Jackson, Frank Cook, Brian Kirby, George Ross and Kim Allard writing in support of the EPA Region. We preferred cleanup alternative (plan SC-2B) for the Shpack Superfund Site as presented by EPA, Region I, at the public hearing held on 4 August 2004.

After reviewing the overview handout distributed by EPA at the public hearing, and as a City official concerned with the health and safety of our residents, the environment in which they live, and the economic well-being of our business community, we concur that SC- 2B, rather than SC-3B, is the right choice to insure protection of human health, safety and the environment, and to do so in a cost effective manner. We have come to this conclusion based upon the following points:

As both SC-2B and SC-3B are protective of human health and the environment and comply with Applicable or Relevant and Appropriate Requirements (ARARs), and,

As EPA has a long standing precedent for preferring consolidation and capping at Superfund landfill sites (*Presumptive Remedy for CERCLA Municipal Landfill Sites*, EPA Guidance, 1993), including over 50 sites in New England and more than a dozen in Massachusetts alone, and

As "presumptive remedies" are preferred technologies for common categories of sites and can be expected to be applied at all appropriate sites unless unusual site-specific circumstances exist, and

As, after removal and off-site disposal of approximately 10,500 cubic yards of soil containing radiological contaminants of concern above the cleanup levels, and approximately 2250 cubic yards of dioxin and PCB contaminated sediment the Shpack Superfund Site will not exhibit "unusual site-specific circumstances", and

As EPA guidance notes the CERCLA and NCP requires that a selected remedy must be cost-effective, and

As both SC-2B and SC-3B are deemed protective, but SC-2B at an estimated cost of $28.1 Million is also cost-effective, while SC-3B, at a estimated cost of $55.6 Million is unnecessarily expensive, and

As many of our local businesses, large and small, will likely be brought into the existing Potentially Responsible Party (PRP) group as new members at a time when many are struggling economically to compete with off-shore low cost labor, and

As SC-3B will necessitate the trucking of thousands more cubic yards of contaminated soils over local roads whether in Attleboro or Norton, incurring not only added cost, but increased heavy truck traffic, wear and tear on roads and potential risk , and

As both the EPA and the MADEP have found SC-2B to be the preferred remedy,

We support the EPA and MADEP preferred choice – SC-2B as the proper remedial action plan for application at the Shpack Superfund Site.

Very truly yours,

Barry K. LaCasse,
President

City Of Attleboro, Massachusetts
HEALTH DEPARTMENT
Government Center, 77 Park Street
Attleboro, Massachusetts 02703-2355
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SHPack
1/9

Christopher M. Quinn, M.D.
Health Officer
James P. Mooney, C.H.O.
Health Agent
Charles E. Flanagan
Deputy Health Agent
Jacqueline Joyal O'Brien, RN
Public Health Nurse
Nancy Daday
Solid Waste Administrator

August 23, 2004

Mr. Dave Lederer
US EPA
1 Congress St. Suite 1100 (HBO)
Boston, MA 02114

Re: Written Comment on Proposed Cleanup Plan
Shpack Landfill Superfund Site
Norton, MA 02766

Dear Mr. Lederer:

After reviewing both clean up proposals the Attleboro Health Department supports proposal SC-2B and acknowledges that the clean up will provide both short-term and long-term protection of human health and the environment. The proposal does attain all federal and state applicable environmental requirements by reducing the volume and morbidity of contaminated soil and sediment while also providing permanent solutions by removing all radioactive waste, dioxin and PCB-contaminated material from the site. The acceptable proposal will eliminate exposure from the contaminated materials to the public by consolidating the remaining material beneath a multilayer cap.

The Department further recognizes the importance of providing public water service to the two identified polluted residential wells at 59 and 68 Union Street, in Norton, adjacent to the Shpack dump. However, a review of the proposed water line extension from Norton to these residents falls short in fully protecting the public health by not addressing the two contaminated wells in Attleboro located at 77 and 100 Peckham Streets.

The proposed 4000 foot extension of the water line down Union Street (in Norton) under railroad line at a projected cost of $630,000.00 could be equally accomplished by extending Attleboro water line 4200 feet down Peckham Street to the residential units on Union Street, Norton.

By eliminating the $125.000.00 cost of sending Norton's water service under the railroad line, and allowing for an eight inch service line it is reasonable to assume a savings while providing relief for the two contaminated residential wells in Attleboro.

Both Mayor Kevin Dumas and acting superintendent Mike Burgess
have indicated their support for the water line extension.

Your review of this proposal is appreciated.

Sincerely,

Christopher Quinn, MD,
Health Officer

James P Mooney

James Mooney
Health Agent

City Of Attleboro, Massachusetts
OFFICE OF THE MUNICIPAL COUNCIL
Government Center, 77 Park Street
Attleboro, Massachusetts 02703
508-223-2222 • Fax 508-222-3046

SHPACK
4/9

August 24, 2004

Dave Lederer
U.S. EPA
1 Congress Street
Suite 1100(HBO)
Boston, Ma. 02114

Dear Mr. Lederer,

As an Elected Official, representing the entire City of Attleboro as an At-Large City Councilor, I implore the acceptance and immediate implantation of EPA proposed plan SC-2B!

Not only is SC-2B protective and cost effective, it is ready to be implemented! This problem began in 1946, informed as a possible site of buried contamination in 1978, addressed by the D.O.E. in 1980, and for the last 24 years, more than a generation if interest, study, identification, and potential Clean up have occurred. What affects have these contaminants had on residents health for the past 58 years? How many more generations must be put at risk before action is taken?

Let's not delay Clean Up any longer!

Advocates can still pursue further action, study and funding, but lets not delay known contaminates from being removed any longer!

Thank you for your attention of this matter,
Walter Thibodeau
Walter J. Thibodeau
Attleboro City Council
Councilor At-Large
8 Liberty Drive
South Attleboro, Ma.
0270508-399-6549

THE COMMONWEALTH OF MASSACHUSETTS

HOUSE OF REPRESENTATIVES
STATE HOUSE, BOSTON 02133-1020

SF Shpack 4.9

August 23, 2004

Mr. Dave Lederer
U.S. EPA
1 Congress Street, Suite 1100 (HBO)
Boston, MA 02114

Re: Written Comment on Proposed Cleanup Plan
Spack Landfill Superfund Site
Norton, MA 02766

Dear Mr. Lederer:

The Shpack Landfill Superfund Site has been thoroughly studied by the Environmental Protection Agency over a number of years. I support their conclusion that alternative solution SC-2B is the most appropriate cleanup plan. The Massachusetts Department of Environmental Protection also supports this conclusion.

Removing the most harmful substances and capping the remainder is a solution that will allow for recreational usage for the site. This is a remedy that has been used successfully in Attleboro both at Finberg Field and more recently at the Balfour River Walk.

Alternative SC-2B avoids the inherent dangers associated with trucking much more material off site. Capping the site will avoid additional public safety traffic concerns and public health hazards resulting from airborne contaminants that are associated with removal of more materials from the site.

The greater cost associated with completely removing all tainted soil and materials are not insignificant. Undoubtedly, there would be an attempt to apportion the cost among numerous additional private and public parties including the Town of Norton and the City of Attleboro. Such an attempt would not go without legal challenge that would further delay and adequate cleanup process for years to come.

I also support the Attleboro Health Department's proposal to extend public water service from Attleboro to homes with polluted wells on Peckham Street in Attleboro and Union Street in Norton. As a result of extending water line from Attleboro you reach the polluted wells in both communities rather than just in Norton. You also save $125,000 because the water line does not have to be extended under the railroad tracks.

Your time and consideration in this matter is greatly appreciated.

Sincerely,

Representative John A. Lepper
Assistant Minority Whip
Second Bristol District

August 20, 2004

Site: SHPACK
Break: 6
Other:

Heather A. Graf
Comments To EPA On Proposed Plan For Cleanup Of The Shpack Superfund Site
From The Ad Hoc Shpack Technical Committee

The Ad Hoc Shpack Technical Committee was appointed in July 2002, by the Norton Board of Selectmen, to work with the US Army Corps of Engineers on Re Use Scenarios for the Shpack Superfund Site

Members of the committee:
Jim Brown, Norton Board of Selectmen
Jennifer Carlino, Norton Conservation Director
Lt. Paul Schleicher, Norton Fire & Rescue
Fred Watson, Norton Board of Health
Jeffrey Allen, Norton Resident/Environmental Engineer
Rosemary Dolan, Norton Resident/RN
Heather Graf, Norton Resident (30 years)/ Coordinator Citizens Advisory Shpack Team
Colleen Hussey, Norton Resident/Attorney
Dr Richard Krumm, Norton Resident/Member CAST
Edwin Madera, Attleboro Resident/ Engineer
Ron O'Reilly, Norton Resident (30 years)/ Member Norton Conservation Commission, Assistant Coordinator CAST
Ken Sejkora, Norton Resident/ Environmental Engineer, Nuclear Power Plant

The committee held meetings between August 27, 2002 and January 27, 2003. Present for these meetings were: the Project Manager for the Army Corps of Engineers, representatives from the US ACE consulting group – Cabrera Services, a representative from the Massachusetts Department of Environmental Protection Agency, and Project Manager for the United States Environmental Protection Agency – Dave Lederer.

At the first meeting the purpose and goals were outlined for the committee. It was stated that the future use model scenario(s) chosen by the Corps would dictate the level of cleanup at the site of the radiological contaminants.

Model scenarios went from the most conservative – Residential Use, to the most liberal – Passive Recreation III, with two other passive recreation uses in between. It was emphasized that the committee should consider future uses that would be considered "Reasonable".

After the committee had met on five occasions, with members having volunteered a considerable amount of time (away from their jobs), having engaged in a great deal of discussion and a concerted effort by all to reach agreement, the Reuse Scenario for the Site was selected. It was Passive Recreation II. This model assumed -
That the site would be maintained by the Norton Conservation Commission, for the Town of Norton, as Open Space Conservation Land.

The Use - Passive Recreation II – Assumes persons on site - hiking & camping (including digging on site latrines), gathering of plant foods (i.e. – berries, grapes etc.), hunting, trapping, & harvesting of aquatic foods (including, but not limited to - fish, snails, mollusks, crustaceans, frogs, eels, turtles & other reptiles). Without an on site well or community gardens.
Exposure pathways: Inhalation – dust & volatile chemicals, Ingestion – plant (natural), soil, meat & aquatic foods (as described above), External exposure – dermal absorption from soil & water contact.
All passive recreation models assume the average amount of time spent on site to be approximately 250 hours per person, per year.

This Re Use Model chosen by the committee was accepted by the Project Manager for the Army Corps of Engineers and their consultants (Cabrera Services) - who had educated the committee and worked with its members in the Reuse Selection Process.

It should be noted here that the Project Manager for the EPA did attend all the joint meetings between the Corps & Cabrera and the committee. The only input from Dave Lederer, EPA's PM was a letter to me (as chairperson of the committee) dated November 1, 2002 requesting that I clarify for committee members references made by Cabrera in their presentation at the October 21, 2002 meeting. (For letter – See Attachment Page 5) Please explain the rationale for this letter.
At the time, it did not appear to be a bad omen. Especially since Mr. Lederer consistently maintained that, if anything, EPA's standards were higher/ stricter than the Corps. Therefore, we could expect a greater level of cleanup would be demanded by the US Environmental Protection Agency - in their plan for remediation of the Shpack Superfund Site.
Based on EPA's Proposed Plan, it is now apparent that these statements were not only misleading, but false.

Having been fully engaged in this process, with EPA & the Corps for 4 & ½ years, working closely with the project managers (and in the case of the ACE – their consultant, Cabrera), I felt confident I was well informed, as did others who attended the 13 public meetings in Norton from February 1, 2000 to November 20, 2003.
The presentation from Mr. Lederer was consistent throughout. First the Army Corps would excavate and dispose of (off site) all the radiological waste. Then the EPA (after negotiations with the PRP Group) would move to Phase II – that being to clean up the rest of the mess (volatile, inorganic & organic compounds, carcinogenic chemicals and heavy metals (including arsenic).

While I do not recall there being any written commitment to off site disposal of the chemical & heavy metal waste, neither did the EPA PM ever utter the word "CAP", that is until the 11th hour in June 2004, when the EPA's "consolidate & cover" proposal (leaving the contaminants on site) came to light for the first time and was announced as their plan.

The only time the word "CAP" was used, it was by the Project Manager for the Corps, and I'm sure Mr. Lederer will recall (if he allows himself to) the reaction that received. We pounced on the ACE PM for even mentioning the word relative to the Shpack Site.

Was the EPA forthright in its dealings with the community? NO.
In 4 & ½ years time and 13 public meetings, did the EPA Project Manager discuss the various options that would be considered for their end of the cleanup deal? NO.
Did the Environmental Protection Agency even factor in the intended Re Use of the site, as the Army Corps had done? NO. Was the EPA fully aware of what the Town of Norton's intended use was for the Shpack Superfund Site, after cleanup? YES.

According to the Environmental Protection Agency's directive – "Land use in the CERCLA (Superfund) Remedy Selection Process" 5/25/95 "The EPA believes that early community involvement, with a particular focus on the community's future uses of the property should result in a more democratic decision-making process: greater community support for remedies selected as a result of this process; and more expedited, cost-effective cleanups."
The Superfund Land Use Directive states that in cases where future land use is relatively certain, the remedial action objective(s) generally should reflect this land use."
Further - "EPA is responsible for ensuring that reasonable assumptions regarding land use are considered in the selection of a response action."

With regard to the Shpack Superfund Site, the Environmental Protection Agency has totally ignored its own stated objectives and directives. Why?

The short answer to what has gone terribly awry here is – We were duped, either intentionally over a long period of time, or suddenly when it came time to crunch the numbers and deal with the cost (in both time & money) - to finally rid the EPA of this decades old embarrassing site, and de-list it in this fiscal year.

It appears that somewhere along the line, or perhaps from the get go, The EPA bailed out on its commitment to the Town of Norton, in favor of a plan that the Shpack Steering Committee (PRP Group) would endorse.
Although "Community Acceptance" is supposed to be at least a part of the modifying criteria for EPA's selection of a response action, PRP acceptance is not listed as a criteria item at all.

What led the Environmental Protection Agency in this direction?

Was the EPA afraid that if they sought a decent (costlier) level of cleanup, that some or all of the six PRP companies might "Walk", forcing EPA to pursue court action? Come on... $50 million is not an unreasonable sum to expect these companies (Texaco, Conoco, Texas Instruments, Waste Management, Swank, and Handy & Harman) to "pony up" for remediation of the Shpack Superfund Site.

So... a little negotiation would be in order. We were always led to believe this would need to occur, and take perhaps a year or two.

Negotiations? Members of the Shpack Steering Committee must be jumping for joy over EPA's SC-2b Plan. It is the quickest, easiest, least costly proposal of any, that could be considered a reasonable option.

Was the $28.1 option also EPA's Preferred Alternative in order to avoid the extra step of approval from EPA's National Headquarters in Washington DC (necessary for a cleanup projected to cost over $30 million)? That sounds extremely adolescent. Certainly, having Congressman Barney Frank, as well as Senators Edward Kennedy & John Kerry in our court, could (and will) simplify matters there.

Please address these questions/issues and try to make a <u>legitimate</u> case for EPA's Preferred Alternative SC-2b.

And please do not just repeat the lame excuse that this option will in fact provide "both short and long term protection of human health and the environment." Or at the very least – explain in detail how EPA can justify this position.

All things considered, we do not believe the US Environmental Protection Agency can make an adequate case to defend their choice of the SC-2b Alternative as an acceptable Response Action or substantiate claims that the SC-3b Cleanup is not warranted for thhe Shpack Superfund Site.

Heather A. Graf

Heather A. Graf, Chairperson
Ad Hoc Shpack Technical Committee

August 25, 2004
Heather A. Graf, Citizens Activist
229 N. Worcester St.
Norton, MA 02766
Ph. (508) 226 – 0898
FAX (508) 226 – 2835

Dave Lederer
US EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

Comments On EPA's Proposed Plan For The Shpack Superfund Site –

Personal –
My husband & I have lived in Norton for 30 years. Our home is a little over two miles from the Shpack Site, so the term NIMBY is not applicable.

Town of Norton's Resolve –
Cleanup of this site is not a neighborhood issue. This toxic waste dump is a menace that has plagued the Town of Norton for 26 years, since radioactive waste was discovered there in 1978.
Residents of the town are united and steadfast in their opposition to the Environmental Protection Agency's "Preferred Alternative, SC-2b", and adamant in demanding the SC-3b Alternative be selected in EPA's Record of Decision (ROD), for cleanup of the Shpack Superfund Site.
Be assured, as was stated at EPA's Public Hearing on August 4, 2004 - when Robert Kimball (Chairman of the Norton Board of Selectmen) read the "Position Paper For The Town of Norton" – "Neither the EPA nor the PRP Group should underestimate Norton's resolve. We will exhaust all regulatory, political, and legal means possible to effect the SC-3b solution."

Political Support –
On the political level the Town of Norton has the support of Congressman Barney Frank, State Senator JoAnn Sprague, State Representatives Mike Coppola, Betty Poirier & Phil Travis (all of whom testified at the August 4, 2004 Public Hearing and submitted responses in writing as well).

Legal Aid –
To our advantage, the same attorney who has been on the Shpack case since the beginning, is still working for the firm which is under contract as Norton's Town Counsel.

War Chest –
The Town of Norton is adding funds to the Shpack Legal Account to create a war chest, should we be forced into a legal battle with the EPA, members of the PRP Group, or any other entity, which would try to deny the Town its right to the SC-3b Remedy of the Shpack Superfund Site.
We will also be prepared to engage any adversary in a dispute over the Town of Norton's responsibility to contribute funds for Phase II – the cleanup of the Shpack Site.
The Town's resolve to effect the SC-3b Solution will not be compromised by threats from anyone - that if Norton insists upon the higher level of cleanup, the Town will be slapped with the burden of sharing the cost of that cleanup.

PRP List –
Contrary to testimony at the August 4, 2004 Public Hearing, by Attleboro's Health Agent, Jim Mooney – The Town of Norton did not ever dump materials/ waste at the Shpack Dump. Isadore Shpack would accept anything from anyone - in an attempt to fill his wetland property for use as an apple orchard (which by the way he never achieved, getting only so far as raising chickens!), and obviously some Norton residents took advantage of a neighborhood dump to get rid of their trash. That does not make the Town of Norton culpable, any more than the Town of Rehobeth, if some of its residents took unwanted materials to the Shpack Dump.
In June 1981, at the urging of the US Department Of Energy (DOE), the Town of Norton did purchase from Lea Shpack (widow of Isadore, who died February 1, 1979), the parcel of land in Norton. The $8,000 for the transfer of the property was provided to the Town by Texas Instruments (TI) – the major contributor to contamination at the Shpack Site. Mrs. Shpack had wisely refused to lease the property to the Department of Energy, she insisted on selling (unloading) it. DOE convinced the Town that cleanup would be easier to accomplish if the site were publicly, rather than privately owned. Norton agreed to accept title to the property in the spirit of cooperation with the Department of Energy, to facilitate the remediation process. The agreement did include a clause that the Town was not responsible for the contamination of Shpack.
According to the Environmental Protection Agency's spokesman at the time, and reiterated by EPA's current Project Manager – Norton was on the PRP list because Superfund regulations require the owner of the property be named.
Residents of the Town of Norton have already endured far too much. The citizens of this community have paid dearly for a highly contaminated toxic waste site - a monster that they had no part in creating.
The "R" in PRP stands for "Responsible". The Town of Norton, while being perhaps the only member of the group acting "responsibly"(as in good conscience) clearly was not and is not - responsible for contamination of the Shpack Site.

Municipal Disputes –
According to Mr. Mooney, Atttleboro (the only person at the Public Hearing to speak in favor of EPA's Preferred Alternative), the contamination on the 2 & ½ to 3- acre portion of the Shpack Superfund Site which lies in Attleboro - is not very contaminated.

Apparently the Attleboro Health Agent has not read reports by Cabrera Services (Consultant for the US Army Corps of Engineers). The part of the Shpack site in Attleboro, at the border with Attleboro Landfill Inc. (ALI) is highly contaminated.
Also Mr. Mooney stated that the City of Attleboro does not care if the portion of Shpack within their city limits – gets cleaned up at all. Just covering it sounds fine, because Attleboro has no intention of using the land. I'm not sure who Mr. Mooney is speaking for here. Perhaps, with the Title of Health Agent, dealing with a new mayor and city councilors - who know little, if anything about Shpack, he has convinced some city officials to accept this ridiculous position.
While I understand EPA must consider comments from Mr. Mooney, the same as from the Norton Board of Health, and responses from Attleboro residents, the same as from those of us in Norton, keep in mind 6 of the 9 acres are in Norton. The majority of residents affected by Shpack are in Norton. The stigma of the Shpack Superfund Site has always been Norton's. The burden of protecting the community from the negative impacts of Shpack has been Norton's. When EPA considers "Community Acceptance"- it must be weighted to favor the Town of Norton.
Also in a discussion with Garth Patterson (Congressman Barney Frank's Office), we agreed that a Superfund Site must be treated equally, all together as one. You cannot draw a line in the sand (or swamp) at the Town/City Line.

Cleanup –
At least verbally, at a preview of the Environmental Protection Agency's Preferred Alternative, prior to the June 23,2004 Public Meeting, it was stated by a spokesperson for EPA that a reason for not going with a higher level of cleanup was – because there is migration from ALI into Shpack. So… If EPA has a barrel filled to the brim with contaminated material, it should not be emptied, because there will likely be some more bad stuff leaking into the barrel? Explain the logic in this.

Cleanup Cost –
It should be obvious that the Army Corps of Engineers will be doing the lion's share of the cleanup at Shpack. "The spot is riddled with red dots, like a bad case of the measles." (Red dots indicating radioactive waste). In professional terms – The radiological waste is heterogeneously spread over the site. Also, for most of the site – the materials are not separated between Rad. and Chemical/Heavy metals. It is all mixed up. When ACE excavates and disposes of (off site) all the radiological waste, they will be taking with them much of the contaminated soil that was supposed to be the responsibility of the EPA/PRP Group to clean up.
Also there will be little, if any, "Commingled Waste" for EPA/PRP Group to deal with. The estimates by ERM (consultant for the Shpack Steering Committee, AKA – PRP Group) of the amount of material that will be left for the PRPs to remove are exaggerated. And so are the estimated cost because it is figured as if the material is "Commingled Waste". Disposal fees are significantly higher for Commingled Waste.

Even if the Army Corps could take away only the radiological material, the fact is this agency of the US Government is assuming the responsibility of removing TI's contaminants.

Water Main –
EPA's plan is to extend the town water main down Union Road to get the two houses closest to Shpack off well water, so the level of cleanup can be significantly reduced. The cost of this water main is minimal, compared with the $70 million it saves between Norton's Preferred Alternative SC-3b (at approx. $50 million) and the highest level of cleanup considered (at approx. $116 million).

Representatives for the Town of Norton – Bob Kimball (CH. Norton BOS) and myself, at the preview of EPA's Propsed Plan in June 2004, agreed upon what we thought was a very reasonable position: Accept the water main, do not insist on a level of cleanup which included groundwater, compromise and settle for the $50 million (middle of the road) alternative, which would dispose of all contaminated soil off site.
In hindsight, perhaps we should not have been so agreeable. By setting our sights and goal at a lower level, EPA thought they could get away with the SC-2b "Consolidate & Cap Plan". Be advised we will not be so naïve again.

We do see potential problems with the extension of the water main, that being in increased development along Union Road near the Shpack Site. While EPA has proposed "Institutional Controls" under their SC –2b plan, they cannot regulate development surrounding the site. And while the Town can change zoning, to perhaps Heavy Industrial, that would not decrease (in fact might increase) the number of individuals coming to the area. In any case, a zoning change can be reversed at Town Meeting by a simple 2/3 majority vote.

Contaminants at the Shpack Superfund Site –
According to a 3/20/80 article in the Norton patriot – "Health Inspector Joseph Grimaldi reported there are 200-300 barrels of PVC buried between two points on the site." Reportedly, the PVC is residue from the Thompson Chemical fire which destroyed the company in 1964. An abutter to the property – Louis Tetreault claims that the PVC was poured on the site and later burned off.
According to a Sun Chronicle article 8/5/80 "While attention has been on the survey for "hot spots"at the Shpack property recently, (US Rep..Margaret) Heckler said she has been told by a US DOE official that any danger from radiation was "one millionth" the potential hazard from chemical wastes in the dumping areas."

We do know that chemicals have a greater capacity to migrate in groundwater.

Contaminants at Shpack See Attachment A
Other than some PCBs & Dioxin, which EPA proposes to remove from the site, and the radiological waste the ACE will take away, given this horror list of toxic substances, some known carcinogens - (Attachment A), does the EPA still maintain that their SC-2b (Consolidate & Cover) Plan will in fact provide an acceptable level of protection for human health and the environment?

EPA's Record of Community Involvement –
The first meeting with EPA, ACE, DEP officials and representatives of the Town of Norton was held December 20, 1999 (five days before Christmas). Could EPA – "The Lead Agency for the Cleanup of the Shpack Superfund Site" have chosen a more perfect time to ensure no one would give a damn about Shpack? Surprise, some of us did.
Then there was the scheduling of the public meeting, to finally after 4 & ½ years advise Norton residents of EPA's ill advised Plan - June 23, 2004 (days after school recessed for summer break). And the setting of the Public Hearing for August 4, 2004 (in a steamy school cafeteria) - to deflect interest by any other than the very most hardy souls. The public comment period from June 24 – August 25 couldn't be much worse. Does anyone, other than Heather Graf, not take at least one weeks vacation during that period? How many individuals are going to spend any time trying to review EPA's Shpack Plan, (such a tedious task) during the summer months? And even for the willing, the material is so voluminous, almost no one could do more than scan it. Even our expert Conservation Director – Jennifer Carlino, was hard pressed to respond to even the Feasibility Study. Forget about reviewing the 229 page text of the "Draft Baseline Ecological Risk Assessment", prepared by EPA's consultant – Metcalf & Eddy, dated June 14, 2004. In addition to the 229 page text there are Figures, Tables & 3 Appendices – the volume is 5 &1/4 inches thick!
As for the 3 discs provided with the box loads of written material – the table of contents on the discs is done in CODE.
The designations of alternatives: the EPA's favorite SC-2b and Norton's preferred plan SC-3b were so similar, as to be totally confusing when trying to separate the two.
The power point presentation at the June 23, 2004 public meeting – with miniscule white letters on black boxes was pathetic. One needed a magnifying glass to read what was printed on the handouts. Try to copy - and use up an ink cartridge. Don't even think about FAXING! And the 12 page Proposed Plan handout was the most discombobulated of any paper I have ever reviewed.
Whether in their timing or presentations, the US Environmental Protection Agency has demonstrated an uncanny ability to make the process the least user friendly, the most difficult & frustrating, and I do believe this was intentional.

At the introduction to the Public Hearing August 4, 2004, the EPA's Hearing Officer – Susan Studlien said the hearing was being conducted to receive testimony on <u>The Proposed REMEDY For the Shpack Superfund Site. The SC-2b Plan is not a REMEDY!</u>

If the US Environmental Protection Agency insists on the SC-2b Plan, it will be apparent that the name of your agency is an oxymoron.

Heather A. Graf

Heather A. Graf

+ Appendix A (2 pages)
+ Appendix B (4 pages)

Appendix H

CONTAMINANTS , SHPACK & ALI (ATTLEBORO LANDFILL INC.)

Nuclear Regulatory Commission / November 1978 SHPACK
Principal Radioactive Compounds Above Natural Background Levels:
Uranium - 234, Uranium - 235, Uranium - 238
Radium - 226

Department Of Environmental Quality Engineering / March 1980 SHPACK
Elevated Levels Of Heavy Metals In Soil:
Lead, Arsenic, Chromium, Copper, Cadmium, Nickel, Zinc

Department Of Environmental Quality Engineering / November 1980 SHPACK
Chemicals Detected In Groundwater Above EPA Maximum Contamination Level For Drinking Water:
1.2.- dichlorethylene, trichlorethylene, tetrachloroethylene

US Environmental Protection Agency / May 1982 SHPACK
Soil & Groundwater – Several Volatile Organic Priority Pollutants Detected

US EPA & Roy F. Weston Technical Assistance Team / August 1989 SHPACK
Presence Of Chemicals In Surface Water Samples At Concentrations Exceeding "EPA Ambient Water Quality Criteria For Protection Of Human Health":
Vinyl chloride, benzene, 1.2.- dichlorethene, aroctor – 1248

US EPA & Weston / November 1989 SHPACK
Soil Samples Confirmed Presence Of :
Volatile Organic Compounds, Semi-volatile Organic Compounds, Polychlorinated Biphenyls (PCBs)

DUMPED ON SITE SHPACK, 1946 – 1966:
Waste Oil, Degreasing Solvents, Iron, Cyanide, Heavy Metals, Precious Metal Refining Waste, Resins, Organics, Depleted Uranium, Vinyl Chloride

GHR ENGINEERS OF NEW BEDFORD / March 25, 1980
SHPACK & ATTLEBORO LANDFILL (ALI)
Samples Collected From 10 Observation Wells On ALI Property On Peckham St., Plus 2 Samples Of Contaminated Soil From Older Landfill Northeast Of Present Landfill (SHPACK):
15 Volatile Chemicals Were Detected In One Or MoreObservation Wells. "Eight Of The Volatile Organics : Vinyl chloride, Chloroform, 1.2 – Dichloroethylene, Methylene Chloride, Bromodichloromethane, Trichloroethylene, Benzene & Tetrachloroethylene Exceed Human Health Criteria."
"These Volatile Organic Compounds Are Considered To Be Potential Carcinogens If Consumed In Drinking Water, Fish Or Shellfish."

Appendix A Pg. 2

GHR ENGINEERS / March 25, 1980 (Continued)

"If A Chemical Is Suspected Of Being A Human Carcinogen, There Is No Recognized Safe Concentration In Drinking Water Or Food Which Will Provide Absolute Protection Of Human Health Except Zero."

Norton Patriot 7/19/79

Appendix B

4 Pages

Illustrations

DEBRIS. A report issued by the NRC confirmed that TI dumped industrial waste at the Shpack property on Union Road. Radioactive materials were also discovered at the site. Patriot photo by Ron Baptista.

Sun Chronicle 6/27/80

Testing

Norton and state officials take water samples from Chartley Pond, Norton, in search for traces of possible radioactive contamination from the Schpack dump property. From left are David Opatka, Norton conservation director; Robert Fagan (kneeling) of the state Department of Public Health; Gary Keegan, state engineer, and Norton Health Agent Joseph Grimaldi.
(Photo by Frank Adams)

Sun Chronicle 7/26/80 Pg. 2

At landfill

Charles Eradrick of the Oak Ridge National Laboratory crew uses probe to check for surface radiation on Attleboro Landfill inc. land Friday.

(Photo by Frank Adams)

Sun Chronicle 10/7/80

Taking sample

Workers on the team hired by the U.S. Department of Energy to determine the extent of radioactive contamination at the Shpack property in Norton Monday take a ground water sample from the site. Sample was taken by lowering a water collector into a hollow drill bit drilled four feet into the earth.

(Photo by Leo Peloquin)

August 24, 2004

Certified Mail
Return Receipt Requested

Mr. David O. Lederer
United States EPA – Region I
One Congress Street,
Boston, MA 02114-2023

SHPACK
4.9

RE: Comments on Proposed Remedial Action Plan
Shpack Superfund Site
Norton/Attleboro, Massachusetts

Dear Mr. Lederer,

As the Chairman of the Shpack Steering Committee,[1] please accept this letter providing comments on the United States Environmental Protection Agency ("EPA") Proposed Plan for the Shpack Landfill Superfund Site in Norton and Attleboro, Massachusetts (the "Site") dated June 2004. The Shpack Steering Committee endorses EPA's selected remedy as documented in the Proposed Plan for the Site using **Alternative SC-2B** (the "Preferred Alternative") that includes both (1) excavation of PCB, dioxin and radiological material and (2) consolidation of residual materials that pose little or low level risk beneath an onsite multi-barrier landfill cap. The Steering Committee endorsement is based on the fact that the Preferred Alternative is distinctly superior when compared to the other alternatives evaluated pursuant to EPA's nine remedy selection criteria. In this letter, we will set forth in greater detail the analysis supporting this conclusion.

VISION FOR THE FUTURE

At the outset, we wanted to highlight the community benefits to be derived from the appropriate implementation at the Shpack Site of the Preferred Alternative.[2] These benefits are substantial and include the following:

- The Site, as remediated, will be protective of both human health and the environment.

- The Preferred Alternative is the most reliable from an implementability perspective, has the fewest short-term negative impacts on both the community and on-site workers and can be accomplished in the shortest period of time.

[1] Presently the Shpack Steering Committee consists of Texas Instruments Incorporated, ConocoPhillips, Keewanee Industries, Inc., and Swank, Inc.. The signatories to the ACO not included in this response are Handy & Harman, Inc. and Waste Management, Inc.

[2] This remedy could be implemented either by potentially responsible parties under the terms of a Remedial Design/Remedial Action Consent Decree or by EPA, as the remedial lead.

- As an integral element of the remedy, the Site can be enhanced ecologically through both careful wetland restoration and the planting of a native New England wildflower meadow on the soil cap. Such meadows are currently scarce in New England and provide much needed habitat for birds, butterflies and other creatures, a number of which are rare or endangered. Combining an upland meadow habitat with the adjacent wetlands offers even greater wildlife benefits.

- In addition to planting the meadow, there can be wildlife enhancements designed into the remedy such as bird nesting boxes, turtle nesting areas, perches for raptors and strategically located brush piles for shelter.

- Such an ecologically enhanced site will offer a community resource that is far more valuable than a site for housing or agricultural uses. This is the case because a network of nature trails and boardwalks for the benefit of the Community can be constructed as part of the remedy implementation, together with educational and interpretative signage, so that members of the community may enjoy recreation in a unique natural setting. While housing and agricultural uses are more readily available, such native meadow/wetland habitat is a scarce recreational resource.[3]

- Funding can also be made available to sponsor nature interpretation and environmental education programming on the Site in conjunction with environmental organizations (e.g., Massachusetts Audubon) and the local schools.

- The continuing integrity of the cap, the ecological enhancements and the educational programming can be secured through a funded remedial trust.

The above benefits are not theoretical. Such a native New England wildflower meadow, together with associated wildlife enhancements, has been successfully implemented at the ReSolve, Inc. Superfund Site in North Dartmouth, Massachusetts (Exhibit A). Moreover, the Wildlife Habitat Council (WHC) of Silver Spring, Maryland, a non-profit organization which encourages and helps to design and integrate ecological/wildlife enhancements into Superfund remediation projects, has successfully assisted in the incorporation of such enhancements into several major landfill remediation projects (Exhibit B).

Thus, not only does the Preferred Alternative best satisfy EPA's own remedy selection criteria as highlighted in the Proposed Plan and this comment letter, but it offers the

[3] This type of recreational resource is becoming ever more important in the face of development "sprawl", and it is consistent with the salutary planning objective of locating parks in natural settings which are convenient to user population concentrations such as Attleboro. Also, less desirable uses such as landfills were historically located near the borders of communities. A recreational and educational resource situated on the former Shpack Landfill would reverse this unfortunate precedent by instead siting a valuable community asset at the common boundary of Attleboro and Norton.

community the shortest remedial time frame, with the fewest implementation risks and very significant accompanying community benefits.

NATIONAL CONTINGENCY PLAN'S NINE REMEDY EVALUATION CRITERIA

This section sets forth the nine remedy selection criteria used by EPA pursuant to the National Contingency Plan ("NCP") to select the remedy for the Shpack Site and summarizes the facts that provide compelling support for EPA's selection of Alternative SC-2B.

I. Overall Protection of Human Health and the Environment

In the Proposed Plan, Alternatives SC-2B and SC-3B are both stated to be protective of human health and the environment. However, EPA has established a long-standing, nationwide precedent for preferring consolidation of landfill materials and placement of landfill caps at Superfund Landfill Sites such as Shpack. Specifically, EPA's own regulations at 40 CFR 300.430 (a)(1)(iii)(B) of the NCP state that "EPA expects to use engineering controls, such as containment, for waste that poses a relatively low long-term threat...". Further EPA's *Presumptive Remedy for CERCLA Municipal Landfill Sites* guidance (September 1993, EPA 540-F-93-035)[4]recommends that containment (i.e., capping) be used at landfill sites such as Shpack that pose 'a relatively low long-term threat' with 'a heterogeneous mixture of municipal waste frequently co-disposed with industrial and/or hazardous waste'. Consistent with its regulations and Presumptive Remedy guidance, for over twenty years, EPA has approved the use of landfill caps at Superfund Sites throughout the country as evidenced by the following:

- Table 1 includes the results of a search of the EPA Records of Decision (ROD) database identifying 149 Superfund Landfill Sites around the country where landfill caps have been implemented as part of the selected remedy.

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[4] As stated in this Presumptive Remedy guidance document at page 1:

> Presumptive remedies are preferred technologies for common categories of sites, based on historical patterns of remedy selection and EPA's scientific and engineering evaluation of performance data on technology implementation. The objective of the presumptive remedy initiative is to use the program's past experience to streamline site investigation and speed up selection of cleanup actions. Over time presumptive remedies are expected to ensure consistency in remedy selection and reduce the cost and time required to clean up similar types of sites. **Presumptive remedies are expected to be used at all appropriate sites except under unusual site-specific circumstances.** (emphasis supplied).

It must be emphasized that, following the excavation of the Principal Threat wastes, including the PCBs, dioxins and radiological materials, as called for by Alternative SC-2B, there are no unusual site-specific circumstances affecting the Shpack Site which would distinguish it from the other Superfund Landfill Sites at which the presumptive containment remedies have been implemented.

- Table 2 includes the results of a search of the EPA ROD Region I Database identifying 50 Superfund Landfill Sites in New England where caps have been implemented as part of the selected remedy.

- Table 3 includes a sample selection of Superfund Sites having contaminants similar to the Shpack Site that have been capped in all areas of the country.

It is important to note that Alternative SC-2B goes beyond capping by including excavation of Principal Threat wastes (i.e., PCBs, dioxin and radiological material). Alternative SC-2B thus thoroughly addresses both the health and environmental risks at the Site.

2. Compliance with ARARs

As the Proposed Plan notes, both Alternatives SC-2B and SC-3B are compliant with Applicable or Relevant and Appropriate Requirements (ARARs). However, Alternative SC-2B best comports with published EPA guidance and related documents supporting the effective implementation of ARARs, including:

- *Presumptive Remedy for CERCLA Municipal Landfill Sites* (September 1993, EPA 540-F-93-035) – As discussed above, this guidance establishes capping as EPA's preferred alternative for Low Level Threat wastes at Superfund Landfill Sites such as the Shpack Site.

- *Reuse of CERCLA Landfill and Containment Sites* (September 1999, EPA 540-F-99-015) – This fact sheet describes the implementation of EPA's Superfund Redevelopment Initiative at Superfund Landfill Sites. This initiative focuses on finding productive uses for Superfund Sites following remedy implementation. As discussed above, once the cap is complete, the Shpack Site may be beneficially reused consistent with the goals of the Superfund Redevelopment Initiative. For example, at page 3 of this document, it is observed that:

  > The historical practice of siting landfills in remote areas often allows all or part of a landfill site to be used for future ecological use. Wildlife enhancement areas and wetlands provide green space and habitat for indigenous species, and often serve as a cost-effective and design-friendly means of returning landfills to beneficial use.

- *The Role of Cost in the Superfund Remedy Selection Process* (September 1996, EPA 540-F-96-018) – This fact sheet outlines the CERCLA and NCP requirement that <u>every</u> remedy selected "<u>must</u> be cost-effective" (emphasis in the original). As documented at 40 CFR 300.430(f)(1)(ii)(D), a selected remedy is considered cost effective if its 'costs are proportional to its overall effectiveness'. Alternative SC-2B has the distinct advantages of offering greater net risk reduction benefits (see the discussion below) and comporting with EPA's Presumptive Remedy guidance, while Alternative SC-3B, lacks these advantages and is disproportionately (almost twice the cost) expensive. Thus, Alternative SC-2B must be selected in order to comply with CERCLA, the NCP and applicable guidance.

3. Long-Term Effectiveness and Permanence

Alternative SC-2B provides long-term effectiveness and permanence. We fully concur with EPA's statement that landfill capping is a proven technology for effectively eliminating exposure to chemical waste material over the long-term. Moreover, such long-term performance can be even further assured through the beneficial site reuse approach discussed at the outset of these comments. This is the case, because the creation of a native New England wildflower meadow and wildlife habitat area, which, as previously noted, can be maintained and supervised by a fully funded remedial Trust, will help assure that the Shpack Site does not become an unsupervised "orphan". Instead, institutional and engineering controls would continue to be monitored and enforced by such a funded entity. Moreover, the communities themselves will have a positive stake in the future of the Shpack Site since it will be a public recreational and educational asset. In this connection, the Steering Committee understands that the community is concerned about the possible installation of a chain-link fence surrounding the property, as it will limit access for recreational activities such as nature walks, bird watching, etc. Given the objective of transforming the Site into an attractive and useful recreational and educational resource for the community, it most certainly will not be fenced off so as to be inaccessible. Rather, the selected Alternative SC-2B remedy can incorporate the installation of a rock wall or a post and beam fence (see Exhibit B) that would be aesthetically appealing and would allow for pedestrian access, while preventing access by off-road vehicles.

4. Reduction of Toxicity, Mobility or Volume Through Treatment

As stated in the Proposed Plan, both Alternatives SC-2B and SC-3B achieve reduction of toxicity, mobility or volume, although not through treatment. Specifically Alternative SC-2B addresses Principal Threat waste at Shpack through excavation of radiological, PCB and dioxin material. In addition, the placement of a landfill cap under Alternative SC-2B ensures that any residual Low Level Threat waste is secured safely beneath a cap so as to eliminate any exposure pathway to community residents. In contrast, Alternative SC-3B will leave residual impacted material below Preliminary Remediation Goals (PRGs) in soil at the Shpack Site without the benefit of a cap. As a consequence, such residual material could be mobilized in the future or accessed by community residents. Moreover, while the uncapped residual material left under Alternative SC-3B may not in and of itself at this time be deemed to be a threat to public health or the environment, our collective understanding of risk changes over time, as do the regulations designed to protect human health and the environment. Thus, it is possible that contaminant levels not considered to pose an unacceptable risk today could be deemed too risky in the future, thus impairing both the protectiveness and permanence of Alternative SC-3B. Finally, the presence of impacted source material present in the portions of the ALI Landfill adjacent to the Shpack Site could recontaminate materials that are left uncapped under Alternative SC-3B. Thus, the cap provided by Alternative SC-2B is likely to offer greater long-term protection than that associated with Alternative SC-3B.

5. Short-Term Effectiveness

Alternative SC-2B would be implemented in the shortest time frame and have the least impact on the community. Specifically, Alternative SC-3B requires excavation and management of 24,000 cubic yards (yd^3) more contaminated soil than Alternative SC-2B. Therefore, if Alternative SC-3B were to be implemented, it would require approximately 2,000 more truck trips to transport contaminated soil out of the local community, and an additional 2,000 truck trips to import clean fill to the Site. Due to the potential for cross contamination, it is not practical to utilize the same truck to bring in clean fill that is used to transport contaminated material away from the Site. As shown on Figure 1, a likely truck route along Route 140 to access the Shpack Site will bring these 4,000 trucks, approximately one-half of which will be hauling contaminated material, past four schools. In addition, the significantly greater quantities of materials to be excavated as part of Alternative SC-3B would increase the potential for dust and/or volatile emissions during remedy implementation, thereby increasing the risks to the community. This increased risk is unwarranted given the fact that Alternative SC-2B is both protective and ARAR compliant.[5] Indeed, this very issue was addressed in the landmark case of U.S. v. Hardage, 750 F. Supp. 1460 (D. Okla. 1990) (see discussion below) where a Court rejected a proposed excavation remedy, in favor of a containment remedy, since the excavation remedy presented "unacceptable risks to workers, to nearby residents, and to the environment".

The same concerns with an extensive excavation-based remedy that were expressed by the Court in the Hardage case were also articulated by EPA New England in evaluating the short-term effectiveness and implementability of the alternative remedies considered for Operable Unit 1 of the Raymark Industries, Inc. Superfund Site in Stratford, Connecticut. This was an EPA remedial lead site where, as with the Shpack Site, an excavation remedy (coincidentally identified as Alternative SC-3) was compared with a capping remedy (identified as Alternative SC-2). In its Record of Decision for the Raymark Site, EPA selected the capping remedy stating:

> The use of appropriate engineering controls and personal protective equipment is expected to minimize adverse impacts to the community and workers, respectively. Earth moving activities (consolidation and

[5] These types of "severe effects across environmental media" are cited in applicable guidance as a situation where containment may be used even to redress Principal Threats, let alone the Low Level Threats for which containment is proposed by Alternative SC-2B. *Rules of Thumb for Superfund Remedy Selection* (August 1997, EPA 540-R-97-013).

> backfilling) associated with Alternative SC-2 are expected to generate some limited amounts of fugitive dust and vapor-phase VOCs, but would be easily managed through engineering controls (such as wetting or use of dust suppressants). Alternative SC-3 [excavation and off-site disposal] would likely result in greater short-term impacts (e.g., generation of increased dust and vehicular traffic) than SC-2 because of the excavation, handling, and off-site transport of 21,000 cubic yards of highly contaminated material contemplated under SC-3. Alternatives SC-4 and SC-5 would involve much more excavation and materials handling and would likely result in much greater fugitive dust and vapor-phase VOCs generation than Alternatives SC-2 and SC-3. **The control of fugitive dust and/or vapor-phase VOCs for Alternatives SC-3 through SC-5 through common practices such as wetting or use of dust suppressants becomes increasing more difficult as more contaminated materials are excavated. This would result in added risks to workers and nearby residents.** (emphasis supplied). Raymark Industries, Inc. Operable Unit 1 Record of Decision, July 13, 1995 at pages 28-29.

Certain Stratford, Connecticut community members urged implementation of the excavation remedy for the Raymark Site to which EPA responded in its Responsiveness Summary as follows:

> EPA prefers Alternative No. 2, capping, since it offers the best combination of protecting human health in the short and long-term, can be completed within a relatively short time period, is economically feasible and implementable, and would result in less disturbance of highly contaminated material and possible threats to nearby individuals during implementation of the remedy. The excavation and off-site disposal may create more problems than may be solved. Capping is a permanent solution provided that there is periodic maintenance and it affords a level of long-term protection appropriate to the future re-use of the property. Id. Responsiveness Summary at page 22.

Notably, the excavation remedy (SC-3) rejected at the Raymark Site involved the off-site disposal of only 21,000 cubic yards, whereas the excavation contemplated by Shpack Alternative SC-3 would involve the off-site disposal of over 24,000 additional cubic yards.

Finally, it is also to be noted that the selection of Alternative SC-3B would trigger review by EPA's National Remedy Review Board. In accordance with EPA policy, this review is required because Alternative SC-3B is estimated to cost (a) more than \$30 million or (b) more than \$10 million and 50% greater than the cost of the least costly, protective, ARAR-compliant alternative (i.e., Alternative SC-2B). This remedy review process could further delay the implementation of a protective remedy at the Shpack Site.

6. Implementability

As described in the Proposed Plan, Alternatives SC-2B and SC-3B are both potentially implementable at the Shpack Site. However, Alternative SC-3B poses the multiple implementability challenges and risks detailed above under "Short-Term Effectiveness", including those risks cited by EPA in its Raymark Industries, Inc. Superfund Site Operable Unit 1 Record of Decision. In addition, Alternative SC-3B would pose significant structural engineering challenges in order to manage the excavation of impacted material adjacent to the towering Attleboro Landfill, Inc. (ALI) landfill which borders (and forms part of) the Shpack Site. Finally, from an implementability perspective, Alternative SC-2B is consistent with EPA's nation-wide implementation of containment remedies at Superfund Landfill Sites.

7. Cost

As described in EPA's Proposed Plan, the cost for Alternative SC-3B is almost twice that of Alternative SC-2B. This additional $27,000,000 cost associated with Alternative SC-3B is in fact grossly disproportionate to the risk reduction, if any, achieved by implementing this far more costly excavation alternative. Indeed, given the short-term effectiveness and implementability concerns detailed above, it would appear that Alternative SC-3B in fact will achieve less net risk reduction than Alternative SC-2B. Furthermore, given the scope of this project, the potential for cost overruns and implementation delays would be far greater during the implementation of Alternative SC-3B than it would be during the implementation of Alternative SC-2B, thereby further increasing the already
disproportionate cost differential between the two remedial alternatives.

8. State Acceptance

As documented in EPA's Proposed Plan, the Massachusetts Department of Environmental Protection (MA DEP) has reviewed and approved of the preferred cleanup Alternative SC-2B.

9. Community Acceptance

The PRP Group recognizes that certain members of the community are opposed to the Preferred Alternative as documented in the Proposed Plan. However, as with the Raymark Site described above, it appears that such opposition is an inevitable part of the process. Moreover, the statements made by certain commenters to the effect that Alternative SC-2B is not protective and will leave the community with a toxic wasteland are simply not accurate. First, as discussed above, capping is EPA's established presumptive remedy for Superfund Landfill Sites, and it is both protective and widely used. Moreover, as is highlighted in these comments, Alternative SC-2B can be implemented so as to result in the post-remediation Shpack Site being available to the community as a valuable recreational and educational asset as opposed to a fenced wasteland. Indeed, the restoration of the impacted wetlands and the installation of a native New England wildflower meadow, together with associated wildlife enhancements, would be fully consistent with the Superfund Redevelopment Initiative's objective of returning contaminated sites to beneficial reuse.

Special Note Regarding the Waterline

In the Proposed Plan, it is stated that a waterline will be provided to two adjacent residents. As we have discussed, if the two residences in question continue to use water supply wells, then such a waterline would be necessary. However, if both of the adjacent properties were made subject to restrictions prohibiting the use of groundwater, then in such event the waterline would not be necessary. We respectfully request that EPA provide appropriate flexibility in its Record of Decision so that such restrictions against the use of groundwater or other means of eliminating the groundwater exposure pathway, if duly implemented, could be substituted for the construction of the waterline, since they would eliminate the very risk that the waterline is designed to address.

CONCLUSIONS

In conclusion, as discussed above, this is not the first time that the benefits of a "containment" or capping remedy have been demonstrated to outweigh the risks and shortcomings associated with a large-scale "excavation" remedy such as the one proposed by Alternative SC-3B. In the seminal CERCLA case in which a court was forced to evaluate remedial alternatives, U.S. v. Hardage, 750 F.Supp. 1460 (D.Okla. 1990), the U.S. District Court found that the containment remedy proposed by the potentially responsible parties was "markedly superior" to the excavation remedy proposed by EPA. 750 F.Supp. at 1463. The Court rendered this decision after carefully considering the testimony of 45 trial witnesses, inspecting more than 470 exhibits, and examining more than 8,000 pages of affidavits and deposition transcripts and 250 pages of stipulations - all told, a record "totaling more than 150,000 pages." Id. The record compiled in Hardage led the Court to conclude that the proposed excavation remedy clearly "would result in more contaminants being released through vapor and dust emissions than will be released during construction" of the cap which, in turn, meant that the excavation remedy would present "unacceptable risks to workers, to nearby residents, and to the environment." Moreover, the Hardage Court found that the proposed landfill excavation remedy relied on "approaches that are not cost-effective and that are otherwise inappropriate," and did not satisfy the "standards for remedies that must protect the public health and welfare and the environment." Id. at 1480-82. The Court further recognized that all the risk and cost associated with the excavation remedy would be for naught, because the Hardage site (like the Shpack Site) could "never be returned to its prewaste disposal condition under any remedy." Id. at 1477.

Fortunately, the lessons learned through the lengthy litigation that led to the Hardage decision need not be learned again here. The proposed Shpack remedy selected by EPA, Alternative SC-2B, like the containment remedy selected by the court in Hardage, addresses "in a comprehensive way management of the wastes present" at the Shpack Site. Id. at 1484. It does so by, among other things, removing both the radiological and chemical waste that poses a high-level threat; consolidating, containing and capping the low-level threat waste that will remain on-site; and restoring previously impacted wetlands to their natural state.

Moreover, Alternative SC-2B is even more beneficial to the local community than was the court-ordered remedy in Hardage. Unlike the Hardage site remedy, which the Court admitted would not "make the site suitable for use by animals or humans in the foreseeable future," Alternative SC-2B promises to create valuable amenities for the residents of Norton and nearby towns, including a native New England wildflower meadow and wildlife habitat, footpaths and other passive recreational resources, nature interpretation and outdoor educational opportunities, and open space.

For all of the foregoing reasons, the Shpack PRP Group fully supports Alternative SC-2B, the remedial alternative selected by the EPA.

Sincerely,

Francis J. Veale, Jr.

Chairman
Shpack Steering Committee

cc: Shpack Steering Committee Members

References

Proposed Plan Shpack Landfill Superfund Site, Norton, MA United States Environmental Protection Agency, June 2004;

A Guide to Principal Threat and Low Level Threat Wastes, USEPA November 1991, Publication No. 9380.3-06FS;

Presumptive Remedy for CERCLA Municipal Landfill Sites, USEPA, September 1993, Directive No. 9355.0-49FS (EPA-540-F-93-035);

Reuse of CERCLA Landfill and Containment Sites, USEPA, September 1999, OSWER 9375.3-05P (EPA 540-F-99-015);

Landfill Presumptive Remedy Saves Time and Cost, USEPA, January 1997, Directive No. 9355.0-661 (EPA 540/F-96/017);

The Role of Cost in the Superfund Remedy Selection Process, USEPA, September 1996, Publication No. 9200.3-23FS (EPA 540-F-96-018);

A Guide To Selecting Superfund Remedial Actions, USEPA, April 1990, Directive No. 9355.0-27FS; and

Rules of Thumb for Superfund Remedy Selection, USEPA, OSWER, August 1997, Directive No. 9355.0-69 (EPA 540-R-97-013).

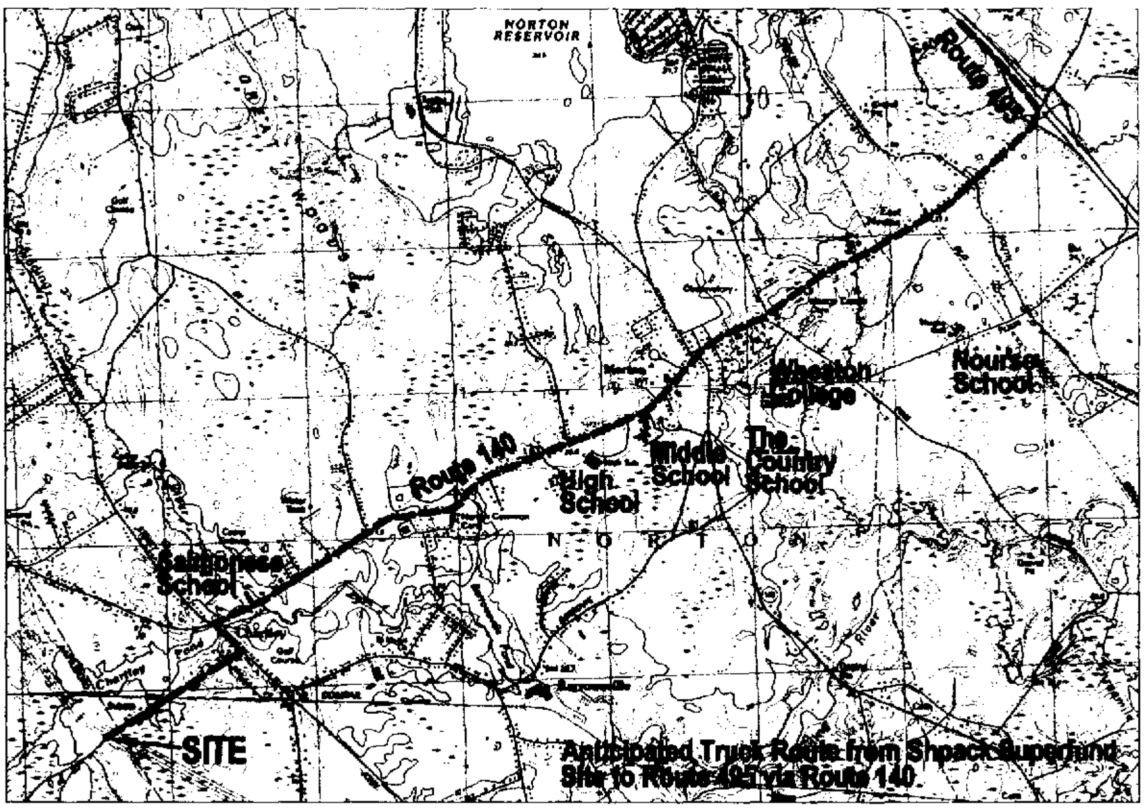
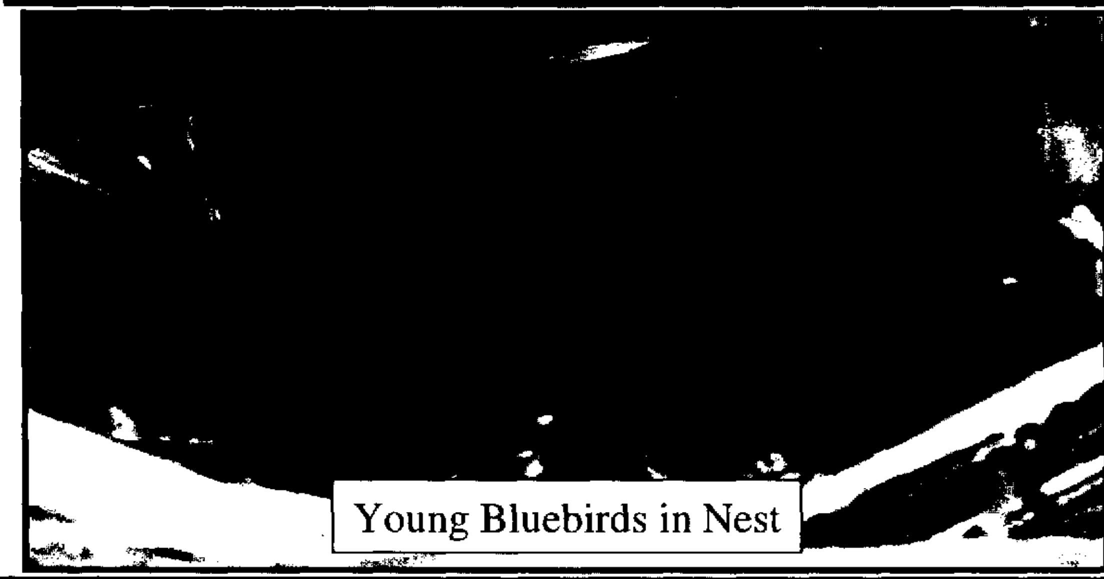


Figure 1 – Potential Truck Route for Contaminated Material

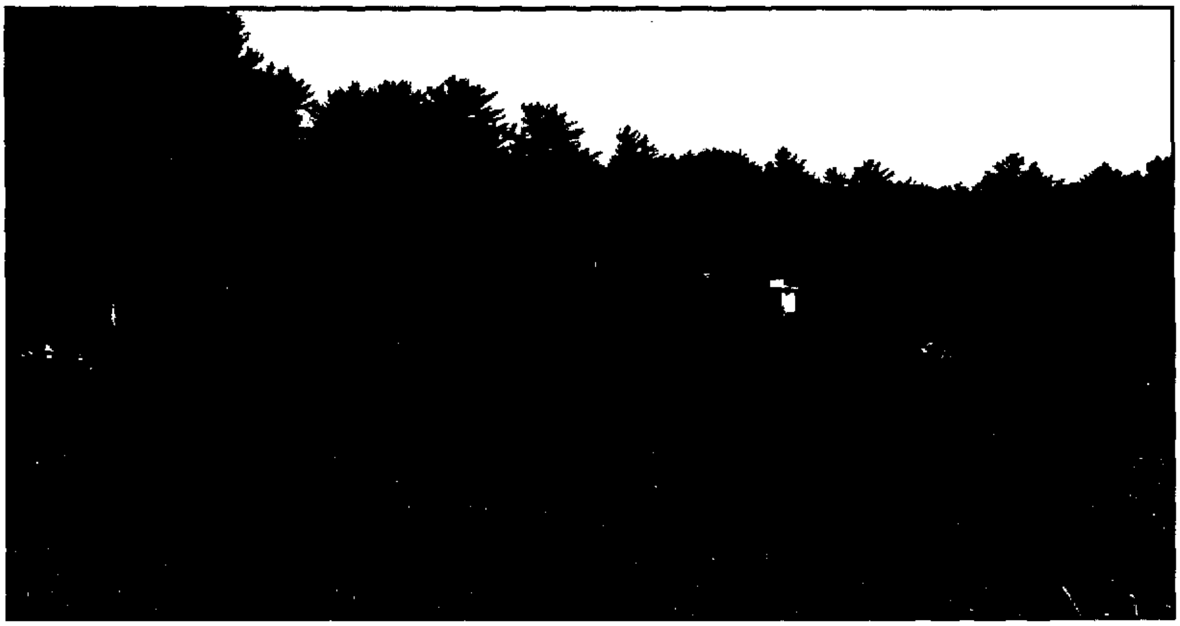
Exhibits

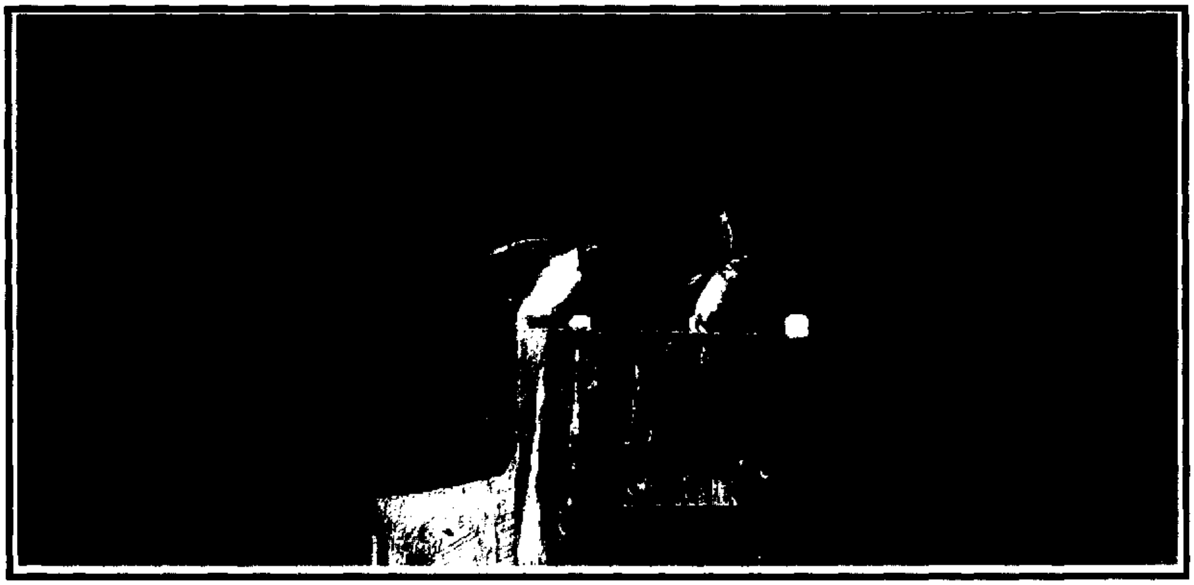


Originals in color

Exhibit B – Bridgestone Superfund Site, Cecil County, MD

Originals in color





Originals in color.

Exhibit A – ReSolve, Inc. Superfund Site – North Dartmouth, MA

Originals in color.

Table 2 - Summary of Region I (New England) Superfund Landfills
USEPA Superfund Information Systems - Region I

Site Name	State	Site Type	City
PARKER SANITARY LANDFILL	VT	NPL	Lyndonville
HAVERHILL MUNICIPAL LANDFILL	MA	NPL	Haverhill
BENNINGTON MUNICIPAL SANITARY LANDFILL	VT	NPL	Bennington
SUTTON BROOK DISPOSAL AREA	MA	NPL	Tewksbury
IRON HORSE PARK	MA	NPL	North Billerica
TROY MILLS LANDFILL	NH	NPL	Troy
CENTRAL LANDFILL	RI	NPL	Johnston
LAUREL PARK, INC.	CT	NPL	Naugatuck
BEACON HEIGHTS LANDFILL	CT	NPL	Beacon Falls
LANDFILL AND RESOURCE RECOVERY, INC. (L&RR)	RI	NPL	North Smithfield
DAVIS (GSR) LANDFILL	RI	NPL	Glocester and Smithfield
BFI SANITARY LANDFILL	VT	NPL	Rockingham
SOMERSWORTH SANITARY LANDFILL	NH	NPL	Somersworth
OLD SOUTHINGTON LANDFILL	CT	NPL	Southington
WINTHROP LANDFILL	ME	NPL	Winthrop
CHARLES-GEORGE RECLAMATION TRUST LANDFILL	MA	NPL	Tyngsborough
BARKHAMSTED-NEW HARTFORD LANDFILL	CT	NPL	Barkhamsted
ROSE HILL REGIONAL LANDFILL	RI	NPL	South Kingstown
COAKLEY LANDFILL	NH	NPL	Greenland and North Hampton
SACO MUNICIPAL LANDFILL	ME	NPL	Saco
BURGESS BROTHERS LANDFILL	VT	NPL	Woodford and Bennington
NEW LONDON SUBMARINE BASE	CT	NPL	Groton and Ledyard
DOVER MUNICIPAL LANDFILL	NH	NPL	Dover
AUBURN ROAD LANDFILL	NH	NPL	Londonderry
SCOVILL INDUSTRIAL LANDFILL	CT	NPL	Waterbury
NEWPORT NAVAL EDUCATION/TRAINING CENTER	RI	NPL	Newport, Middletown, Portsmouth, and Jamestown
WEST KINGSTON TOWN DUMP/URI DISPOSAL AREA	RI	NPL	South Kingstown
OLD SPRINGFIELD LANDFILL	VT	NPL	Springfield
POWNAL TANNERY	VT	NPL	North Pownal
PETERSON/PURITAN, INC.	RI	NPL	Cumberland and Lincoln
PORTSMOUTH NAVAL SHIPYARD	ME	NPL	Kittery
BRUNSWICK NAVAL AIR STATION	ME	NPL	Brunswick
DAVISVILLE NAVAL CONSTRUCTION BATTALION CENTER	RI	NPL	North Kingstown
SALEM ACRES	MA	NPL	Salem
SOUTH WEYMOUTH NAVAL AIR STATION	MA	NPL	Weymouth and Abington and Rockland
PEASE AIR FORCE BASE	NH	NPL	Portsmouth, Newington, and Greenland
LORING AIR FORCE BASE	ME	NPL	Limestone
STAMINA MILLS, INC.	RI	NPL	North Smithfield
FORT DEVENS-SUDBURY TRAINING ANNEX	MA	NPL	Sudbury and Maynard and Hudson and Stow
OTIS AIR NATIONAL GUARD BASE/CAMP EDWARDS	MA	NPL	Falmouth and Bourne and Sandwich and Mashpee
FORT DEVENS	MA	NPL	Shirley, Ayer, Lancaster, Harvard
W. R. GRACE & CO., INC.(ACTON PLANT)	MA	NPL	Acton, Concord
HOCOMONCO POND	MA	NPL	Westborough
SULLIVAN'S LEDGE	MA	NPL	New Bedford
HANSCOM FIELD/HANSCOM AIR FORCE BASE	MA	NPL	Bedford, and Concord and Lexington and Lincoln
NYANZA CHEMICAL WASTE DUMP	MA	NPL	Ashland
NUCLEAR METALS	MA	NPL	Concord
FLETCHER'S PAINT WORKS & STORAGE	NH	NPL	Milford
MILTONIA MANAGEMENT INC.(GREENE TANNERY)	NH	BF	Milton
RAYMARK INDUSTRIES	CT	NPL	Stratford

Table 3 - Summary of Nationwide Superfund Landfills with Similar Contaminants

Site name	Town	State	Acres	Comtaminants	Selected ROD Remedy
Volney Municipal Landfill	Volney	NY	85	VOCs, metals	Supplemental landfill cap construction
Old Springfield Landfill	Springfield	VT	10	VOC, PCB, PAH	Capping, Institutional controls
Osborne Landfill	Pine	PA	15	VOC, PCB, metals	Clay cap, public waterline
Skinner Landfill	West Chester	OH	78	VOC, PCB, pest, metals, dioxins	Consolidation, RCRA Cap
Fresno Municipal Sanitary Landfill	Fresno	CA	145	VOC	Capping, gas and leachate collection
Algoma Landfill	Algoma	WI	13	VOC, metals	New landfill cap
Hunts Disposal Landfill	Racine	WI	35	VOC, PCB, metals	Multi-layer cap, fencing, gas collection
Nineteenth Avenue Landfill	Phoenix	AZ	213	VOC, PCB, pescticide	Clay cap
Purity Oil Sales	Fresno	CA	7	VOC, PCB, metals	RCRA cap
Schmalz Dump	Harrison	WI	0.75	PCB	Low-permeability cap
Tenth Street Dump	Oklahoma City	OK	3.5	PCB, VOC, TPH	Capping (as part of ROD amendment)
Global Sanitary Landfill	Old Bridge	NJ	60	VOC	Landfill cap
Buckeye Reclamation	St. Clairsville	OH	50	Metals, VOC, PAH	Landfill cap
Colesville Municipal Landfill	Colesville	NY	30	VOCs	Landfill cap, public water
Burgess Brothers	Bennington	VT	3	VOC, metals	Landfill cap, SVE
Old Southington Landfill	Southington	CT	11	VOC	Consolidation, Capping
Kohler Company	Kohler	WI	82	VOC, PAH, PCB, metals	Multi-layer cap
Master Disposal Seervice Landfill	Brookfield	WI	26	VOC, metals	Clay cap
Red Oak City Landfill	Red Oak	IA	20	VOC, metals	Landfill cap
Northside Landfill	Spokane	WA	345	VOC	Public Water, landfill cap
Tomah Municipal Sanitary Landfill	Tomah	WI	18	VOC, metals	Multi-barrier cap (under presumptive remedy)
Central Landfill	Johnson	RI	121	VOC, metals	Landfill cap, institutional controls, gas collection
Kentucky Caliber Landfill	Maceo	KY	14		Landfill cap, leachate collection
Coakley Landfill	Greenland	NH	92	VOC, metals	Consolidation, Landfill cap, gas collection
Modern Sanitation	York	PA	72	VOC	Landfill cap, fencing
Hooker-102nd Street	Niagra Falls	NY	22	VOC, metals, pest, dioxins	Slurry wall, synthetic cap, fencing
Enviro-chem Corporation	Indianapolis	IN	6	VOC, metals	Landfill cap, SVE, GW extraction
Tri-County Landfill	South Elgin	IL	66	VOC, PCB, pest, metals	Impermeable cap, gas collection
Richardson Hill Road Landfill	Sidney Center	NY	8	VOC, PCB	Consolidation, landfill cap, GW treatment
Outboard Marine Corp	Waukegan	IL		PCB	Consolidation, dredging, capping
Oak Grove Sanitary Landfill	Oak Grove	MN	104	VOC, metals	Fencing, mulit-layer cap, deed restrictions
Rosen Brothers Scrap Yard	Cortland	NY	20	VOC, metals	Consolidation, capping

Tables

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USEPA Superfund Information Systems - Records of Decision

Site Name	City	State
ABERDEEN PROVING GROUND (EDGEWOOD AREA)	EDGEWOOD	MD
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ADAK NAVAL AIR STATION	ADAK	AK
AIRCO	CALVERT CITY	KY
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER	KALAMAZOO	MI
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER	KALAMAZOO	MI
AMOCO CHEMICALS (JOLIET LANDFILL)	JOLIET	IL
ARMY CREEK LANDFILL	NEW CASTLE	DE
AUBURN ROAD LANDFILL	LONDONDERRY	NH
B.F. GOODRICH	CALVERT CITY	KY
BARKHAMSTED-NEW HARTFORD LANDFILL	BARKHAMSTED	CT
BATAVIA LANDFILL	BATAVIA	NY
BEACON HEIGHTS LANDFILL	BEACON FALLS	CT
BERKLEY PRODUCTS CO. DUMP	DENVER	PA
BERKS LANDFILL	SPRING TOWNSHIP	PA
BRANTLEY LANDFILL	ISLAND	KY
BROOKHAVEN NATIONAL LABORATORY (USDOE)	UPTON	NY
CALDWELL TRUCKING CO.	FAIRFIELD	NJ
CAMP PENDLETON MARINE CORPS BASE	CAMP PENDLETON	CA
CASTLE AIR FORCE BASE (6 AREAS)	MERCED	CA
CENTRAL LANDFILL	JOHNSTON	RI
CHARLES-GEORGE RECLAMATION TRUST LANDFILL	TYNGSBOROUGH	MA
CITY DISPOSAL CORP. LANDFILL	DUNN	WI
COAKLEY LANDFILL	NORTH HAMPTON	NH
COAL CREEK AKA ROSS ELECTRIC	CHEHALIS	WA
COMBE FILL SOUTH LANDFILL	CHESTER TOWNSHIP	NJ
COSHOCTON LANDFILL	FRANKLIN TOWNSHIP	OH
DAVISVILLE NAVAL CONSTRUCTION BATTALION CENTER	NORTH KINGSTOWN	RI
DOUGLASS ROAD/UNIROYAL, INC., LANDFILL	MISHAWAKA	IN
DOUGLASS ROAD/UNIROYAL, INC., LANDFILL	MISHAWAKA	IN
DUELL & GARDNER LANDFILL	DALTON TOWNSHIP	MI
E.I. DU PONT DE NEMOURS & CO., INC. (NEWPORT PIGMENT PLANT LANDFILL)	NEWPORT	DE
EASTERN DIVERSIFIED METALS	HOMETOWN	PA
EL TORO MARINE CORPS AIR STATION	EL TORO	CA
ENDICOTT VILLAGE WELL FIELD	VILLAGE OF ENDICOTT	NY
ENVIROCHEM CORP.	ZIONSVILLE	IN
FAIRCHILD AIR FORCE BASE (4 WASTE AREAS)	SPOKANE	WA
FEED MATERIALS PRODUCTION CENTER (USDOE)	FERNALD	OH
FORT DEVENS	FORT DEVENS	MA
FORT DEVENS	FORT DEVENS	MA
FORT DEVENS-SUDBURY TRAINING ANNEX	SUDBURY	MA
FORT DIX (LANDFILL SITE)	PEMBERTON TOWNSHIP	NJ
FORT WAINWRIGHT	FORT WAINWRIGHT	AK
GLOBAL SANITARY LANDFILL	OLD BRIDGE TOWNSHIP	NJ
GLOBAL SANITARY LANDFILL	OLD BRIDGE TOWNSHIP	NJ
GOULD, INC.	PORTLAND	OR
GREEN RIVER DISPOSAL, INC.	MACEO	KY
GRIFFISS AIR FORCE BASE (11 AREAS)	ROME	NY
GRIFFISS AIR FORCE BASE (11 AREAS)	ROME	NY
GRIFFISS AIR FORCE BASE (11 AREAS)	ROME	NY
H.O.D. LANDFILL	ANTIOCH	IL
HANSCOM FIELD/HANSCOM AIR FORCE BASE	BEDFORD	MA
HIPPS ROAD LANDFILL	DUVAL COUNTY	FL
HOCOMONCO POND	WESTBOROUGH	MA
HOOKER (102ND STREET)	NIAGARA FALLS	NY
IDAHO NATIONAL ENGINEERING LABORATORY (USDOE)	IDAHO FALLS	ID
INDUSTRIAL EXCESS LANDFILL	UNIONTOWN	OH
ISLIP MUNICIPAL SANITARY LANDFILL	ISLIP	NY
JACKSONVILLE NAVAL AIR STATION	JACKSONVILLE	FL
JANESVILLE ASH BEDS	JANESVILLE	WI
JANESVILLE OLD LANDFILL	JANESVILLE	WI
JOLIET ARMY AMMUNITION PLANT (LOAD-ASSEMBLY-PACKING AREA)	JOLIET	IL

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JUNCOS LANDFILL	JUNCOS	PR
K&L AVENUE LANDFILL	OSHTEMO TOWNSHIP	MI
K&L AVENUE LANDFILL	OSHTEMO TOWNSHIP	MI
KOHLER CO. LANDFILL	KOHLER	WI
LAKE SANDY JO (M&M LANDFILL)	GARY	IN
LAUREL PARK, INC.	NAUGATUCK BOROUGH	CT
LEE'S LANE LANDFILL	LOUISVILLE	KY
LORING AIR FORCE BASE	LIMESTONE	ME
LORING AIR FORCE BASE	LIMESTONE	ME
LOWRY LANDFILL	AURORA	CO
MARION (BRAGG) DUMP	MARION	IN
MASTER DISPOSAL SERVICE LANDFILL	BROOKFIELD	WI
MATHER AIR FORCE BASE (AC&W DISPOSAL SITE)	MATHER	CA
METAMORA LANDFILL	METAMORA	MI
METAMORA LANDFILL	METAMORA	MI
MICHIGAN DISPOSAL SERVICE (CORK STREET LANDFILL)	KALAMAZOO	MI
MID-SOUTH WOOD PRODUCTS	MENA	AR
MIG/DEWANE LANDFILL	BELVIDERE	IL
MINOT LANDFILL	MINOT	ND
MODERN SANITATION LANDFILL	LOWER WINDSOR TWP	PA
MOFFETT NAVAL AIR STATION	MOFFETT FIELD	CA
MOFFETT NAVAL AIR STATION	MOFFETT FIELD	CA
MOSLEY ROAD SANITARY LANDFILL	OKLAHOMA CITY	OK
N.W. MAUTHE CO., INC.	APPLETON	WI
NAVAL AIR STATION, WHIDBEY ISLAND (AULT FIELD)	WHIDBEY ISLAND	WA
NAVAL AIR STATION, WHIDBEY ISLAND (AULT FIELD)	WHIDBEY ISLAND	WA
NAVAL TRAINING CENTER BAINBRIDGE	BAINBRIDGE	MD
NAVAL WEAPONS STATION EARLE (SITE A)	COLTS NECK	NJ
NEAL'S LANDFILL (BLOOMINGTON)	BLOOMINGTON	IN
NEWPORT NAVAL EDUCATION & TRAINING CENTER	NEWPORT	RI
NIAGARA COUNTY REFUSE	WHEATFIELD	NY
NORFOLK NAVAL BASE (SEWELLS POINT NAVAL COMPLEX)	NORFOLK	VA
NORTH SEA MUNICIPAL LANDFILL	NORTH SEA	NY
NORTHSIDE LANDFILL	SPOKANE	WA
OLD BETHPAGE LANDFILL	OYSTER BAY	NY
OLD NAVY DUMP/MANCHESTER LABORATORY (USEPA/NOAA)	MANCHESTER	WA
OLD SOUTHINGTON LANDFILL	SOUTHINGTON	CT
ORDNANCE WORKS DISPOSAL AREAS	MORGANTOWN	WV
ORDNANCE WORKS DISPOSAL AREAS	MORGANTOWN	WV
ORDNANCE WORKS DISPOSAL AREAS	MORGANTOWN	WV
ORDOT LANDFILL	AGANA	GU
OTT/STORY/CORDOVA CHEMICAL CO.	DALTON TOWNSHIP	MI
PAGEL'S PIT	ROCKFORD	IL
PEASE AIR FORCE BASE	PORTSMOUTH/NEWINGTON	NH
PLATTSBURGH AIR FORCE BASE	PLATTSBURGH	NY
PLATTSBURGH AIR FORCE BASE	PLATTSBURGH	NY
PLATTSBURGH AIR FORCE BASE	PLATTSBURGH	NY
PLATTSBURGH AIR FORCE BASE	PLATTSBURGH	NY
PORT HADLOCK DETACHMENT (USNAVY)	INDIAN ISLAND	WA
PORT WASHINGTON LANDFILL	PORT WASHINGTON	NY
RED OAK CITY LANDFILL	RED OAK	IA
RED PENN SANITATION CO. LANDFILL	PEEWEE VALLEY	KY
REFUSE HIDEAWAY LANDFILL	MIDDLETON	WI
RESIN DISPOSAL	JEFFERSON BOROUGH	PA
RIPON CITY LANDFILL	FOND DU LAC COUNTY	WI
ROCKWELL INTERNATIONAL CORP. (ALLEGAN PLANT)	ALLEGAN	MI
ROSE HILL REGIONAL LANDFILL	SOUTH KINGSTOWN	RI
RSR CORPORATION	DALLAS	TX
SANGAMO ELECTRIC DUMP/CRAB ORCHARD NATIONAL WILDLIFE REFUGE	CARTERVILLE	IL
SAUK COUNTY LANDFILL	EXCELSIOR	WI
SINCLAIR REFINERY	WELLSVILLE	NY

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SMITH'S FARM	BROOKS	KY
SMUGGLER MOUNTAIN	ASPEN	CO
SOUTH BRUNSWICK LANDFILL	SOUTH BRUNSWICK	NJ
SPARTA LANDFILL	SPARTA TOWNSHIP	MI
SPICKLER LANDFILL	SPENCER	WI
STRASBURG LANDFILL	NEWLIN TOWNSHIP	PA
SYOSSET LANDFILL	OYSTER BAY	NY
TEX-TIN CORP.	TEXAS CITY	TX
TOMAH MUNICIPAL SANITARY LANDFILL	TOMAH	WI
TULALIP LANDFILL	MARYSVILLE	WA
UNITED SCRAP LEAD CO., INC.	TROY	OH
WALSH LANDFILL	HONEYBROOK TOWNSHIP	PA
WARWICK LANDFILL	WARWICK	NY
WASTE, INC., LANDFILL	MICHIGAN CITY	IN
WAUCONDA SAND & GRAVEL	WAUCONDA	IL
WAYNE WASTE OIL	COLUMBIA CITY	IN
WHITEHOUSE OIL PITS	WHITEHOUSE	FL
WILDCAT LANDFILL	DOVER	DE
WINDOM DUMP	WINDOM	MN
WOODSTOCK MUNICIPAL LANDFILL	WOODSTOCK	IL
WOODSTOCK MUNICIPAL LANDFILL	WOODSTOCK	IL
WRIGHT-PATTERSON AIR FORCE BASE	DAYTON	OH
WRIGHT-PATTERSON AIR FORCE BASE	DAYTON	OH

http://cfpub.epa.gov/superrods/srch.cfm?keys=landfill%20capping&firstTime=Yes&CFID=15360485&CFTOKEN=57469154

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

SHPACK
4.9

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

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Signature Karen Bernier

Print Name Karen Bernier

Address 15 Gadoury St Westport MA 02790

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Signature Eric Boyko

Print Name Eric Boyko

Address 112 Federal St

Blackstone MA

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Signature Laura A Boyko

Print Name [illegible]

Address 112 Federal St.
Blackstone, MA

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Signature [signature]

Print Name Kristine Boyko

Address 112 Federal St.
Blackstone, MA 01504

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Signature STEVEN J. BOYKO

Print Name Steven J. Boyko

Address 112 FEDERAL ST.

BLACKSTONE, MA

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Signature [signature]

Print Name Scott A. Fellers

Address 198 High Road, Newbury, MA 01951

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Signature Kara A Butters

Print Name Kara A. Butters

Address 198 High Road

Newbury, MA 01951

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Signature [signature]

Print Name Kevin Carey

Address 1134 Central Ave

Johnston RI 02919

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Signature ______________________

Print Name David E. Caron

Address 71R Main Street
Blackstone, MA 01504

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Signature Michael A Carosi Jr.

Print Name Michael A Carosi Jr

Address 37 Roberts St

Woonsocket RI 02895

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Signature ____________________

Print Name Kenneth F. Corder

Address 15 Hillside Ave #1
Norwood MA 02062

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Signature Jahn B Catt

Print Name Joslyn Stewart Carter

Address 15 Hillside Ave

Norwood Ma 02062

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Signature Linda Clermont

Print Name Linda Clermont

Address 40 W. Wrentham Rd
Cumberland, RI 02864

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Signature [signature]

Print Name Richard L. Caruso

Address 27 Polly Lane
Walpole MA 02081

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Signature ______________________

Print Name Helder Cunha

Address 68 Anthony St E. Providence
R.I. 02914

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of
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To Dave Lederer
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Signature Kathryn Danello

Print Name Kathryn Danello

Address 15 Oxbow Drive

Franklin MA 02038

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Signature Deborah Danello

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Franklin, MA 02038

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Signature Rachel Danello

Print Name Rachel Danello

Address 15 Oxbow Drive

Franklin MA 02038

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Signature Ashlee Danello

Print Name Ashlee Danello

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Franklin MA 02038

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Signature ____________________

Print Name VADILSON F DASILVA

Address 116 E School St. floor 1
Woonsocket, RI 02895

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Signature Fernando F. de Agrela

Print Name FERNANDO F. DE AGRELA

Address 1 EAST HODGES STR.

NORTON MASS. 02766

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Signature [signature]

Print Name Tom L. De Long

Address 6321 Beeson Cove
Fort Wayne, IN 46814

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Signature [signature]

Print Name Robert Diestel

Address 82 South Worcester St
Norton, MA 02766

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Print Name ____________

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Chepachet, RI 02814

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Signature Steven P. Duxbury

Print Name STEVEN P. DUXBURY

Address 34 Richardson Ave

NORTON, MA 02766

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Signature Kenneth Elliott

Print Name Kennith Elliott

Address 13 Bellwood Circle
Bellingham MA 02019

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Address 30 Dulude Ave., Apt 1R

Woonsocket, RI 02895

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Signature José Fernande

Print Name JOSE FERNANDES

Address 79 MANSFIELD AVE

NORTON MASS 02766

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Print Name ALGERINA D. FERNANDES

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Signature Joyce L Fernandes

Print Name JOYCE L. FERNANDES

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Signature Melissa A. Fowler

Print Name Melissa Fowler

Address 100 Kingman St.
East Taunton, MA 02718

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Signature Claire D. Fowler

Print Name Claire D. Fowler

Address 100 Kingman Street
East Taunton, MA 02718-1408

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Signature

Print Name Edward F. Fowler, Jr.

Address 100 Kingman Street
E. Taunton, Mass. 02718

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Signature Angela C. Fowler

Print Name Angela C. Fowler

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E. Taunton, MA 02718

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Signature Jennifer L. Fowler

Print Name Jennifer L. Fowler

Address 100 Kingman Street
E. Taunton, MA 02718-1408

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Signature Ellen Graf

Print Name ELLEN GRAF

Address P O BOX 306

AUGUSTA, ME 04332

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Signature Shawn Hill

Print Name SHAUN Hill

Address 13 Lockwood Dr
Franklin, MA 02038

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Signature Judith Howard

Print Name Judith Howard

Address 56 Highland St.
Walpole, MA 02081

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To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
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Signature Carol A. Instasi

Print Name CAROL A. INSTASI

Address 14 James St, Norton, Ma 02766

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Signature ______

Print Name Michael Joughin

Address 25 Brae Road
Quincy, Ma 02169

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Signature Bill Kelley

Print Name Bill Kelley

Address 43 Border St
Whitinsville MA 01588

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Signature Wendy Koffinkee

Print Name Wendy Koffinkee

Address 14 Bellwood Circle
Bellingham, MA 02019

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Signature William Koffinke

Print Name William Koffinke

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Bellingham MA 02019

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Signature Christina L. Labonte

Print Name Christina L. Labonte

Address 157 Thurston St.
Wrentham MA 02093

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Signature Lore Lellier

Print Name Lora Lellier

Address 100 Steere St.

Attleboro, MA 02703

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Signature

Print Name Nicholas Landsy

Address 20 Roberts Street
Woonsocket, RI 02895

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Signature

Print Name Daniel E Leonard Jr

Address 335 Prospect St
Stoughton, MA 02072

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Signature Rene Marcotte

Print Name RENE MARCOTTE

Address 44 Ironstone St

Millville, MA

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Signature Sandra Massa

Print Name SANDRA MASSA

Address 24 CADORNA ST.
E. Providence, RI 02914

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Signature Carlos Medina

Print Name Carlos Medina

Address 127 Burnside Ave Apt #5
Woonsocket, RI. 02895

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Signature [signature]

Print Name Lisa A. Nelson

Address 117 Maple ST.
Norton MA 02766

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Signature [signature]

Print Name Maria O'Reilly

Address 77 Maple St
Norton, MA 02766

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Signature Gillian V Paiva

Print Name Gillian Paiva

Address 263 Partridge St
Franklin MA 02038

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Signature Stewart S Pollock

Print Name Stewart S Pollock

Address 40 W. Wrentham Rd #3
Cumberland, RI 02864

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Signature Brittany J. Rinehart

Print Name Brittany J. Rinehart

Address 126 11th St. SE Vero beach FL

139 south Main St Natick Ma

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Signature Corey Roe

Print Name Corey Roe

Address 13 Bellwood Circle
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Signature Melissa Rutter

Print Name Melisa Rutter

Address 95 E Greenwich Ave
West Warwick RI -02893

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Print Name BRIAN S. ROTTER

Address 95 E. GREENWICH AVE
W. WARWICK RI. 02893

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Signature John Salvo

Print Name JOHN SALVO

Address 26 NEWCOMB STREET
NORTON, MA. 02766

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Signature Durrell Savadyga

Print Name Durrell Savadyga

Address 258 Chestnut St. Apt 1

N. Attleboro, MA 02760

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Signature Susan M Wilson Scott

Print Name Susan M. Wilson Scott

Address 3101 State Rt. 11 B
Malone, N.Y. 12953

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

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Signature Peter Sena

Print Name Peter Sena

Address 20 Juniper Road
Norton, Ma 02766

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Signature Sarah Sinclair

Print Name Sarah Sinclair

Address 6 Judy Circle Franklin, MA 02038

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Signature Stephanie A. Sinclair

Print Name Stephanie A. Sinclair

Address 6 Judy Circle

Franklin MA 02038

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Signature Donald E. Sinclair Jr

Print Name DONALD E SINCLAIR JR.

Address 6 Judy Circle

Franklin MA. 02038

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Signature [signature]

Print Name Alex Sinclair

Address 389 Main St.
Nashua, NH 03060

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Signature Lisa Sinclair

Print Name Lisa Sinclair

Address 6 Judy Circle Franklin, MA 02038

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Signature Patricia W. Sinclair

Print Name Patricia W. Sinclair

Address 50 Forest Ave Natick ma, 01760

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Signature [signature]

Print Name Donald E Sinclair III

Address 6 Judy Circle
Franklin MA 02038

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Signature Chad Sinclair

Print Name Chad Sinclair

Address 3 Heidi Ln

Natick, MA. 01760

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Signature Winola O. Sinclair

Print Name Winola O. Sinclair

Address 8 Walcott St

Natick, MA 01760-5833

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Signature ____________________

Print Name KENNETH SINCLAIR

Address 389 MAIN ST

NASHUA, NH 03060

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Signature Robert C Sinclair

Print Name ROBERT C. SINCLAIR

Address 145 PROVIDENCE HWY

WESTWOOD MA 02090

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Signature ____________________

Print Name Greg Sinclair

Address 3 Heidi Lane

Natick, MA 01760

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Signature Craig M. Sinclair

Print Name Craig M. Sinclair

Address 75 Maple St. Norton MA 02766

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Signature Susan J. Sinclair

Print Name Susan J. Sinclair

Address 145 Providence Hwy.
Westwood MA 02090

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Signature Megan E. Sinclair

Print Name Megan Sinclair

Address 05 Brae Road
Quincy, Ma 02169

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Signature Frank Sinclair

Print Name Frank Sinclair

Address 20 Walcott St.

Natick MA. 01760

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Print Name Eric Sinclair

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Natick Ma. 01760

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Signature [signature]

Print Name Jeff Simpson

Address 90 Maple Drive

Harrisville, RI 02830

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Signature Trudy Singer

Print Name Trudy Singer

Address 82 Tracy Dr.
Vernon, CT. 06066

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Signature Dyanne Spatcher

Print Name DYANNE SPATCHER

Address 959 PLEASANT ST. (Located in close proximity to the Shpack Site)
ATTLEBORO MA 02703

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Signature Ed Stone

Print Name ED STONE

Address 50 BELLINGHAM RD MA

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Signature ______________________

Print Name Christopher Stone

Address 24 Carrington Ave

Blackstone MA

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Signature Erika Stone

Print Name Erika Stone

Address 13 Bellwood Circle
Bellingham, MA 02019

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Signature Marybeth Tayes

Print Name Marybeth Tayes

Address 43 Border St.
Whitinsville Ma 01588

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

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Signature Donna J. Tronec

Print Name DONNA J. TRONEC

Address 124 11th St. S E.
Vero Beach, FL. 32962

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Print Name Diane L. Rinehart

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Vero Beach, FL 32962

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Signature Anthony Trottier

Print Name ANThony Trottier

Address 73 Rocco Dr

Blackstone MA 01504

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Signature Susan Van Ummersen

Print Name Susan Van Ummersen

Address 51 Longwood Rd.
Quincy, MA. 02161

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Signature Dina A. Warchal

Print Name DINA A. WARCHAL

Address 366 RESERVOIR ST.

NORTON MA 02766

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Signature Keith Welby

Print Name Keith Welby

Address 268 Partridge St
Franklin MA 02038

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Signature Dawn Welby

Print Name Dawn Welby

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Signature Gillian Welby

Print Name Gillian Welby

Address 13 Bellwood Circle
Bellingham, MA 02019

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Signature Charles R Whynot

Print Name Charles R Whynot

Address 48 Blaisdell Dr / 73 Maple St
Northwood, NH / Norton, MA 02766
03261

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Signature Daniel Whynot

Print Name DANIEL WHYNOT

Address 73 MAPLE ST.
NORTON MA. 02766

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Print Name DONA WhyNot

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NORtON MA 02766

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Signature Mary A Whynot

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Print Name DANIEL A. WEBBER

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NORTON MA 02766

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Signature Ryan Williams

Print Name Ryan Williams

Address 15 Gadany St Westport MA 02790

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Signature Naomi Willard

Print Name Naomi Willard

Address 3 Seitz Lane

Cos Cob, CT 06807

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Signature Lucille A. Zwicker

Print Name Lucille A. ZWICKER

Address 15 Clapp St.
Norton, Ma. 02766

SHPACK
4.9

HEATHER A. GRAF, COORDINATOR
CAST
CITIZENS ADVISORY SHPACK TEAM
229 N. Worcester St.
Norton, MA 02766
FAX (508) 226 – 2835
Phone (508) 226 – 0898

FAX

TO: ~~Dave~~ Lederer
US EPA

FAX: 617-918-0325 PAGES 5 w/cover

PHONE: DATE: 8/6/04

RE: SHPACK TOXIC WASTE DUMP, SUPERFUND SITE
NORTON/ATTLEBORO, MA

✓ O Urgent ✓ O For Review O Please Reply

If FAX Is Not Received In Its Entirety, Please Contact Sender.

- COMMENTS:

Second Comment paper.
First Dated July 14, 2004 –
Position Paper for CAST (4pgs.)
This one dated Aug. 4, 2004 (4pgs.)
has been revised since my
oral testimony at the
Public Hearing.
Hard Copy To Follow In Mail.

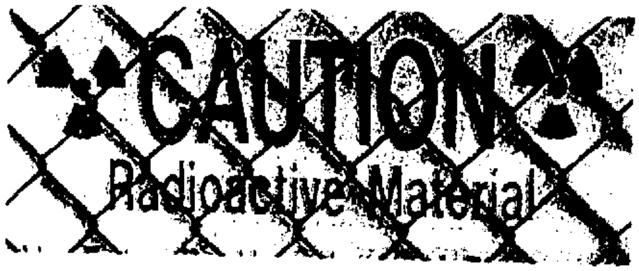
Heather A. Graf

SDMS DocID 000213824

Taunton Gazette 7/19/04

A toxic legacy leaves Norton demanding

Waste not



By MIKE STUCKA
Gazette Staff Writer

NORTON – Ghosts of Norton's past lie just under the surface of the Attleboro/Norton line. A mix of uranium, PCBs, VOCs and other hazardous chemicals are again bringing controversy decades into the planning of a clean-up.

The Shpack Site on Union Road still holds thousands of cubic yards of radioactive scrap, debris from a chemical plant fire and whatever else that a landfill operator put in his back 10 acres. State and federal agencies are supporting a plan to clean up uranium, PCBs and dioxin by digging it up and taking it out of the state.

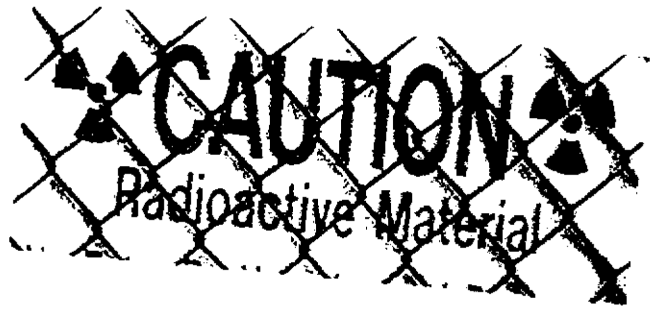
City residents are angry because concentrations of heavy metals, volatile organic compounds and other pollutants would be bulldozed, piled and capped to remain near wetlands and Chartley Pond.

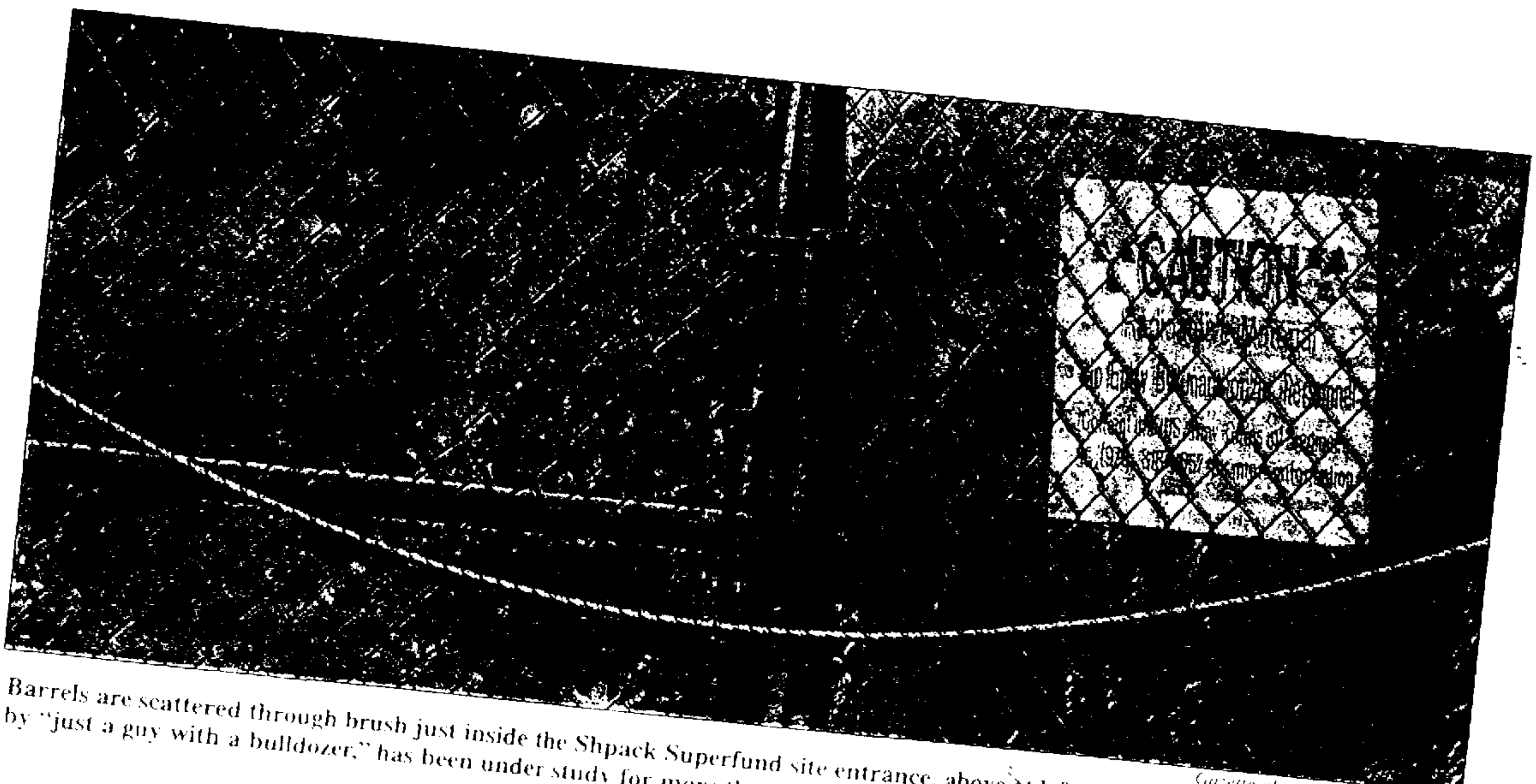
"We have [an] obligation to future generations to make certain that type of materials are not in the ground," said Robert Kimball, chairman of Norton's Board of Selectmen.

The U.S. Environmental Protection Agency is accepting comments through Aug. 25 on the proposal, and will hold a hearing Aug. 4.

The difference between what the Environmental Protection Agency supports and some city residents want is stark: The site has a price tag estimated at $28.1 million for the EPA's proposal, half of the $55.6 million for the town-supported plan.

Taunton Gazette 7/19/04 Pg. 4

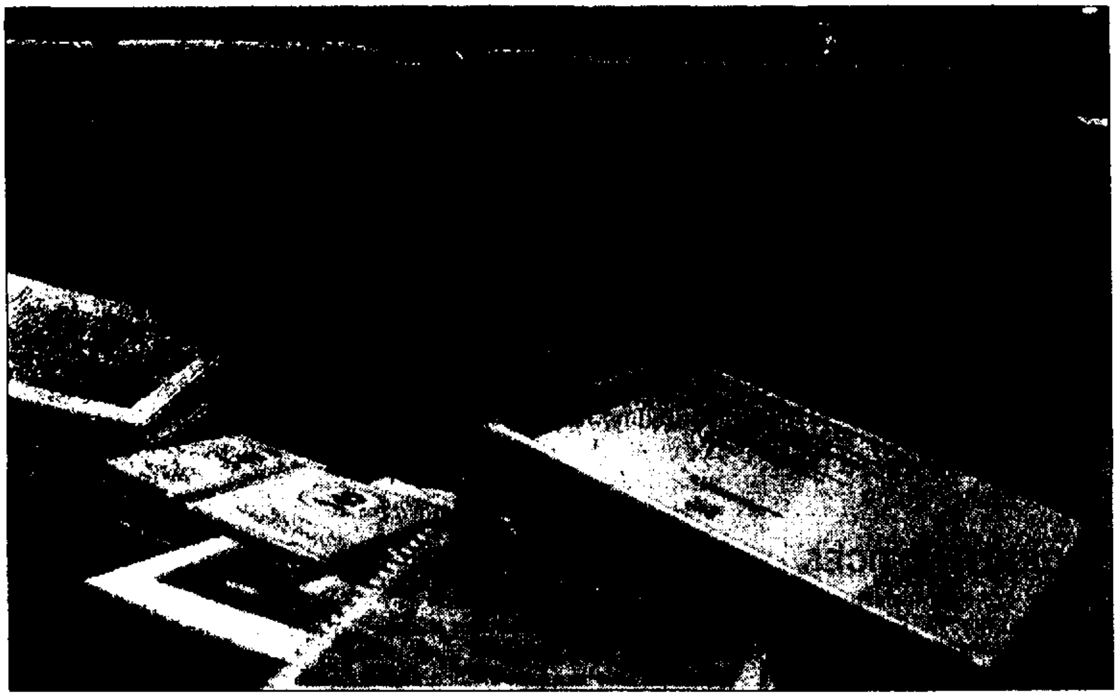




Gazette photos by MIKE STUCKA

Barrels are scattered through brush just inside the Shpack Superfund site entrance, above at left. The site, created five decades ago by "just a guy with a bulldozer," has been under study for more than two decades.

Taunton Gazette 1/19/04 Pg. 5



Gazette photo by MIKE STUCKA

Documents on the Shpack Superfund site are as old as 1981 and as recent as several weeks. The documents could fill up nearly two shelves and several CDs; another shelf-load is expected.

F.S. Phones Zing after Dump Ad

By John Watson and Alex Kuzma

In the last edition of the Citizen Advocate, Fair Share researchers issued an appeal to readers for information leading to potentially hazardous dump sites in local communities. Because the Department of Environmental Quality Engineering's (DEQE) refused to release data on suspected toxic dumps in various communities, Fair Share was forced to rely on ordinary citizens to report sites that could pose a serious threat to town drinking supplies and the public health in general. The following is a report on response to the Fair Share "Hunt the Dump" Appeal.

Concerned citizens from Haverhill, Gardner, Attleboro, Tewksbury, Milford, and other towns responsed to the Fair Share appeal with phone calls, letters, and even photographs documenting widespread anxiety over potentially dangerous and illegal activity on the part of chemical companies and trucking firms.

By Ron B

DRILLING FOR HAZARDS: State and federal investigators drill for core sample of dump site near Norton/Attleboro town line.

In one case, Mr. Ron Baptista of Attleboro, Mass., forward disturbing photos of state DEQE officials and federal investigators at a drill site in Norton, where hazardous (possibly radioactive) wastes had been found. The federal inspectors were dressed in work suits bearing the insignias of the U.S. Atomic Energy Commission, and Oak Ridge National Laboratories of Erwin, Tennessee. The presence of AEC and Oak Ridge personnel might indicate that nuclear materials were suspected to be stored in Norton.

The Citizen Advocate
11/80
Mass Fair Share

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TO: Dave Lederer
US EPA

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PHONE: DATE: 8/25/04

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NORTON/ATTLEBORO, MA

✓ Urgent ✓ For Review O Please Reply

If FAX Is Not Received In Its Entirety, Please Contact Sender.

- COMMENTS: Note - Times printed by my FAX machine are totally off - AM & PM reversed.
This FAX sent at 4:35 PM Wed. Aug. 25, 2004.
Hard copy mailed at approx. 4:15 PM today, Certified Mail.
That's a wrap!

Heather A. Graf

August 25, 2004

Heather A. Graf, Citizens Activist
229 N. Worcester St.
Norton, MA 02766
Ph. (508) 226 – 0898
FAX (508) 226 – 2835

Dave Lederer
US EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114

Comments On EPA's Proposed Plan For The Shpack Superfund Site –

Personal –
My husband & I have lived in Norton for 30 years. Our home is a little over two miles from the Shpack Site, so the term NIMBY is not applicable.

Town of Norton's Resolve –
Cleanup of this site is not a neighborhood issue. This toxic waste dump is a menace that has plagued the Town of Norton for 26 years, since radioactive waste was discovered there in 1978.
Residents of the town are united and steadfast in their opposition to the Environmental Protection Agency's "Preferred Alternative, SC-2b", and adamant in demanding the SC-3b Alternative be selected in EPA's Record of Decision (ROD), for cleanup of the Shpack Superfund Site.
Be assured, as was stated at EPA's Public Hearing on August 4, 2004 - when Robert Kimball (Chairman of the Norton Board of Selectmen) read the "Position Paper For The Town of Norton" – "Neither the EPA nor the PRP Group should underestimate Norton's resolve. We will exhaust all regulatory, political, and legal means possible to effect the SC-3b solution."

Political Support –
On the political level the Town of Norton has the support of Congressman Barney Frank, State Senator JoAnn Sprague, State Representatives Mike Coppola, Betty Poirier & Phil Travis (all of whom testified at the August 4, 2004 Public Hearing and submitted responses in writing as well).

Legal Aid –
To our advantage, the same attorney who has been on the Shpack case since the beginning, is still working for the firm which is under contract as Norton's Town Counsel.

War Chest –
The Town of Norton is adding funds to the Shpack Legal Account to create a war chest, should we be forced into a legal battle with the EPA, members of the PRP Group, or any other entity, which would try to deny the Town its right to the SC-3b Remedy of the Shpack Superfund Site.
We will also be prepared to engage any adversary in a dispute over the Town of Norton's responsibility to contribute funds for Phase II – the cleanup of the Shpack Site.
The Town's resolve to effect the SC-3b Solution will not be compromised by threats from anyone - that if Norton insists upon the higher level of cleanup, the Town will be slapped with the burden of sharing the cost of that cleanup.

PRP List –
Contrary to testimony at the August 4, 2004 Public Hearing, by Attleboro's Health Agent, Jim Mooney – The Town of Norton did not ever dump materials/ waste at the Shpack Dump. Isadore Shpack would accept anything from anyone - in an attempt to fill his wetland property for use as an apple orchard (which by the way he never achieved, getting only so far as raising chickens!), and obviously some Norton residents took advantage of a neighborhood dump to get rid of their trash. That does not make the Town of Norton culpable, any more than the Town of Rehobeth, if some of its residents took unwanted materials to the Shpack Dump.
In June 1981, at the urging of the US Department Of Energy (DOE), the Town of Norton did purchase from Lea Shpack (widow of Isadore, who died February 1, 1979), the parcel of land in Norton. The $8,000 for the transfer of the property was provided to the Town by Texas Instruments (TI) – the major contributor to contamination at the Shpack Site. Mrs. Shpack had wisely refused to lease the property to the Department of Energy, she insisted on selling (unloading) it. DOE convinced the Town that cleanup would be easier to accomplish if the site were publicly, rather than privately owned. Norton agreed to accept title to the property in the spirit of cooperation with the Department of Energy, to facilitate the remediation process. The agreement did include a clause that the Town was not responsible for the contamination of Shpack.
According to the Environmental Protection Agency's spokesman at the time, and reiterated by EPA's current Project Manager – Norton was on the PRP list because Superfund regulations require the owner of the property be named.
Residents of the Town of Norton have already endured far too much. The citizens of this community have paid dearly for a highly contaminated toxic waste site - a monster that they had no part in creating.
The "R" in PRP stands for "Responsible". The Town of Norton, while being perhaps the only member of the group acting "responsibly"(as in good conscience) clearly was not and is not - responsible for contamination of the Shpack Site.

Municipal Disputes –
According to Mr. Mooney, Atttleboro (the only person at the Public Hearing to speak in favor of EPA's Preferred Alternative), the contamination on the 2 & ½ to 3- acre portion of the Shpack Superfund Site which lies in Attleboro - is not very contaminated.

Apparently the Attleboro Health Agent has not read reports by Cabrera Services (Consultant for the US Army Corps of Engineers). The part of the Shpack site in Attleboro, at the border with Attleboro Landfill Inc. (ALI) is highly contaminated.
Also Mr. Mooney stated that the City of Attleboro does not care if the portion of Shpack within their city limits – gets cleaned up at all. Just covering it sounds fine, because Attleboro has no intention of using the land. I'm not sure who Mr. Mooney is speaking for here. Perhaps, with the Title of Health Agent, dealing with a new mayor and city councilors - who know little, if anything about Shpack, he has convinced some city officials to accept this ridiculous position.
While I understand EPA must consider comments from Mr. Mooney, the same as from the Norton Board of Health, and responses from Attleboro residents, the same as from those of us in Norton, keep in mind 6 of the 9 acres are in Norton. The majority of residents affected by Shpack are in Norton. The stigma of the Shpack Superfund Site has always been Norton's. The burden of protecting the community from the negative impacts of Shpack has been Norton's. When EPA considers "Community Acceptance"- it must be weighted to favor the Town of Norton.
Also in a discussion with Garth Patterson (Congressman Barney Frank's Office), we agreed that a Superfund Site must be treated equally, all together as one. You cannot draw a line in the sand (or swamp) at the Town/City Line.

Cleanup –
At least verbally, at a preview of the Environmental Protection Agency's Preferred Alternative, prior to the June 23,2004 Public Meeting, it was stated by a spokesperson for EPA that a reason for not going with a higher level of cleanup was – because there is migration from ALI into Shpack. So… If EPA has a barrel filled to the brim with contaminated material, it should not be emptied, because there will likely be some more bad stuff leaking into the barrel? Explain the logic in this.

Cleanup Cost –
It should be obvious that the Army Corps of Engineers will be doing the lion's share of the cleanup at Shpack. "The spot is riddled with red dots, like a bad case of the measles." (Red dots indicating radioactive waste). In professional terms – The radiological waste is heterogeneously spread over the site. Also, for most of the site – the materials are not separated between Rad. and Chemical/Heavy metals. It is all mixed up. When ACE excavates and disposes of (off site) all the radiological waste, they will be taking with them much of the contaminated soil that was supposed to be the responsibility of the EPA/PRP Group to clean up.
Also there will be little, if any, "Commingled Waste" for EPA/PRP Group to deal with. The estimates by ERM (consultant for the Shpack Steering Committee, AKA – PRP Group) of the amount of material that will be left for the PRPs to remove are exaggerated. And so are the estimated cost because it is figured as if the material is "Commingled Waste". Disposal fees are significantly higher for Commingled Waste.

Even if the Army Corps could take away only the radiological material, the fact is this agency of the US Government is assuming the responsibility of removing TI's contaminants.

Water Main –
EPA's plan is to extend the town water main down Union Road to get the two houses closest to Shpack off well water, so the level of cleanup can be significantly reduced. The cost of this water main is minimal, compared with the $70 million it saves between Norton's Preferred Alternative SC-3b (at approx. $50 million) and the highest level of cleanup considered (at approx. $116 million).

Representatives for the Town of Norton – Bob Kimball (CH. Norton BOS) and myself, at the preview of EPA's Propsed Plan in June 2004, agreed upon what we thought was a very reasonable position: Accept the water main, do not insist on a level of cleanup which included groundwater, compromise and settle for the $50 million (middle of the road) alternative, which would dispose of all contaminated soil off site.
In hindsight, perhaps we should not have been so agreeable. By setting our sights and goal at a lower level, EPA thought they could get away with the SC-2b "Consolidate & Cap Plan". Be advised we will not be so naïve again.

We do see potential problems with the extension of the water main, that being in increased development along Union Road near the Shpack Site. While EPA has proposed "Institutional Controls" under their SC –2b plan, they cannot regulate development surrounding the site. And while the Town can change zoning, to perhaps Heavy Industrial, that would not decrease (in fact might increase) the number of individuals coming to the area. In any case, a zoning change can be reversed at Town Meeting by a simple 2/3 majority vote.

Contaminants at the Shpack Superfund Site –
According to a 3/20/80 article in the Norton patriot – "Health Inspector Joseph Grimaldi reported there are 200-300 barrels of PVC buried between two points on the site." Reportedly, the PVC is residue from the Thompson Chemical fire which destroyed the company in 1964. An abutter to the property – Louis Tetreault claims that the PVC was poured on the site and later burned off.
According to a Sun Chronicle article 8/5/80 "While attention has been on the survey for "hot spots"at the Shpack property recently, (US Rep..Margaret) Heckler said she has been told by a US DOE official that any danger from radiation was "one millionth" the potential hazard from chemical wastes in the dumping areas."

We do know that chemicals have a greater capacity to migrate in groundwater.

Contaminants at Shpack See Attachment A
Other than some PCBs & Dioxin, which EPA proposes to remove from the site, and the radiological waste the ACE will take away, given this horror list of toxic substances, some known carcinogens - (Attachment A), does the EPA still maintain that their SC-2b (Consolidate & Cover) Plan will in fact provide an acceptable level of protection for human health and the environment?

EPA's Record of Community Involvement –
The first meeting with EPA, ACE, DEP officials and representatives of the Town of Norton was held December 20, 1999 (five days before Christmas). Could EPA – "The Lead Agency for the Cleanup of the Shpack Superfund Site" have chosen a more perfect time to ensure no one would give a damn about Shpack? Surprise, some of us did.
Then there was the scheduling of the public meeting, to finally after 4 & ½ years advise Norton residents of EPA's ill advised Plan - June 23, 2004 (days after school recessed for summer break). And the setting of the Public Hearing for August 4, 2004 (in a steamy school cafeteria) - to deflect interest by any other than the very most hardy souls. The public comment period from June 24 – August 25 couldn't be much worse. Does anyone, other than Heather Graf, not take at least one weeks vacation during that period? How many individuals are going to spend any time trying to review EPA's Shpack Plan, (such a tedious task) during the summer months? And even for the willing, the material is so voluminous, almost no one could do more than scan it. Even our expert Conservation Director – Jennifer Carlino, was hard pressed to respond to even the Feasibility Study. Forget about reviewing the 229 page text of the "Draft Baseline Ecological Risk Assessment", prepared by EPA's consultant – Metcalf & Eddy, dated June 14, 2004. In addition to the 229 page text there are Figures, Tables & 3 Appendices – the volume is 5 &1/4 inches thick!
As for the 3 discs provided with the box loads of written material – the table of contents on the discs is done in CODE.
The designations of alternatives: the EPA's favorite SC-2b and Norton's preferred plan SC-3b were so similar, as to be totally confusing when trying to separate the two.
The power point presentation at the June 23, 2004 public meeting – with miniscule white letters on black boxes was pathetic. One needed a magnifying glass to read what was printed on the handouts. Try to copy - and use up an ink cartridge. Don't even think about FAXING! And the 12 page Proposed Plan handout was the most discombobulated of any paper I have ever reviewed.
Whether in their timing or presentations, the US Environmental Protection Agency has demonstrated an uncanny ability to make the process the least user friendly, the most difficult & frustrating, and I do believe this was intentional.

At the introduction to the Public Hearing August 4, 2004, the EPA's Hearing Officer – Susan Studlien said the hearing was being conducted to receive testimony on <u>The Proposed REMEDY For the Shpack Superfund Site. The SC-2b Plan is not a REMEDY!</u>

If the US Environmental Protection Agency insists on the SC-2b Plan, it will be apparent that the name of your agency is an oxymoron.

+ Attachment A
+ Attachment B (not included in FAX)

Heather G. Graf

Heather A. Graf

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Appendix A

CONTAMINANTS , SHPACK & ALI (ATTLEBORO LANDFILL INC.)

Nuclear Regulatory Commission / November 1978 SHPACK
Principal Radioactive Compounds Above Natural Background Levels:
Uranium - 234, Uranium - 235, Uranium - 238
Radium - 226

Department Of Environmental Quality Engineering / March 1980 SHPACK
Elevated Levels Of Heavy Metals In Soil:
Lead, Arsenic, Chromium, Copper, Cadmium, Nickel, Zinc

Department Of Environmental Quality Engineering / November 1980 SHPACK
Chemicals Detected In Groundwater Above EPA Maximum Contamination Level For Drinking Water:
1.2.- dichlorethylene, trichlorethylene, tetrachloroethylene

US Environmental Protection Agency / May 1982 SHPACK
Soil & Groundwater – Several Volatile Organic Priority Pollutants Detected

US EPA & Roy F. Weston Technical Assistance Team / August 1989 SHPACK
Presence Of Chemicals In Surface Water Samples At Concentrations Exceeding "EPA Ambient Water Quality Criteria For Protection Of Human Health":
Vinyl chloride, benzene, 1.2.- dichlorethene, aroctor – 1248

US EPA & Weston / November 1989 SHPACK
Soil Samples Confirmed Presence Of :
Volatile Organic Compounds, Semi-volatile Organic Compounds, Polychlorinated Biphenyls (PCBs)

DUMPED ON SITE SHPACK, 1946 – 1966:
Waste Oil, Degreasing Solvents, Iron, Cyanide, Heavy Metals, Precious Metal Refining Waste, Resins, Organics, Depleted Uranium, Vinyl Chloride

GHR ENGINEERS OF NEW BEDFORD / March 25, 1980
SHPACK & ATTLEBORO LANDFILL (ALI)
Samples Collected From 10 Observation Wells On ALI Property On Peckham St., Plus 2 Samples Of Contaminated Soil From Older Landfill Northeast Of Present Landfill (SHPACK):
15 Volatile Chemicals Were Detected In One Or MoreObservation Wells. "Eight Of The Volatile Organics : Vinyl chloride, Chloroform, 1.2 – Dichloroethylene, Methylene Chloride, Bromodichloromethane, Trichloroethylene, Benzene & Tetrachloroethylene Exceed Human Health Criteria."
"These Volatile Organic Compounds Are Considered To Be Potential Carcinogens If Consumed In Drinking Water, Fish Or Shellfish."

Appendix A Pg. 2

GHR ENGINEERS / March 25, 1980 (Continued)

"If A Chemical Is Suspected Of Being A Human Carcinogen, There Is No Recognized Safe Concentration In Drinking Water Or Food Which Will Provide Absolute Protection Of Human Health Except Zero."

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Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

August 2004

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Signature Estelle M. Flett

Print Name ESTELLE M. FLETT

Address 8 Richardson Ave
Norton, MA 02766

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Signature Ruth Youngquist

Print Name RUTH YOUNGQUIST

Address 2 HAMPTON HEIGHTS

BUCKHANNON W.V. 26201-8516

FORMER RESIDENT OF NORTON, MA.

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Signature Elizabeth Polk

Print Name ELIZABETH POLK

Address 13A OAK STREET
NORTON, MA 02766

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Signature Frederick J. Watson

Print Name FREDERICK J. WATSON

Address 168 PLAIN ST NORTON MA. 02766

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Print Name Ruth E. Goold

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Norton, Ma. 02766

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Print Name LYDIA J. FALES-TATRO

Address 13 PLEASANT ST.
NORTON, MA 02766

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Signature ______

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Address 567 Washington St.
Holliston, MA 01746

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Print Name ROGER BOGOSH

Address 29 KENSINGTON, RD
NORTON, MA 02766

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Signature E. D. Seacord

Print Name Elizabeth D. Seacord

Address 14 Alder Road

Norton, MA 02766

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Signature Thomas E. Burke

Print Name THOMAS E. BURKE

Address 32 EISENHOWER DRIVE
NORTON, MA. 02766

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Signature Susan Mims

Print Name SUSAN MIMS

Address 71 LEONARD St.
NORTON, MA. 02766

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Print Name LYDIA A LOVING

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Norton Ma 02766

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Signature Elizabeth S. Dexter

Print Name ELIZABETH S. DEXTER

Address 72 TRIMTOWN RD
NO. SCITUATE, R.I 02857-1930

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

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Signature ______

Print Name STEPHEN WEBBER

Address 82 FISKE DRIVE

BRIDGEWATER, MA 02324

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Signature Theresa A. Rogers

Print Name THERESA A. ROGERS

Address 25 BATTLE ROW
E. TAUNTON, MA. 02718

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Print Name HAROLD ROGERS

Address 25 BATTLE ROW

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Print Name HENRI A. YELLE

Address 7 Taunton Ave, Box 491

Norton, MA 02766

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Signature Lorraine N Ornellas

Print Name LORRAINE N ORNELLAS

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Norton, Ma. 02766

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Signature Maria E Weiss

Print Name Maria E. Weiss

Address 298 Maple St.
Franklin, MA 02038

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Signature Lisa M. McIntosh

Print Name Lisa M. McIntosh

Address 233 N. Worcester St.

Norton, MA 02766

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Signature Marie T. Lee

Print Name MARIE T. LEE

Address 32 Old Farm Lane
Attleboro, Ma. 02703

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Signature Mari Mackey

Print Name Marci Mackey

Address 303 County St
Attleboro Ma

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Signature Mildred L. Andrews

Print Name MILDRED L. ANDREWS

Address P.O. BOX 597

NORTON, MA 02766

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Signature Christiane Denkel

Print Name CHRISTIANE DENKEL

Address 113 Maple Street
Norton MA 02766

This has been going on for a long time. Let's do this clean-up job – and let's do it right. I live near the land fill and am truly concerned. C.D.

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Signature Deborah A. Salley

Print Name Deborah A. Salley

Address 234 N. Worcester St.

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Signature Kristina Salley

Print Name Kristina Salley

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Signature Karleen Salley

Print Name Karleen Salley

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Signature Kimberly Salley

Print Name Kimberly Salley

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Norton, MA 02766

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Signature Holly Ant

Print Name Holly Instasi

Address 147 Burt St
Norton Ma 02766

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Signature Jacqueline Canto

Print Name 139 - Unit 4 Burt St - Norton, MA.

Address 02766

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Signature Esther Jaruga

Print Name ESTHER JARUGA

Address 100 Wolfe Rd
ORTONVILLE MI 48462

all contaminated sites need cleaning up BUT the sources of contamination eliminated and "cleanup" should be an ongoing maintenance, This applies to all locations wherever located. I know I don't where contaminated sites in "Our Town"

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Signature Christine Willcutt

Print Name Christine Willcutt

Address 45 maple st

Norton MA 02766

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Signature John J. Willcutt

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8/5/04

Signature William J Crowley Jr.

Print Name WILLIAM J. CROWLEY JR.

Address 151 HOLDEN ST.

ATTLEBORO, MASS 02703

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Signature Victoria May

Print Name Victoria May

Address 45A Maple St. Norton, 02766

Site: SHPACK
Break: 4.9
Other: ______

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Signature ______

Print Name Matthew Desmarais

Address 136 Taunton Ave.
Norton, MA 02766

SDMS DocID 00212008

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Signature Dorothy Lee Desmarais

Print Name Dorothy Lee Desmarais

Address 136 Taunton Avenue
Norton, MA 02766

Comments to The US EPA on the June 2004 Proposed Plan For the Cleanup of The Shpack Superfund Site, Norton/Attleboro, MA

To Dave Lederer
U.S. EPA
One Congress St., Suite 1100 (HBO)
Boston, MA 02114
Deadline - Postmarked By Wednesday, August 25, 2004
FAX (617) 918 – 1291, No Later Than Wednesday, August 25, 2004

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Signature Karen Bryan O'Rourke

Print Name Karen and Bryan O'Rourke

Address 33 Goldenwood Drive
Norton, MA 02766

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Signature Vivian Lambrecht

Print Name VIVIAN LAMbRecht

Address 161 ViLLage CT

ORTONVILLE mi 48462

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Signature Janette H. Franke

Print Name Janette H. Franke

Address 7617 - 30th Ave.
Kenosha, WI 53142

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Signature [signature]

Print Name Steven J Paille

Address 73 Cross St.

Norton, MA 02766

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Signature Dwayne Hancock

Print Name Dwayne Hancock

Address 153 North Worcester Street
Norton Ma 02766

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Signature

Print Name Joel Thomson

Address 13 Fletcher Way
Norton MA 02766

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Signature Susan J Weilding

Print Name SUSAN J. WEILDING

Address 31 Richardson Ave
Norton, MA 02766

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Signature Patricia A. Clifford

Print Name PATRICIA A. CLIFFORD

Address 58 COBB ST.
NORTON MA 02766

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Signature Janet-Marie O'Keeffe

Print Name JANET-MARIE O'KEEFFE

Address 58 COBB ST
NORTON, MA 02766

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Signature Mollie L O'Keeffe

Print Name MOLLIE L. O'KEEFFE

Address 58 COBB ST

NORTON, MA 02766

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Signature Denis M. O'Keeffe

Print Name DENIS M. O'KEEFFE

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NORTON MA 02766

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Signature [signature]

Print Name WALTER ZUSCHLAG

Address 220 PIKE AVE Attlebro

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Signature Nicolina Zuschlag

Print Name NICOLINA ZUSCHLAG

Address 220 Pike Ave Attleboro Ma 02703

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Signature [illegible signature]

Print Name Kellie Roe

Address 94 Maple St
Norton, MA 02766

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Signature Sheila Gray

Print Name Sheila Gray

Address 96 Maple St
Norton, MA 02766

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Signature Dorothy Ratcliffe

Print Name Dorothy Ratcliffe

Address 206 Thunton Ave
Norton Ma 02766

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Signature [signature]

Print Name Albert O Ratcliffe

Address 266 TAUNTON AVE
NORTON MA 02766

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Signature Paul W Ratcliffe

Print Name PAUL W RATCLIFFE

Address 206 Old Taunton Ave
Norton, MASS

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Signature Carole A Lees

Print Name CAROLE A. LEES

Address 1 BAY ROAD
NORTON MA 02766

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Signature Edward M. Hallahan

Print Name EDWARD M. HALLAHAN

Address 118 SOUTH WORCESTER ST.
NORTON, MA 02766

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Signature Teresa L Tocci

Print Name Teresa L. Tocci

Address 107 Maple St
Norton, MA 02766

Appendix A: State Concurrence Letter

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

ELLEN ROY HERZFELDER
Secretary

ROBERT W. GOLLEDGE, Jr.
Commissioner

September 29, 2004

Ms. Susan Studlien, Director
Office of Site Remediation and Restoration
U.S. EPA
One Congress St., Suite 1100
Boston, MA 02114-2023

Re: State Concurrence Letter
Shpack Superfund Site, Norton/Attleboro

Dear Ms. Studlien:

The Massachusetts Department of Environmental Protection (DEP) has reviewed the remedial action alternative ("Option 3b") selected by EPA for the remediation of the Shpack Superfund Site in Norton and Attleboro, Massachusetts. Based upon an evaluation of available information and data, as well as public comments received in this matter, DEP concurs with the selected remedy for this site.

DEP has evaluated the EPA's selected remedy for consistency with applicable, relevant and appropriate state requirements. The selected remedy addresses a continuing source of contamination to surface water, sediment, and to the private drinking water supplies of nearby residents, and includes the following components:

1) Excavation and off-site disposal of all wastes and contaminated media exceeding site cleanup goals, 2) Backfilling to the original grade, 3) Restoration of impacted wetland resources, 4) Extension of a waterline to replace private water supplies, 5) Implementation of land use restrictions, and 6) Long term monitoring

DEP believes that the selected remedy for this site will be protective of human health and the environment. Once the remedial actions are implemented at the site and the private water supplies are eliminated, groundwater at and in the vicinity of the site would no longer be considered a current or future drinking water source (GW-1 Classification) under the Massachusetts Contingency Plan. At that point, DEP will revise the Groundwater Use and Value determination to reflect a low use and value, provided that the wells are decommissioned and controls placed on the future use of groundwater at these properties. The Department looks forwarded to working with you on implementing the preferred alternative. If you have any questions, please contact David Buckley at 617-556-1184.

Sincerely,

Robert W. Golledge, Jr.
Commissioner

cc: Dave Buckley, DEP

e-file: Shpack ROD Concurrence LETTER 040924

Appendix B: ARAR's Tables

Alternative SC-3B - Excavation/Off-Site Disposal (Adjacent Resident Without Groundwater Consumption)
Potential Chemical-Specific ARARs
Shpack Landfill Superfund Site
Norton/Attleboro, Massachusetts

Medium	Requirements	Status	Synopsis of Requirements	Meet or Attain ARAR
STATE REGULATORY REQUIREMENTS				
Soil/ Groundwater	Massachusetts Regulations for Control of Radiation (105 CMR 120)	Relevant and Appropriate	Establishes standards for radiation related activities.	*
FEDERAL REGULATORY REQUIREMENTS				
Non-Environmental Materials	Department of the Army, USACE EM-385-1-80, Table 6-4	To be Considered	This USACE Radiation Protection Manual table sets acceptable surface contamination levels for U-nat, U-235, U-238 and associated decay products for release of equipment and non-environmental materials (e.g., old kitchen appliances).	*
Soil	Domestic Licensing of Source Material (10 CFR 40, Appendix A, I Criterion 6(6))	Relevant and Appropriate	Establishes benchmark approach for setting clean-up levels for radionuclides.	*
	Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR Part 192)	Relevant and Appropriate	Establishes concentration limits for clean-up of Ra-226, Ra-228 and thorium in soil.	*
	Use of Soil Clean-up Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites, Directive No. 9200.4-25, February 12, 1998.	To be Considered	Addresses use of soil clean-up criteria in 40 CFR 192 in setting remediation levels for subsurface soil at CERCLA sites with radioactive contamination.	*
	Remediation Goals for Radioactively-Contaminated CERCLA Site Using the Benchmark Dose Clean-Up Criteria in 10 CFR 40, Appendix A, I, Criterion 6(6), Directive No. 9200-4-35P, April 11, 2000.	To be Considered	Addresses the use of the soil and structure clean-up criteria in 10 CFR 40, Appendix A, I, Criterion 6(6) with setting remediation goals at CERCLA sites with radioactive contamination.	*
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.	*

Notes:

Applicable - Addresses a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at the site.

Relevant and Appropriate - Not directly applicable to the site, but addresses situations similar enough to be relevant and appropriate.

To be considered - Non-promulgated Federal or State criteria, advisories or guidance do not have ARAR status, however, they may be considered in determining cleanup levels protective of public health or the environment.

* Will be met through excavation and off-site disposal of radiological and chemical waste.

Alternative SC-3B - Excavation/Off-Site Disposal (Adjacent Resident Without Groundwater Consumption)
Potential Location-Specific ARARs
Shpack Landfill Superfund Site
Norton/Attleboro, Massachusetts

Medium	Requirements	Status	Synopsis of Requirements	Meet or Attain ARAR
STATE REGULATORY REQUIREMENTS				
Wetland Sediment	Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00)	Applicable	These regulations are promulgated under Wetlands Protection Laws, which regulate dredging, filling altering or polluting inland wetlands. This requirement regulates work within the wetlands buffer zone, and defines wetlands based on vegetation type and mitigation requirements.	***
	401 Water Quality Certification for Discharge of Dredged or Fill Material (314 CMR 9.00)	Applicable	ARAR if discharge of dredged or fill material occurs.	***
	Massachusetts Endangered Species Act (321 CMR 10.00)	Applicable	Requires that site activities be conducted in a manner that minimizes impact to Massachusetts-listed rare, threatened, or endangered species, and species listed by the Massachusetts Natural Heritage Program.	**
FEDERAL REGULATORY REQUIREMENTS				
Wetland Sediment	Federal Executive Order on Protection of Wetlands (E.O. 11990, 40 CFR Part 6, Appendix A)	Applicable	Requires federal agencies to avoid impacts associated with the destruction or loss of wetlands, minimize potential harm, preserve and enhance wetlands, and avoid support of new construction in wetlands if a practicable alternative exists.	*
	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.	****
	Federal Clean Water Act (33 USC 1344), US Army Corps of Engineers Nationwide Permit Program (33 CFR Part 330), "Federal Guidelines for Specification of Disposal Sites" (40 CFR Part 230), Clean Water Act Sections 401 and 404 (33 CFR 26)	Applicable	Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative that has less effect is available. The requirements also describe actions to minimize adverse impacts. Establishes regulations for filling and dredging within wetlands.	*
	Endangered Species Act (50 CFR Parts 17.11-12)	Applicable	Requires site action be conducted in a manner that avoids harming threatened or endangered species or their habitat.	**

Notes:

Applicable - Addresses a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at the site.

Relevant and Appropriate - Not directly applicable to the site, but addresses situations similar enough to be relevant and appropriate.

To be considered - Non-promulgated Federal or State criteria, advisories or guidance do not have ARAR status; however, they may be considered in determining cleanup levels protective of public health or the environment.

* Because high levels of contamination exist in wetlands area, there is no practical alternative to excavating wetlands areas. Actions will be taken to minimize impacts to the maximum extent practical.

** Should threatened, protected or endangered species be encountered, the requirements of these regulations will be met.

*** Because excavation is required in the wetlands/buffer zone, all substantive requirements of these regulations will be met.

**** Should this alternative require modification of a water body, this consultation requirement will be conducted.

Alternative SC-3B - Excavation/Off-Site Disposal (Adjacent Resident Without Groundwater Consumption)
Potential Action-Specific ARARs
Shpack Landfill Superfund Site
Norton/Attleboro, Massachusetts

Medium	Requirements	Status	Synopsis of Requirements	Meet or Attain ARAR
STATE REGULATORY REQUIREMENTS				
Air	Massachusetts DEP Air Pollution Control Regulations (310 CMR 7.00)	Applicable	These regulations set requirements for fugitive emissions, dust, and particulates.	*
Non-Environmental Materials	Department of the Army, USACE EM-385-1-80, Table 6-4	To be Considered	This USACE Radiation Protection Manual table sets acceptable surface contamination levels for U-nat, U-235, U-238 and associated decay products for release of equipment and non-environmental materials (e.g., old kitchen appliances).	†
Soil	Domestic Licensing of Source Material (10 CFR 40, Appendix A, I Criterion 6(6))	Relevant and Appropriate	Establishes benchmark approach for setting clean-up levels for radionuclides.	†
	Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR Part 192)	Relevant and Appropriate	Establishes concentration limits for clean-up of Ra-226, Ra-228 and thorium in soil.	†
	Use of Soil Clean-up Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites, Directive No. 9200.4-25, February 12, 1998.	To be Considered	Addresses use of soil clean-up criteria in 40 CFR 192 in setting remediation levels for subsurface soil at CERCLA sites with radioactive contamination.	†
	Remediation Goals for Radioactively-Contaminated CERCLA Site Using the Benchmark Dose Clean-Up Criteria in 10 CFR 40, Appendix A, I, Criterion 6(6), Directive No. 9200-4-35P, April 11, 2000.	To be Considered	Addresses the use of the soil and structure clean-up criteria in 10 CFR 40, Appendix A, I, Criterion 6(6) with setting remediation goals at CERCLA sites with radioactive contamination.	†
	Massachusetts DEP Hazardous Waste Regulations (310 CMR 30.000)	Relevant and Appropriate	These regulations describe the requirements for treatment, storage, and disposal of hazardous waste.	**
Water	Massachusetts Surface Water Quality Standards (314 CMR 4.00)	Applicable	Establishes criteria to be met if dewatering activities require surface water discharge	†
	Certification of Operators of Wastewater Treatment Facilities (257 CMR 2.0)	Applicable	Addresses certification of wastewater treatment operators to be met if dewatering activities require water treatment	†
	Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Discharges (314 CMR 12.00)	Applicable	Addresses operations and maintenance and pretreatment standards for wastewater treatment to be met if dewatering activities require water treatment	†

Notes

Applicable - Addresses a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at the site.

Relevant and Appropriate - Not directly applicable to the site, but addresses situations similar enough to be relevant and appropriate.

To be considered - Non-promulgated Federal or State criteria, advisories or guidance do not have ARAR status; however, they may be considered in determining cleanup levels protective of public health or the environment.

* Excavation activities will be conducted to meet the requirements of these regulations.

** Substantive landfill closure requirements that address clean closure will be met by this alternative.

† Excavation, dewatering, and offsite disposal will be conducted in accordance with these requirements.

Alternative SC-3B - Excavation/Off-Site Disposal (Adjacent Resident Without Groundwater Consumption)
Potential Action-Specific ARARs
Shpack Landfill Superfund Site
Norton/Attleboro, Massachusetts

Medium	Requirements	Status	Synopsis of Requirements	Meet or Attain ARAR
FEDERAL REGULATORY REQUIREMENTS				
Air	National Emission Standards for Hazardous Air Pollutants (NESHAPs) and Clean Air Act (40 CFR 61, Subparts H and I)	Relevant and Appropriate	Regulates air emissions of VOCs and radionuclides.	***
Soil	Federal RCRA Subtitle G (40 CFR Part 264 Subpart G - Closure and Post Closure, Sections 264.111, 264.114, and 264.117) Clean Closure Requirements 40 CFR 264.258	Relevant and Appropriate	Establishes performance standards for closure of hazardous waste piles, disposal facilities, and groundwater monitoring.	*
Water	Clean Water Act (Section 402; NPDES)	Applicable	Establishes criteria to be met if dewatering activities require surface water discharge	†
Groundwater	Federal Ambient Water Quality Criteria (AWQC) (CWA 303)	Relevant and Applicable	Federal AWQC are health-based criteria which have been developed for certain carcinogenic and noncarcinogenic compounds.	**
	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.	* **

Notes

Applicable - Addresses a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at the site

Relevant and Appropriate - Not directly applicable to the site, but addresses situations similar enough to be relevant and appropriate.

To be considered - Non-promulgated Federal or State criteria, advisories or guidance do not have ARAR status; however, they may be considered in determining cleanup levels protective of public health or the environment.

* *Substantive landfill closure requirements* that address clean closure will be met by this alternative.

** These criteria will be used to determine if other activities minimize the contribution of contaminants from the site to surface water.

*** Excavation activities will be conducted to meet the requirements of these regulations

† Dewatering will be conducted in accordance with these requirements

Alternative SC-3B - Excavation/Off-Site Disposal (Adjacent Resident Without Groundwater Consumption)
Potential Radiological-Specific ARARs
Shpack Landfill Superfund Site
Norton/Attleboro, Massachusetts

Medium	Requirements	Status	Synopsis of Requirements
STATE REGULATORY REQUIREMENTS			
Soil/ Groundwater	Massachusetts Regulations for Control of Radiation (105 CMR 120)	Relevant and Appropriate	Establishes standards for radiation related activities.
FEDERAL REGULATORY REQUIREMENTS			
Air	National Emission Standards for Hazardous Air Pollutants (NESHAPs) and Clean Air Act (40 CFR 61, Subparts H and I)	Relevant and Appropriate	Provides guidance on air emissions of radionuclides during cleanup of Federal Facilities and licensed NRC facilities with radioactive contamination.
Groundwater	Ore Mining and Dressing Point Source Category (40 CFR 440, Subpart C)	Relevant and Appropriate	Regulates effluent limits from facilities that extract/process uranium, radium and vanadium ores. May be applicable to discharges of radioactive waste to surface waters.
	Federal Water Quality Criteria (FWQC) and State Water Quality Standards (Water Quality Criteria, Report of the National Technical Advisory Committee to the Secretary of the Interior, April 1, 1986)	To be considered	FWQC are criteria/standards for the protection of aquatic life and/or human health.
	Health and Environmental Protection for Uranium and Thorium Tailings (40 CFR 192, Subpart A, Table 1)	Relevant and Appropriate	Standards have been developed under the Uranium Mill Tailings Radiation Control Act (UMTRCA) for sites that are exempt from CERCLA for radium/thorium in soil.
	Federal Safe Drinking Water Act - Maximum Contaminant Levels (MCLs) for Radiological Constituents (40 CFR 141 Subparts B, G and I)	Applicable, if non-zero	MCLs have been promulgated for a number of radiological constituents. 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.
Soil	Health and Environmental Protection for Uranium and Thorium Tailings (40 CFR 192.12, 192.32, 192.41)	Relevant and Appropriate	Standards have been developed under the Uranium Mill Tailings Radiation Control Act (UMTRCA) for sites that are exempt from CERCLA for radium/thorium in soil.
	Licensing Requirements for Land Disposal of Radioactive Waste (10 CFR 61.41)	Relevant and Appropriate	Provides performance objectives for licensed disposal sites containing low level radioactive waste if the waste will be left permanently on site.

Notes:

Applicable - Addresses a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at the site.

Relevant and Appropriate - Not directly applicable to the site, but addresses situations similar enough to be relevant and appropriate.

To be considered - Non-promulgated Federal or State criteria, advisories or guidance do not have ARAR status, however, they may be considered in determining cleanup levels protective of public health or the environment

See chemical-, action-, and location-specific ARAR tables for a discussion of how the radiological-specific ARARs are addressed, if at all, by this alternative

Appendix C: Administrative Record Index and Guidance Documents

SHPACK LANDFILL
ENTIRE SITE
ADMINISTRATIVE RECORD FILE
SHPACK OU1 ROD AR

1. SITE ASSESSMENT

   1. FORM : NATIONAL PRIORITIES LIST CHECKLIST OF DATA REQUIREMENTS
      AUTHOR: DAVID K COOK, ECOLOGY & ENVIRONMENT INC
      DOC ID: 209593 2 PAGES

   2. REPORT: A BACKGROUND REPORT FOR THE FORMERLY UTILIZED MANHATTAN ENGINEER DISTRICT/ATOMIC ENERGY COMMISSION SITES PROGRAM [COVER PAGE AND PAGES 67-74 ONLY]
      AUTHOR: US DEPT OF ENERGY
      DOC ID: 205017 09/01/1980 10 PAGES

   3. FORM : POTENTIAL HAZARDOUS WASTE SITE INVESTIGATION AND PRELIMINARY ASSESSMENT
      AUTHOR: DAVID K COOK, ECOLOGY & ENVIRONMENT INC
      DOC ID: 205019 04/09/1982 4 PAGES

   4. MEMO : POTENTIAL HAZARDOUS WASTE SITE INVESTIGATION AND PRELIMINARY ASSESSMENT AND NATIONAL PRIORITIES CHECKLIST TO: JOHN F HACKLER, US EPA REGION 1
      AUTHOR: DAVID K COOK, ECOLOGY & ENVIRONMENT INC
      DOC ID: 205018 04/20/1982 7 PAGES

   5. REPORT: CHEMICAL CONTAMINATION AT THE SHPACK LANDFILL, NORTON/ATTLEBORO, MASSACHUSETTS
      AUTHOR: DAVID K COOK, ECOLOGY & ENVIRONMENT INC
      DOC ID: 209596 12/06/1982 235 PAGES

   6. MEMO : TRIP REPORT OF INVENTORY OF SURFACE DEBRIS
      AUTHOR: GREGORY A ROSCOE, NUS/TETRA TECH INC
      DOC ID: 209595 09/25/1984 4 PAGES

   7. REPORT: FINAL SITE RESPONSE ASSESSMENT REPORT (SRA), SHPACK/ ATTLEBORO LANDFILL INCORPORATED, NORTON/ATTLEBORO, MASSACHUSETTS TO: US EPA REGION 1
      AUTHOR: GREGORY A ROSCOE, NUS/TETRA TECH INC
      DOC ID: 209594 11/21/1985 143 PAGES

2. REMOVAL RESPONSE

   1. REPORT: REPORT NO. 78-154-A, RADIOACTIVE MATERIAL IN UNCONTROLLED LOCATION, NORTON, MA
      AUTHOR: J W DEVLIN, US NUCLEAR REGULATORY COMMISSION
      DOC ID: 201267 03/13/1979 1 PAGE

2. REMOVAL RESPONSE (con't)

2. LETTER: TRANSMITTAL OF REGION 1 INVESTIGATION REPORT NO. 78-154-A
TO: GERALD PARKER S, MA DEPT OF PUBLIC HEALTH
AUTHOR: GEORGE SMITH, US NUCLEAR REGULATORY COMMISSION
DOC ID: 201268 06/26/1979 64 PAGES

3. REPORT: ADDITIONAL DEPARTMENT OF ENERGY (DOE) SURVEYS AND ANALYSIS - SHPACK/ATTLEBORO FUSRAP SITE TO: BARBARA IKALAINEN, US EPA REGION 1
AUTHOR: JAMES K ALEXANDER, US DEPT OF ENERGY
DOC ID: 209597 04/14/1982 24 PAGES

4. REPORT: RADIOLOGICAL SURVEY OF THE FORMER SHPACK LANDFILL, WITH TRANSMITTAL TO: US DEPT OF ENERGY
AUTHOR: BECHTEL NATIONAL INC
DOC ID: 201269 03/01/1984 164 PAGES

5. REPORT: ANALYTICAL DATA PACKAGE, VOLUME 1 OF 6: VOLATILE ORGANIC COMPOUNDS
AUTHOR: ROY F WESTON
DOC ID: 209587 09/08/1989 380 PAGES

6. REPORT: ANALYTICAL DATA PACKAGE, VOLUME 2 OF 6: SEMI-VOLATILE ORGANIC COMPOUNDS, PART 1 OF 2
AUTHOR: ROY F WESTON
DOC ID: 209588 09/08/1989 433 PAGES

7. REPORT: ANALYTICAL DATA PACKAGE, VOLUME 3 OF 6: SEMI-VOLATILE ORGANIC COMPOUNDS, PART 2 OF 2
AUTHOR: ROY F WESTON
DOC ID: 209589 09/08/1989 240 PAGES

8. REPORT: ANALYTICAL DATA PACKAGE, VOLUME 4 OF 6: METALS, PART 1 OF 2
AUTHOR: ROY F WESTON
DOC ID: 209590 09/08/1989 235 PAGES

9. REPORT: ANALYTICAL DATA PACKAGE, VOLUME 5 OF 6: METALS, PART 2 OF 2
AUTHOR: ROY F WESTON
DOC ID: 209591 09/08/1989 300 PAGES

10. REPORT: ANALYTICAL DATA PACKAGE, VOLUME 6 OF 6: PESTICIDES/PCBS AND RADIOLOGICALS
AUTHOR: ROY F WESTON
DOC ID: 209592 09/08/1989 298 PAGES

2. REMOVAL RESPONSE (con't)

11. REPORT: DATA VALIDATION FOR SHPACK LANDFILL DATA, TDD# 01-8909-L1, PCS# 0711
AUTHOR: MARTHA POIRIER, ROY F WESTON
DOC ID: 209602 11/06/1989 33 PAGES

12. MEMO : MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN THE US DEPARTMENT OF ENERGY (DOE) AND THE US ARMY CORPS OF ENGINEERS REGARDING PROGRAM ADMINISTRATION AND EXECUTION OF THE FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)
AUTHOR: JAMES M OWENDOFF, US DEPT OF ENERGY
RUSSELL L FUHRMAN, US ARMY CORPS OF ENGINEERS
DOC ID: 209610 03/17/1999 12 PAGES

13. REPORT: DRAFT QUALITY ASSURANCE PROJECT PLAN, SHPACK LANDFILL SUPERFUND SITE, GAMMA AND CIVIL SURVEYS TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209601 09/08/1999 18 PAGES

14. REPORT: DRAFT SITE SAFETY AND HEALTH PLAN, SHPACK LANDFILL SUPERFUND SITE, GAMMA AND CIVIL SURVEYS TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209609 09/08/1999 158 PAGES

15. LETTER: TRANSMITTAL OF THREE DRAFT PLANS APPLICABLE TO THE SHPACK LANDFILL SUPERFUND SITE TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: CHRISTINE WAITERS, CABRERA SERVICES INC
DOC ID: 209600 09/13/1999 1 PAGE

16. REPORT: GAMMA WALKOVER AND CIVIL SURVEY WORK PLAN TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209607 12/30/1999 25 PAGES

17. REPORT: QUALITY ASSURANCE PROJECT PLAN, SHPACK LANDFILL SUPERFUND SITE, GAMMA AND CIVIL SURVEYS TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209608 12/30/1999 18 PAGES

2. REMOVAL RESPONSE (con't)

18. REPORT: DRAFT SITE- SPECIFIC RADIOLOGICAL SURVEY PLAN
AUTHOR: METCALF & EDDY
DOC ID: 209622 01/01/2000 31 PAGES

19. REPORT: DRAFT GAMMA WALKOVER AND CIVIL SURVEY REPORT TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 201276 07/13/2000 62 PAGES

20. LETTER: REVIEW COMMENTS ON GAMMA WALKOVER AND CIVIL SURVEY REPORT TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: EDWARD A CONROY, METCALF & EDDY
DOC ID: 209614 10/19/2000 4 PAGES

21. LETTER: COMMENTS ON GAMMA WALKOVER AND CIVIL SURVEY REPORT DATE JULY 13,2000 TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JAY NAPARSTEK, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 209615 10/24/2000 3 PAGES

22. LETTER: TRANSMIT! AL OF COMMENTS ON SHPACK GAMMA WALKOVER AND CIVIL SURVEY REPORT FROM BOTH METCALF AND EDDY AND MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION TO: WILLIAM TAYLOR, US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209613 10/24/2000 1 PAGE

23. LETTER: COMMENTS ON THE GAMMA WALKOVER AND CIVIL SURVEY REPORT TO: WILLIAM TAYLOR, US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: HEATHER GRAF, SHPACK AD HOC COMMITTEE
DOC ID: 209611 10/26/2000 11 PAGES

24. LETTER: DRAFT GAMMA WALKOVER AND CIVIL SURVEY REPORT - RESPONSE TO COMMENTS TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: SCOTT E ACONE, US ARMY CORPS OF ENGINEERS
DOC ID: 209616 01/19/2001 24 PAGES

25. REPORT: FINAL REPORT, GAMMA WALKOVER AND CIVIL SURVEY REPORT TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 201277 01/23/2001 61 PAGES

2. REMOVAL RESPONSE (con't)

26. LETTER: REVIEW OF RESPONSE COMMENTS ON GAMMA WALKOVER SURVEY
TO: SCOTT E ACONE, US ARMY CORPS OF ENGINEERS
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209612 03/01/2001 4 PAGES

27. REPORT: FINAL QUALITY ASSURANCE PROJECT PLAN, FOCUSED SITE INSPECTION: CHARACTERIZATION SURVEYS FOR RADIOLOGICAL CONTAMINANTS OF CONCERN TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209605 02/22/2002 284 PAGES

28. REPORT: FINAL SAMPLING AND ANALYSIS PLAN, FOCUSED SITE INSPECTION: CHARACTERIZATION SURVEYS FOR RADIOLOGICAL CONTAMINANTS OF CONCERN [PART 2 OF 2]
AUTHOR: CABRERA SERVICES INC
DOC ID: 201564 02/22/2002 455 PAGES

29. REPORT: FINAL SAMPLING AND ANALYSIS PLAN, FOCUSED SITE INSPECTION: CHARACTERIZATION SURVEYS FOR RADIOLOGICAL CONTAMINANTS OF CONCERN [PART 1 OF 2] TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209604 02/22/2002 759 PAGES

30. MAP : WETLANDS DELINEATION SUMMER 2002 TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 209603 01/06/2003

31. REPORT: FINAL LETTER REPORT, FOCUSED SITE INSPECTION: CHARACTERIZATION SURVEYS FOR RADIOLOGICAL CONTAMINANTS OF CONCERN TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 205015 04/01/2003 42 PAGES

32. REPORT: FINAL LETTER REPORT, FOCUSED SITE INSPECTION: CHARACTERIZATION SURVEYS FOR RADIOLOGICAL CONTAMINANTS OF CONCERN, APPENDICES TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 205016 04/01/2003 496 PAGES

2. REMOVAL RESPONSE (con't)

33. REPORT: DRAFT ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA), SHPACK FUSRAP SUPERFUND LANDFILL TO: US ARMY CORPS OF ENGINEERS
AUTHOR: ERM-NEW ENGLAND
DOC ID: 65214 02/01/2004 1 PAGE

3. REMEDIAL INVESTIGATION (RI)

1. FORM : REGIONAL REVIEW OF UNCONTROLLED HAZARDOUS WASTE SITE CONTRACT LABORATORY DATA PACKAGE
AUTHOR: US EPA REGION 1
DOC ID: 209647 22 PAGES

2. REPORT: INTERPRETIVE REPORT OF RESULTS OF GROUNDWATER SURVEY OF THE ATTLEBORO LANDFILL CONDUCTED 04/07/86, 04/08/86 & 04/10/86.
DOC ID: 11774 5 PAGES

3. REPORT: INTERPRETIVE REPORT OF RESULTS OF GROUNDWATER SURVEY OF THE ATTLEBORO LANDFILL CONDUCTED 12/10/85 & 12/11/85 [A 02/11/86 COVER LETTER AND A 04/02/86 COVER SHEET ARE ATTACHED]
DOC ID: 11773 42 PAGES

4. REPORT: INTERPRETIVE REPORT OF RESULTS OF THE 03/24/87 GROUNDWATER SURVEY [A 05/22/87 REPORT IS ATTACHED]
DOC ID: 11739 58 PAGES

5. REPORT: REPORT ON RESULTS OF ANALYSIS OF TEST WELL WATER AT ATTLEBORO LANDFILL SITE
DOC ID: 209618 12 PAGES

6. SAMPLING & ANALYSIS DATA: WASTE WATER ANALYSIS AUTHOR: MA DEPT OF ENVIRONMENTAL QUALITY ENGINEERING
DOC ID: 209621 11/20/1978 25 PAGES

7. REPORT: REPORT ON RADIATION SURVEY ON PREMISES OF ATTLEBORO LANDFILL COMPANY AUTHOR: DOUGLAS R SHEARER
DOC ID: 209619 02/05/1980 6 PAGES

8. REPORT: REPORT - EVALUATION OF ATTLEBORO LANDFILL MONITORING TO: ATTLEBORO LANDFILL INC
AUTHOR: GHR ENGINEERING CORP
DOC ID: 209649 03/25/1980 87 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

9. REPORT: RADIOLOGICAL CHARACTERIZATION OF THE SHPACK LANDFILL. NORTON, MA, SURVEY PLAN
DOC ID: 209617 04/01/1982 21 PAGES

10. SAMPLING & ANALYSIS DATA: SHPACK DUMP, CASE#01260, JTC ENVIRONMENTAL CONSULTANTS, SAMPLING DATES: 09/20/82 - 09/20/82
AUTHOR: JTC ENVIRONMENTAL CONSULTANTS
DOC ID: 209688 09/20/1982 143 PAGES

11. SAMPLING & ANALYSIS DATA: SHPACK DUMP, CASE# 01318, COMPUCHEM LABS, SAMPLING DATES: 09/20/82 - 09/20/82
AUTHOR: ED TAYLOR, NUS CORP SUPERFUND DIVISION
DOC ID: 209687 09/20/1982 61 PAGES

12. SAMPLING & ANALYSIS DATA: SHPACK DUMP, CASE#01318, JTC ENVIRONMENTAL CONSULTANTS, SAMPLING DATES: 09/20/82 - 09/20/82
AUTHOR: JTC ENVIRONMENTAL CONSULTANTS
DOC ID: 209689 09/20/1982 235 PAGES

13. LETTER: SUMMARY OF PRE-1990 RESIDENTIAL WELL SAMPLING
TO: DOROTHY FREEMAN, NORTON (MA) TOWN OF
AUTHOR: JOHN F HACKLER, US EPA REGION 1
DOC ID: 209663 11/18/1982 10 PAGES

14. REPORT: REMEDIAL ACTION MASTER PLAN SECTION 1, DATA COMPILATION AND EVALUATION
TO: US EPA REGION 1
AUTHOR: CAMP DRESSER & MCKEE INC
DOC ID: 200408 02/08/1983 19 PAGES

15. SAMPLING & ANALYSIS DATA: GROUNDWATER MONITORING ANALYTICAL RESULTS
TO: GREG HUNT, DEQE SOUTHEAST REGION JAMES MOONEY, ATTLEBORO BOARD OF HEALTH
AUTHOR: ROBERT S CUMMINGS, GHR ENGINEERING CORP
DOC ID: 11766 03/23/1984 39 PAGES

16. SAMPLING & ANALYSIS DATA: SET OF ANALYTICAL RESULTS
TO: GREG HUNT, DEQE SOUTHEAST REGION JAMES MOONEY, ATTLEBORO BOARD OF HEALTH
AUTHOR: ROBERT S CUMMINGS, GHR ENGINEERING CORP
DOC ID: 209620 03/23/1984 39 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

17. MEMO : SHPACK INORGANIC DATA VALIDATION
TO: ED TAYLOR, NUS CORP SUPERFUND DIVISION
AUTHOR: HANS-PETER KRAHN, NUS CORP SUPERFUND DIVISION
DOC ID: 209677 07/27/1984 34 PAGES

18. MEMO : SHPACK ORGANIC DATA VALIDATION
TO: ED TAYLOR, NUS CORP SUPERFUND DIVISION
AUTHOR: HANS-PETER KRAHN, NUS CORP SUPERFUND DIVISION
DOC ID: 209646 07/30/1984 34 PAGES

19. REPORT: RESULTS ON GROUNDWATER QUALITY IN THE VICINITY OF THE ATTLEBORO SANITARY LANDFILL TO: GHR ENGINEERING CORP
AUTHOR: GHR ANALYTICAL INC
DOC ID: 11768 05/17/1985 50 PAGES

20. REPORT: GHR LABORATORY REPORTS ON GROUNDWATER MONITORING AT ATTLEBORO LANDFILL
TO: DIANE DRUYETIS, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: LEANNE E S COBB, GHR ANALYTICAL INC
DOC ID: 200410 02/11/1986 42 PAGES

21. REPORT: REVIEW OF ATTLEBORO LANDFILL FINAL ENVIRONMENTAL IMPACT REPORT
TO: MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: JOE HARTLEY
DOC ID: 200413 03/19/1986 3 PAGES

22. REPORT: INTERPRETIVE REPORT OF 04/86, GROUNDWATER SAMPLING ROUND [A 07/17/86 COVER SHEET IS ATTACHED]
AUTHOR: GHR ANALYTICAL INC
DOC ID: 11736 05/16/1986 58 PAGES

23. REPORT: INTERPRETIVE REPORT OF OCTOBER 21, 1986 GROUND WATER SAMPLING ROUND
TO: MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: LEANNE E S COBB, GHR ANALYTICAL INC
DOC ID: 200412 12/16/1986 46 PAGES

24. REPORT: LETTER REPORT, SHPACK RESIDENTIAL WELL SAMPLING PROGRAM, lst SAMPLING ROUND
TO: MA DEPT OF ENVIRONMENTAL QUALITY ENGINEERING
AUTHOR: WEHRAN ENGINEERING CORP
DOC ID: 209645 03/01/1987 66 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

25. LETTER: RESIDENTIAL WELL STUDY RESULTS
AUTHOR: CHRISTOPHER TILDEN, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200415 04/21/1987 9 PAGES

26. LETTER: RESIDENTIAL WELL STUDY RESULTS
TO: NORTON (MA) RESIDENT AUTHOR: CHRISTOPHER TILDEN, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200414 04/22/1987 7 PAGES

27. REPORT: ANALYSIS OF WATER SAMPLES FROM SHPACK LANDFILL
TO: PETER CROTEAU, WEHRAN ENGINEERING CORP
AUTHOR. ERT
DOC ID: 209643 04/28/1987 69 PAGES

28. LETTER: ANALYSIS OF RESIDENTIAL WELL SAMPLING PROGRAM SECOND SAMPLING EVENT [RELATED DOCUMENTS ARE ATTACHED]
TO: HELEN WALDORF, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: KEVIN M BURGER, WEHRAN ENGINEERING CORP
PETER CROTEAU, WEHRAN ENGINEERING CORP
DOC ID: 11747 05/20/1987 10 PAGES

29. REPORT: INTERPRETIVE REPORT OF THE MARCH 24, 1987 GROUNDWATER SURVEY OF THE ATTLEBORO LANDFILL
DOC ID: 209644 07/22/1987 58 PAGES

30. LETTER: SHPACK RESIDENTIAL WELL SAMPLING PROGRAM, FOURTH SAMPLE EVENT - ANALYTICAL RESULTS
TO: HELEN WALDORF, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: KEVIN M BURGER, WEHRAN ENGINEERING CORP
PETER CROTEAU, WEHRAN ENGINEERING CORP
DOC ID: 209641 11/23/1987 48 PAGES

31. REPORT: PRELIMINARY HEALTH ASSESSMENT FOR SHPACK LANDFILL
AUTHOR: AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR)
DOC ID: 201271 04/18/1989 7 PAGES

32. REPORT: SHPACK LANDFILL SITE RESIDENTIAL WELL ANALYSIS
DOC ID: 209675 10/01/1989 92 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

33. SAMPLING & ANALYSIS DATA: DRINKING WATER PURGEABLE ORGANIC ANALYSIS
TO: CAROL B GOLDSBERRY, US EPA REGION 1
AUTHOR: MARY JANE CUZZUPE, US EPA REGION 1
SCOTT CLIFFORD, US EPA REGION 1
DOC ID: 11754 10/24/1989 27 PAGES

34. MEMO : ANALYSIS OF PESTICIDES AND PCB'S IN WATER - SHPACK LANDFILL
TO: CAROL B GOLDSBERRY, US EPA REGION 1
AUTHOR: DELON MA AS, US EPA REGION 1
HUI WANG, US EPA REGION 1
RICHARD SISCANAW, US EPA REGION 1
DOC ID: 209638 11/01/1989

35. SAMPLING & ANALYSIS DATA: ANALYSIS OF PESTICIDES AND PCBS IN WATER
TO: CAROL B GOLDSBERRY, US EPA REGION 1
AUTHOR: DELON MAAS, US EPA REGION 1
HUI WANG, US EPA REGION 1
RICHARD SISCANAW, US EPA REGION 1
DOC ID: 11756 11/01/1989 13 PAGES

36. SAMPLING & ANALYSIS DATA: GAS CHROMOTOGRAPHY- MASS SPECTROMETRY ANALYSIS OF EXTRACTABLE ORGANICS IN MUNICIPAL AND INDUSTRIAL DISCHARGES
TO: CAROL B GOLDSBERRY, US EPA REGION I
AUTHOR: JOSEPH MONTANARO, US EPA REGION 1
NATHAN RAINES, US EPA REGION 1
RICHARD SISCANAW, US EPA REGION 1
SURESH SRIVASTAVA, US EPA REGION 1
DOC ID: 11758 11/22/1989 39 PAGES

37. MEMO : EVALUATION OF RESIDENTIAL WELL SAMPLES, SHPACK LANDFILL
TO: CAROL B GOLDSBERRY, US EPA REGION 1
AUTHOR: LOUISE A HOUSE, US PUBLIC HEALTH SERVICE/ATSDR
DOC ID: 201272 02/07/1990 2 PAGES

38. LETTER: REQUEST FOR EXTENSION OF WORK PLAN SUBMISSION DATE
TO: RICHARD T LEIGHTON, US EPA REGION 1
AUTHOR: PETER SPAWN, ALLIANCE TECHNOLOGIES CORP
DOC ID: 209632 12/11/990 3 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

39. LETTER: TRANSMITTAL OF REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) OVERSIGHT WORKPLAN
TO: RICHARD T LEIGHTON, US EPA REGION 1
AUTHOR: PETER SPAWN, ALLIANCE TECHNOLOGIES CORP
DOC ID: 209631 01/04/1991 2 PAGES

40. REPORT: REMEDIAL INVESTIGATION AND FEASIBILITY STUDY, VOLUME 1 OF 3
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200474 01/28/1991 405 PAGES

41. REPORT: REMEDIAL INVESTIGATION AND FEASIBILITY STUDY, VOLUME 2 OF 3
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200475 01/28/1991 212 PAGES

42. REPORT: REMEDIAL INVESTIGATION AND FEASIBILITY STUDY, VOLUME 3 OF 3
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200476 01/28/1991 491 PAGES

43. MEMO : COMMENTS REGARDING REVIEW OF THE WORK PLAN FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) OVERSIGHT
TO: NADINE RANIERE, US EPA REGION 1
AUTHOR: PAMELA SHIELDS, US EPA REGION 1
DOC ID: 11619 01/29/1991 2 PAGES

44. MEMO : SHPACK WORK PLAN SCOPING MEETING - DECEMBER 10, 1990 AND JANUARY 4, 1991
AUTHOR: PAMELA SHIELDS, US EPA REGION 1
DOC ID: 209628 02/03/1991 6 PAGES

45. LETTER: REVIEW OF WORK PLAN FOR SHPACK LANDFILL
TO: PAMELA SHIELDS, US EPA REGION 1
AUTHOR: STEVEN E MIERZYKOWSKI, US DOI/US FISH & WILDLIFE SERVICE
DOC ID: 200439 02/21/1991 2 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

46. LETTER: RESPONSE TO COMMENTS ON DRAFT WORK PLAN FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
TO: TERESA REC, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: PAMELA SHIELDS, US EPA REGION 1
DOC ID: 209625 04/24/1991 7 PAGES

47. LETTER: SHPACK DRAFT HEALTH AND ENDANGERMENT ASSESSMENT WORK PLAN - CONDITIONAL APPROVAL
TO: JOANNA HALL, ALLIANCE TECHNOLOGIES CORP
AUTHOR: PAMELA SHIELDS, US EPA REGION 1
DOC ID: 209626 05/14/1991 3 PAGES

48. LETTER: CONDITIONAL APPROVAL OF TASKS 8-11 OF REVISED WORK PLAN FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: RICHARD A CAVAGNERO, US EPA REGION I
DOC ID: 209624 07/11/1991 2 PAGES

49. MEMO : TRANSMITTAL OF SITE HEALTH AND SAFETY PLAN FOR SHPACK LANDFILL TO: PAMELA SHIELDS, US EPA REGION 1
AUTHOR: EILEEN HAHNEN, US EPA REGION 1
DOC ID: 209630 08/01/1991 1 PAGE

50. REPORT: WORK PLAN SUPPLEMENT FOR REMEDIAL INVESTIGATION TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 209623 09/03/1991 240 PAGES

51. LETTER: COMMENTS ON REVISED REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WORK PLAN
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: US EPA REGION 1
DOC ID: 209629 09/30/1991 23 PAGES

52. LETTER: ERM'S RESPONSE TO SPECIFIC EPA COMMENTS FROM EPA'S SEPTEMBER 30, 1991 CORRESPONDENCE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DUANE A WANTY, ERM NEW ENGLAND INC
ROBERT J FOXEN, ERM NEW ENGLAND INC
DOC ID: 200404 11/15/1991 44 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

53. WORK PLAN: WORK PLAN FOR THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS), VOLUME 1
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM NEW ENGLAND INC
DOC ID: 200407 11/15/1991 632 PAGES

54. REPORT: OVERSIGHT TRIP REPORT FOR THE PERIOD JULY 31 TO AUGUST 22, 1991
TO: US EPA REGION I
AUTHOR: ALLIANCE TECHNOLOGIES CORP
DOC ID: 201278 11/25/1991 72 PAGES

55. REPORT: SHPACK LANDFILL SUPERFUND SITE, LABORATORY QUALITY ASSURANCE PROJECT PLANS (QAPPS) - VOLUME 1 OF 2
AUTHOR. ERM-NEW ENGLAND INC
DOC ID: 209685 02/28/1992 324 PAGES

56. REPORT: SHPACK LANDFILL SUPERFUND SITE, LABORATORY QUALITY ASSURANCE PROJECT PLANS (QAPPS) - VOLUME 2 OF 2
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 209686 02/28/1992 525 PAGES

57. WORK PLAN: INITIAL SITE CHARACTERIZATION WORK PLAN
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM NEW ENGLAND INC
DOC ID: 201279 06/29/1992 51 PAGES

58. REPORT: RESIDENTIAL WELL SAMPLING PLAN, ADDENDUM TO 15 NOVEMBER 1991 SHPACK LANDFILL WORK PLANS
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 209637 07/31/1992 22 PAGES

59. WORK PLAN: REMEDIAL INVESTIGATION/FEASABILITY STUDY (RI/FS) OVERSIGHT WORK PLAN/QUALITY ASSURANCE PROJECT PLAN (QAPP) COMPLIANCE OVERSIGHT
TO: US EPA REGION 1
AUTHOR: TRC ENVIRONMENTAL CORP
DOC ID: 201283 09/30/1992 174 PAGES

60. REPORT: CONDITION OF DOE MONITORING WELLS AT SHPACK LANDFILL
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: ANN MARIE PETRICCA, ERM NEW ENGLAND INC
DUANE A WANTY, ERM NEW ENGLAND INC
DOC ID: 200409 10/20/1992 31 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

61. REPORT: FIELD ACTIVITY REPORT NO. 1
TO: US EPA REGION 1
AUTHOR: TRC ENVIRONMENTAL CORP
DOC ID: 201284 11/17/1992 70 PAGES

62. REPORT: FIELD ACTIVITY REPORT NO. 2
TO: US EPA REGION 1
AUTHOR: TRC ENVIRONMENTAL CORP
DOC ID: 201285 11/18/1992 23 PAGES

63. REPORT: FIELD ACTIVITY REPORT NO. 3
TO: US EPA REGION 1
AUTHOR: TRC ENVIRONMENTAL CORP
DOC ID: 201286 11/18/1992 36 PAGES

64. REPORT: FIELD ACTIVITY REPORT NO. 4
TO: US EPA REGION 1
AUTHOR: TRC ENVIRONMENTAL CORP
DOC ID: 201287 11/25/1992 16 PAGES

65. LETTER: DATA VALIDATION REPORT, SHPACK LANDFILL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) COMPLIANCE OVERSIGHT, VOLATILES: 3 WATER; 1 SOIL, SEMIVOLATILES: 2 WATER; 1 SOIL, PESTICIDE/PCB: 2 WATER; 1 SOIL
TO: MARGARET LESHEN, US EPA REGION 1
AUTHOR: WILLIAM J FARING, TRC COMPANIES INC
DOC ID: 209679 12/21/1992 48 PAGES

66. LETTER: DATA VALIDATION REPORT, SHPACK LANDFILL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) COMPLIANCE OVERSIGHT, METALS AND CYANIDE: 1 SOIL
TO: MARGARET LESHEN, US EPA REGION 1
AUTHOR: WILLIAM J FARINO, TRC COMPANIES INC
DOC ID: 209680 01/05/1993 36 PAGES

67. LETTER: DATA VALIDATION REPORT, SHPACK LANDFILL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) COMPLIANCE OVERSIGHT, METALS AND CYANIDE: 1 SOIL; 1 AQUEOUS
TO: MARGARET LESHEN, US EPA REGION 1
AUTHOR: WILLIAM J FARING, TRC COMPANIES INC
DOC ID: 209682 01/05/1993 45 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

68. LETTER: DATA VALIDATION REPORT, SHPACK LANDFILL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) COMPLIANCE OVERSIGHT, METALS AND CYANIDE: 2 AQUEOUS
TO: MARGARET LESHEN, US EPA REGION 1
AUTHOR: WILLIAM J FARING, TRC COMPANIES INC
DOC ID: 209681 01/05/1993 36 PAGES

69. LETTER: DATA VALIDATION REPORT, SHPACK LANDFILL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) COMPLIANCE OVERSIGHT, VOLATILES: 1 WATER/1 SOIL, SEMIVOLATILES: 1 WATER/1 SOIL, PESTICIDE: 1 WATER/1 SOIL
TO: MARGARET LESHEN, US EPA REGION 1
AUTHOR: WILLIAM J FARING, TRC COMPANIES INC
DOC ID: 209683 01/05/1993 43 PAGES

70. LETTER: DATA VALIDATION REPORT, SHPACK LANDFILL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) COMPLIANCE OVERSIGHT, VOLATILES: 2 WATER, SEMIVOLATILES: I WATER, PESTICIDE/PCB: 1 WATER
TO: MARGARET LESHEN, US EPA REGION 1
AUTHOR: WILLIAM J FARING, TRC COMPANIES INC
DOC ID: 209684 01/13/1993 71 PAGES

71. REPORT: INITIAL SITE CHARACTERIZATION REPORT, VOLUME 1 OF 3, [PART 1 OF 2, TEXT AND TABLES]
TO: SHPACK STEERING COMMITTEE
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200425 03/17/1993 303 PAGES

72. REPORT: INITIAL SITE CHARACTERIZATION REPORT, VOLUME 1 OF 3, [PART 2 OF 2, FIGURES] AND VOLUME 2 OF 3, [PART 1 OF 2, APPENDICES A-E]
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200481 03/17/1993 351 PAGES

73. REPORT: INITIAL SITE CHARACTERIZATION REPORT, VOLUME 2 OF 3, [PART 2 OF 2, APPENDICES F & G]
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200482 03/17/1993 257 PAGES

74. REPORT: INITIAL SITE CHARACTERIZATION REPORT, VOLUME 3 OF 3 [PART 1 OF 2, APPENDICES H & I]
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200483 03/17/1993 278 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

75. REPORT: INITIAL SITE CHARACTERIZATION REPORT, VOLUME 3 OF 3 [PART 2 OF 2, APPENDICES I (CONTINUED), J & K]
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 200484 03/17/1993 237 PAGES

76. MEMO : REVIEW OF INITIAL SITE CHARACTERIZATION REPORT
TO: ANDREW RAUBVOGEL, US EPA REGION 1
JAMES CHERNIACK, US EPA REGION 1
JUI YU HSIEH, US EPA REGION 1
ROSE TOSCANO, US EPA REGION 1
SUSAN SVIRSKY, US EPA REGION 1
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 201280 03/19/1993 1 PAGE

77. LETTER: CORRECTION OF VOLATILE ORGANIC ANALYSIS RESULTS
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DUANE A WANTY, ERM NEW ENGLAND INC
PHILIP J DOHERTY, ERM NEW ENGLAND INC
DOC ID: 201282 03/25/1993 8 PAGES

78. MEMO : REVIEW OF INITIAL SITE CHARACTERIZATION REPORT, CLARIFICATION LETTER FROM PRPS
TO: ANDREW RAUBVOGEL, US EPA REGION 1
DANIEL P FENNO, TRC COMPANIES INC
DAVID BUCKLEY, MA DEPT OF ENVIRONMENTAL PROTECTION
JAMES CHERNIACK, US EPA REGION 1
JUI YU HSIEH, US EPA REGION 1
ROSE TOSCANO, US EPA REGION 1
SUSAN SVIRSKY, US EPA REGION 1
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 201281 03/26/1993 1 PAGE

79. REPORT: SUBMITTAL OF PHASE IB WORK PLANS FOR THE SHPACK LANDFILL
TO: US EPA REGION 1
AUTHOR: ANN MARIE PETRICCA, ERM NEW ENGLAND INC
DUANE A WANTY, ERM NEW ENGLAND INC
ROBERT J FOXEN, ERM NEW ENGLAND INC
DOC ID: 201288 10/08/1993 12 PAGES

80. WORK PLAN: PHASE IB WORK PLAN INSERTS FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDIES
AUTHOR: ERM NEW ENGLAND INC
DOC ID: 201289 10/08/1993 56 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

81. WORK PLAN: ARCS WORK PLAN FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
TO: US EPA REGION 1
AUTHOR: TRC ENVIRONMENTAL CORP
DOC ID: 201290 01/05/1994 16 PAGES

82. LETTER: SUMMARY OF ANALYTICAL RESULTS AT RESIDENTIAL PROPERTIES
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: JOE SZLACHCIUK, TEXAS INSTRUMENTS INC
DOC ID: 209678 04/15/1997 39 PAGES

83. LETTER: REQUEST FOR LIST OF PROPOSED HOMES FOR RESIDENTIAL WELL SAMPLING
TO: FRANCIS J VEALE JR, TEXAS INSTRUMENTS INC
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209669 01/13/2000 1 PAGE

84. LETTER: RESIDENTIAL WELL SAMPLING
TO: FRANCIS J VEALE JR, TEXAS INSTRUMENTS INC
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 209667 01/26/2000 6 PAGES

85. LETTER: LIST OF ALL BUILDINGS WITHIN 1 MILE OF SHPACK LANDFILL WITHOUT MUNICIPAL WATER
TO: JOE SZLACHCIUK, TEXAS INSTRUMENTS INC
AUTHOR: ROBERT A CURRY, NORTON (MA) TOWN OF
DOC ID: 209668 02/14/2000 1 PAGE

86. MEMO : REVIEW COMMENTS ON: FIELD SAMPLING WORK PLAN- RESIDENTIAL WELLS, REVISION 5
DOC ID: 209670 02/24/2000 1 PAGE

87. WORK PLAN: QUALITY MANUAL, RADIOCHEMISTRY AND URANIUM LABORATORIES, WITH TRANSMITTAL
TO: DAVE LEDERERE, EPA REGION 1
AUTHOR: HAZEN RESEARCH, INC
DOC ID: 200418 03/08/2000 87 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

88. MEMO : PROPOSED RESIDENTIAL WELL SAMPLING
TO: BOB CURRY, NORTON (MA) TOWN OF
FRANCIS J VEALE, TEXAS INSTRUMENTS INC
JAMES MOONEY, ATTLEBORO BOARD OF HEALTH
JOE SZLACHCIUK, TEXAS INSTRUMENTS INC
PETER F KUDARAUSKAS, US EPA REGION 1
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209665 04/27/2000 4 PAGES

89. LETTER: RESULTS OF GROSS ALPHA AND GROSS BETA TESTING ON WATER SAMPLES
TO: WILLIAM J ANDRADE, US EPA REGION 1
AUTHOR: CHERYL BAKER, ME DEPT OF HUMAN SERVICES
DOC ID: 209673 06/02/2000 71 PAGES

90. LETTER: ANALYTICAL RESULTS FROM MAY 2 AND 3, 2000 RESIDENTIAL WELL SAMPLING IN THE VICINITY OF THE SHPACK LANDFILL SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: PETER F KUDARAUSKAS, US EPA REGION 1
DOC ID: 209674 06/06/2000 22 PAGES

91. MEMO : ANALYTICAL RESULTS FROM MAY 2 AND 3, 2000 RESIDENTIAL WELL SAMPLING IN THE VICINITY OF THE SHPACK LANDFILL SUPERFUND SITE [WITH TRANSMITTAL AND MARGINALIA]
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: PETER F KUDARAUSKAS, US EPA REGION 1
DOC ID: 209664 06/06/2000 23 PAGES

92. LETTER: RESULTS OF RESIDENTIAL WELL SAMPLING
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209672 06/12/2000 52 PAGES

93. MAP : MAPS RELATED TO RESIDENTIAL WELL SAMPLING
AUTHOR: TEXAS INSTRUMENTS INC
DOC ID: 209671 10/10/2000 8 PAGES

94. MAP : PROPOSED WELL SAMPLING 2001
AUTHOR: JOE SZLACHCIUK, TEXAS INSTRUMENTS INC
MIKE MILLER, TEXAS INSTRUMENTS INC
DOC ID: 209666 12/18/2000 1 PAGE

3. REMEDIAL INVESTIGATION (RI) (cont)

95. LETTER: RESIDENTIAL WELL SAMPLING PLAN FOR REVIEW
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200416 02/28/2001 1 PAGE

96. WORK PLAN: RESIDENTIAL WELL SAMPLING PLAN
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200417 02/28/2001 210 PAGES

97. LETTER: DISCUSSION OF RESIDENTIAL WELL SAMPLING FOR 2001
TO: BOB CURRY, NORTON (MA) TOWN OF
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209662 03/16/2001 2 PAGES

98. LETTER: REQUIREMENT OF THE RESIDENTIAL WELL SAMPLING PLAN
TO: JAMES OCCHIALINI, ALPHA ANALYTICAL LABS
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200419 04/17/2001 2 PAGES

99. SAMPLING & ANALYSIS DATA: SHPACK - SURFACE WATER, COPY OF DATA SENT TO LEO GILLIS AT NATIONAL GRID
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: EDWARD A CONROY, METCALF & EDDY
DOC ID: 209635 05/03/2001 10 PAGES

100. MEMO : DATA GAPS RELATING TO ECOLOGICAL RISK ASSESSMENT
AUTHOR: ANTHONY M RODOLAKIS, METCALF & EDDY
DOC ID: 201274 05/11 /2001 2 PAGES

101. WORK PLAN: QUALITY ASSURANCE PROJECT PLAN, VOLUME 1 OF 2. TEXT, TABLES, FIGURES, APPENDICES A & B
TO: SHPACK STEERING COMMITTEE
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200468 08/01/2001 477 PAGES

102. WORK PLAN: QUALITY ASSURANCE PROJECT PLAN, VOLUME 2 OF 2, APPENDICES C & D [PART 1 OF 2]
TO: SHPACK STEERING COMMITTEE AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200469 08/01/2001 423 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

103. WORK PLAN: DRAFT QUALITY ASSURANCE PROJECT PLAN SUPPLEMENTAL LABORATORY INFORMATION
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200470 08/13/2001 126 PAGES

104. LETTER: FEBRUARY 2002 STATUS REPORT
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE SHPACK STEERING COMMITTEE
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200459 03/20/2002 2 PAGES

105. REPORT: QUALITY ASSURANCE PROJECT PLAN, REVISION 2 INSERT SHEETS
TO: SHPACK STEERING COMMITTEE
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200458 05/01/2002 115 PAGES

106. WORK PLAN: SELECTED APPENDICES, ON COMPACT DISK, FOR FINAL SAMPLING ANALYSIS PLAN, FOCUSED SITE INSPECTION; CHARACTERIZATION SURVEYS FOR RADIOLOGICAL CONTAMINATES OF CONCERN, WITH TRANSMITTAL
TO: DAVID LEDERER, EPA REGION 1 ON 5/17/2002
TO: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
AUTHOR: CABRERA SERVICES INC
DOC ID: 200473 05/09/2002 1 PAGE

107. LETTER: EXPLANATION OF QUALITY ASSURANCE PROJECT PLAN, REVISION 2 INSERT SHEETS
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200471 05/16/2002 2 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

108. LETTER: TRANSMITTAL FOR QUALITY ASSURANCE PROJECT PLAN, REVISION 2 INSERT SHEETS
TO: ANDREW COENEN, ERM WOODBURY
CONNIE FAUSTINI, ERM ANNAPOLIS
DAVID BUCKLEY, MA DEPT OF ENVIRONMENTAL PROTECTION
EDWARD A CONROY, METCALF & EDDY
ELLEN HEATH, DUKE ENGINEERING & SERVICES
FRANCIS J VEALE, TEXAS INSTRUMENTS INC
HEATHER GRAF, SHPACK AD HOC COMMITTEE
JENNIFER CARLINO, NORTON CONSERVATION COMMISSION
KATHLEEN HIBBETT, ATTLEBORO (MA) PUBLIC LIBRARY
MICHAEL ELLIOTT, TEXAS INSTRUMENTS INC NORTON (MA) PUBLIC LIBRARY
PAUL SENCAL, MITIKEM
ROBERT CUMMINGS, EAST COAST ENGINEERING
ROBERT M BERNSTEIN, CABRERA SERVICES INC
SCOTT E ACONE, US ARMY CORPS OF ENGINEERS
AUTHOR: STEVEN P SACCO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200472 05/16/2002 2 PAGES

109. LETTER: CONDITIONAL APPROVAL OF PHASE IB REMEDIAL INVESTIGATION QUALITY ASSURANCE PROJECT PLAN, REVISION 2
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 200441 06/06/2002 3 PAGES

110. LETTER: RESPONSE TO CONDITIONAL APPROVAL, PHASE IB WORK PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN C DROBINSKI, ENVIRONMENTAL RESOURCES MANAGEMENT
JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200420 07/29/2002 30 PAGES

111. REPORT: MONITORING WELL REPLACEMENT, PHASE IB FIELD ACTIVITIES
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN C DROBINSKI, ENVIRONMENTAL RESOURCES MANAGEMENT
JOHN R DAGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 209636 11/07/2002 18 PAGES

112. LETTER: COMMENTS ON DRAFT HUMAN HEALTH ASSESSMENT INTAKE VALUES REASONABLE MAXIMUM EXPOSURE (RME) AND CENTRAL TENDENCY (CT)
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 201275 03/04/2003 5 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

113. LETTER: LABORATORY REPORT, TOTAL RECOVERABLE METALS IN WATER
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: WILLIAM J ANDRADE, US EPA REGION 1
DOC ID: 209634 05/15/2003 8 PAGES

114. LETTER: CONTINUATION PHASE l-B FIELD SAMPLING AND REPLACEMENT WELL INSTALLATION, OVERSIGHT REPORT, APRIL 24-MAY 2,2003
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: EDWARD A CONROY, METCALF & EDDY
DOC ID: 209633 05/28/2003 9 PAGES

115. REPORT: HABITAT ASSESSMENT AND BIOLOGICAL SURVEY
TO: CAROL B GOLDSBERRY, US EPA REGION 1
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 201273 07/01/2003 46 PAGES

116. LETTER: NOVEMBER 2003 STATUS REPORT
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
SHPACK STEERING COMMITTEE
AUTHOR: JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200460 12/05/2003 2 PAGES

117. LETTER: JANUARY 2004 STATUS REPORT
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
SHPACK STEERING COMMITTEE
AUTHOR: JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200461 02/13/2004 2 PAGES

118. LETTER: FEBRUARY 2004 STATUS REPORT
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
SHPACK STEERING COMMITTEE
AUTHOR: JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200462 03/05/2004 2 PAGES

119. WORK PLAN: BACKGROUND SAMPLING WORK PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN C DROBINSKI, ENVIRONMENTAL RESOURCES MANAGEMENT
JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200466 03/18/2004 12 PAGES

3. REMEDIAL INVESTIGATION (RI) (cont)

120. LETTER: MARCH 2004 STATUS REPORT
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
SHPACK STEERING COMMITTEE
AUTHOR: JOHN R D'AGOSTINO, ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200463 04/16/2004 2 PAGES

121. REPORT: BASELINE HUMAN HEALTH RISK ASSESSMENT
AUTHOR: METCALF & EDDY
DOC ID: 210480 06/01/2004 1 PAGE

122. REPORT: DRAFT BASELINE ECOLOGICAL RISK ASSESSMENT
AUTHOR: METCALF & EDDY
DOC ID: 210481 06/14/2004 1 PAGE

123. REPORT: DRAFT FINAL PHASE IB REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 1 OF 2
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 210484 06/17/2004 1 PAGE

124. REPORT: DRAFT FINAL PHASE IB REMEDIAL INVESTIGATION (RI) REPORT, VOLUME 2 OF 2
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 210485 06/17/2004 1 PAGE

SHPACK LANDFILL
ENTIRE SITE
ADMINISTRATIVE RECORD FILE
SHPACK OU1 ROD AR

4. FEASIBILITY STUDY (FS)

1. FORM : COMMENTS ON THE PROPOSED PLAN (24 FORM LETTERS)
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: BRIAN RATCLIFFE, NORTON (MA) RESIDENT
BRYAN O'ROURKE, NORTON (MA) RESIDENT
CAROLE A LEES, NORTON (MA) RESIDENT
DENNIS M O'KEEFE, NORTON (MA) RESIDENT
DOROTHY LEE DESMARAIS, NORTON (MA) RESIDENT
DOROTHY RATCLIFFE, NORTON (MA) RESIDENT
DWAYNE HANCOCK, NORTON (MA) RESIDENT
EDWARD M HALLAHAN, NORTON (MA) RESIDENT
JANET MARIE O'KEEFE, NORTON (MA) RESIDENT
JANETTE FRANKE JOEL THOMSON, NORTON (MA) RESIDENT
KAREN O'ROURKE, NORTON (MA) RESIDENT
KELLIE ROE, NORTON (MA) RESIDENT
MATTHEW DESMARAIS, NORTON (MA) RESIDENT
MOLLIE L O'KEEFE, NORTON (MA) RESIDENT
NICOLINA ZUSCHLAG, ATTLEBORO (MA) RESIDENT
PATRICIA A CLIFFORD, NORTON (MA) RESIDENT
PAUL W RATCLIFFE, NORTON (MA) RESIDENT
SHEILA GRAY, NORTON (MA) RESIDENT
STEVEN J PAILLE, NORTON (MA) RESIDENT
SUSAN J WEILDING, NORTON (MA) RESIDENT
TERESA L TOCCI, NORTON (MA) RESIDENT
VIVIAN LAMBRECHT WALTER RATCLIFFE, NORTON (MA) RESIDENT
WALTER ZUSCHLAG, ATTLEBORO (MA) RESIDENT
DOC ID: 212008 24 PAGES

2. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: MARK BRUHAN, NORTON (MA) RESIDENT
DOC ID: 211336 1 PAGE

3. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION I
AUTHOR: LEANNE COBB, NORTON (MA) RESIDENT
STEVENS COBB, NORTON (MA) RESIDENT
DOC ID: 211337 2 PAGES

4. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DONALD G QUILLEN, ATTLEBORO (MA) RESIDENT
DOC ID: 211339 1 PAGE

4. FEASIBILITY STUDY (FS) (cont)

5. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOSEPH SURETTE, ATTLEBORO (MA) RESIDENT
DOC ID: 211340 1 PAGE

6. MEMO : POSITION PAPER FOR THE TOWN OF NORTON, COMMENTS ON THE PROPOSED PLAN
AUTHOR: ROBERT W KIMBALL, NORTON BOARD OF SELECTMEN
DOC ID: 211332 5 PAGES

7. LETTER: RELEASE CRITERIA FOR DECOMMISSIONING RADIOLOGICALLY CONTAMINATED FACILITIES FOR UNRESTRICTED USE IN MASSACHUSETTS
TO: DAVID BUCKLEY, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: ROBERT M HALLISEY, MA DEPT OF PUBLIC HEALTH
DOC ID: 200467 07/20/2001 2 PAGES

8. LETTER: POTENTIAL ARAR RELATIVE TO THE SHPACK SUPERFUND SITE RADIONUCLIDE CONTAINING WASTES, WITH TRANSMITTAL TO SCOTT ACONE, US ACE ON 8/24/2001
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: PAUL CRAFFEY, US EPA REGION 1
DOC ID: 200465 08/13/2001 3 PAGES

9. FACT SHEET: PROPOSED PLAN FOR SELECTED REMEDIAL ACTION AT SHPACK LANDFILL SITE AUTHOR: US EPA REGION 1
DOC ID: 210633 06/01/2004 12 PAGES

10. REPORT: DRAFT FINAL FEASIBILITY STUDY (FS)
TO: SHPACK STEERING COMMITTEE
AUTHOR: ERM-NEW ENGLAND INC
DOC ID: 210483 06/17/2004 1 PAGE

11. LETTER: TRANSMITTAL OF PROPOSED PLAN, REMEDIAL INVESTIGATION, FEASIBILITY STUDY, HUMAN HEALTH RISK ASSESSMENT, AND BASELINE RISK ASSESSMENT
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 213639 06/22/2004 1 PAGE

12. LETTER: REQUEST FOR A THIRTY (30) DAY EXTENSION OF PUBLIC COMMENT PERIOD ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: HEATHER GRAF, SHPACK AD HOC COMMITTEE
DOC ID: 211327 07/01/2004 1 PAGE

4. FEASIBILITY STUDY (FS) (cont)

13. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DAVID F YOPAK, TEKNOR APEX COMPANY
DOC ID: 211338 07/07/2004 1 PAGE

14. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: FREDERICK J WATSON, NORTON (MA) BOARD OF HEALTH
DOC ID: 211330 07/08/2004 2 PAGES

15. MEMO : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: CITIZENS ADVISORY SHPACK TEAM (CAST)
HEATHER GRAF, SHPACK AD HOC COMMITTEE
DOC ID: 211329 07/14/2004 7 PAGES

16. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: ROSEMARIE HOYLE, NORTON (MA) RESIDENT
DOC ID: 211342 07/22/2004 1 PAGE

17. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: WAYNE A GRAF, NORTON (MA) RESIDENT
DOC ID: 211343 07/23/2004 1 PAGE

18. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: STEVEN J ARCANTI
DOC ID: 211344 07/23/2004 1 PAGE

19. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JAMES A HARROD
DOC ID: 211345 07/27/2004 1 PAGE

20. MEMO : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: CLARENCE P RICH, NORTON BOARD OF SELECTMEN
DOC ID: 211324 07/27/2004 2 PAGES

4. FEASIBILITY STUDY (FS) (cont)

21. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: KATHLEEN A RODRIGUES
DOC ID: 211346 07/28/2004 1 PAGE

22. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN M RODRIGUES
DOC ID: 211347 07/28/2004 1 PAGE

23. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DONALD G RAFFETY
JUDITH A RAFFETY
DOC ID: 211348 07/28/2004 1 PAGE

24. MEMO : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: RICHARD KRUMM, NORTON (MA) RESIDENT
DOC ID: 211328 07/28/2004 1 PAGE

25. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: ANNE RODRIGUES, NORTON (MA) RESIDENT
DOC ID: 211349 07/29/2004 1 PAGE

26. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: THOMAS W FRENCH, MA DIVISION OF FISHERIES
DOC ID: 211331 07/30/2004 1 PAGE

27. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: ROBERT W VARNEY, US EPA REGION 1
AUTHOR: ELIZABETH A POIRIER, MA HOUSE OF REPRESENTATIVES
MICHAEL COPPOLA, MA HOUSE OF REPRESENTATIVES
PHILIP TRAVIS, MA HOUSE OF REPRESENTATIVES
DOC ID: 211334 07/30/2004 2 PAGES

28. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: LISA M TOMMASELLO, NORTON (MA) RESIDENT
DOC ID: 211335 07/30/2004 1 PAGE

4. FEASIBILITY STUDY (FS) (cont)

29. FORM : COMMENTS ON THE PROPOSED PLAN (35 FORM LETTERS)
TO: DAVID O LEDERER, US EPA REGION I
AUTHOR: CHRISTIANE DENKEL, NORTON (MA) RESIDENT
CHRISTINE WILLCUTT, NORTON (MA) RESIDENT
DEBORAH A SALLEY, NORTON (MA) RESIDENT
ELIZABETH D SEACORD, NORTON (MA) RESIDENT
ELIZABETH POLK, NORTON (MA) RESIDENT
ELIZABETH S DEXTER
ESTELLE M FLETT, NORTON (MA) RESIDENT
ESTHER JARUGA
FREDERICK J WATSON, NORTON (MA) RESIDENT
HAROLD ROGERS, E. TAUNTON (MA) RESIDENT
HENRI A YELLE, NORTON (MA) RESIDENT
HOLLY INTASI, NORTON (MA) RESIDENT
JACQUELINE CANTO, NORTON (MA) RESIDENT
JOHN J WILLCUTT, NORTON (MA) RESIDENT
KARLEEN SALLEY, NORTON (MA) RESIDENT
KIMBERLY SALLEY, NORTON (MA) RESIDENT
KRISTINA SALLEY, NORTON (MA) RESIDENT
LISA M MCINTOSH, NORTON (MA) RESIDENT
LORRAINE N ORNELLA, NORTON (MA) RESIDENT
LYDIA A LOVING, NORTON (MA) RESIDENT
LYDIA J FALES-TATRO, NORTON (MA) RESIDENT
MARCI MACKEY, ATTLEBORO (MA) RESIDENT
MARIE E WEISS MARIE T LEE, ATTLEBORO (MA) RESIDENT
MILDRED L ANDREWS, NORTON (MA) RESIDENT
PETER B ROBB
ROGER A BOGOSH, NORTON (MA) RESIDENT
RUTH E GOOLD, NORTON (MA) RESIDENT
RUTH YOUNGQUIST
STEPHEN WEBBER, E. TAUNTON (MA) RESIDENT
SUSAN MIMS, NORTON (MA) RESIDENT
THERESA A ROGERS, E. TAUNTON (MA) RESIDENT
THOMAS E BURKE, NORTON (MA) RESIDENT
VICTORIA MAY, NORTON (MA) RESIDENT
WILLIAM J JR CROWLEY, ATTLEBORO (MA) RESIDENT
DOC ID: 211355 08/01/2004 35 PAGES

30. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN J WILLCUTT, NORTON (MA) RESIDENT
DOC ID: 211350 08/03/2004 1 PAGE

4. FEASIBILITY STUDY (FS) (cont)

31. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: HEATHER GRAF, SHPACK AD HOC COMMITTEE
DOC ID: 211326 08/04/2004 4 PAGES

32. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: ROBERT W VARNEY, US EPA REGION 1
AUTHOR: BARNEY FRANK, US HOUSE OF REPRESENTATIVES
DOC ID: 211333 08/04/2004 2 PAGES

33. LETTER: COMMENTS ON THE PROPOSED PLAN ON BEHALF OF CONSTITUENTS
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JO ANN SPRAGUE, MA SENATE
DOC ID: 211325 08/05/2004 2 PAGES

34. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: KARI CANNING, NORTON (MA) RESIDENT
THOMAS CANNING, NORTON (MA) RESIDENT
DOC ID: 211351 08/06/2004 1 PAGE

35. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: NANCY M WEBBER, NORTON (MA) RESIDENT
DOC ID: 211352 08/09/2004 1 PAGE

36. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JAMES R PAILLE, NORTON (MA) RESIDENT
DOC ID: 211353 08/09/2004 1 PAGE

37. FORM : COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: ALICE H PAILLE, NORTON (MA) RESIDENT
DOC ID: 211354 08/10/2004 1 PAGE

38. LETTER: COMMENTS ON THE PROPOSED PLAN
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: MICHELE MICHART@ ONEBOX.COM, NORTON (MA) RESIDENT
DOC ID: 211341 08/10/2004 1 PAGE

4. FEASIBILITY STUDY (FS) (cont)

39. LETTER: THE CONSERVATION COMMISSION HAS VOTED TO STRONGLY SUPPORT THE OPTION SC-3B FOR THE CLEANUP OF SHPACK LANDFILL
TO: BARNEY FRANK, US HOUSE OF REPRESENTATIVES
DAVID BUCKLEY, MA DEPT OF ENVIRONMENTAL PROTECTION
DAVID O LEDERER, US EPA REGION 1
ED TANNER, ATTLEBORO CONSERVATION COMMISSION
ELIZABETH A POIRIER, MA HOUSE OF REPRESENTATIVES
FRANCIS J VEALE, TEXAS INSTRUMENTS INC
HEATHER GRAF, SHPACK AD HOC COMMITTEE
JAMES P PURCELL, NORTON (MA) TOWN OF
JO ANN SPRAGUE, MA SENATE
KENNETH MUNNEY, US DOI/US FISH & WILDLIFE SERVICE
MICHAEL COPPOLA, MA HOUSE OF REPRESENTATIVES
PHILIP TRAVIS, MA HOUSE OF REPRESENTATIVES
AUTHOR: JENNIFER CARLINO, NORTON CONSERVATION COMMISSION
DOC ID: 212007 08/10/2004 5 PAGES

40. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: STANLEY J WALASAVAGE, NORTON POLICE DEPARTMENT
DOC ID: 213807 08/20/2004 1 PAGE

41. MEMO : COMMENTS ON THE PROPOSED PLAN FOR THE SHPACK SUPERFUND SITE
AUTHOR: HEATHER GRAF, SHPACK AD HOC COMMITTEE
DOC ID: 213820 08/20/2004 4 PAGES

42. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: HOWARD B BAKER, NORTON (MA) EMERGENCY MANAGEMENT AGENCY
DOC ID: 213808 08/22/2004 1 PAGE

43. NEWS CLIPPING: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOSEPH CALLAHAN, TAUNTON RIVER WATERSHED ALLIANCE INC
DOC ID: 213812 08/23/2004 1 PAGE

4. FEASIBILITY STUDY (FS) (cont)

44. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JONATHAN O'REILLY, NORTON (MA) RESIDENT
DOC ID: 213802 08/24/2004 1 PAGE

45. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: RICHARD J GOMES, NORTON FIRE RESCUE
DOC ID: 213803 08/24/2004 2 PAGES

46. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: PAUL J SCHLEICHER, NORTON FIRE RESCUE
DOC ID: 213804 08/24/2004 1 PAGE

47. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JANET O'REILLY, NORTON (MA) RESIDENT
DOC ID: 213805 08/24/2004 1 PAGE

48. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: GEORGE F BURGESS, NORTON FIRE RESCUE
DOC ID: 213806 08/24/2004 1 PAGE

49. NEWS CLIPPING: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: RONALD O'REILLY, NORTON (MA) RESIDENT
DOC ID: 213811 08/24/2004 7 PAGES

50. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: KEWNNETH SEJKORA, AD HOC SHPACK TECHNICAL COMMITTEE
DOC ID: 213813 08/25/2004 2 PAGES

4. FEASIBILITY STUDY (FS) (cont)

51. NEWS CLIPPING: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: CHARLES MAORI, NORTON (MA) RESIDENT
KATIE MAORI, NORTON (MA) TOWN OF
DOC ID: 213810 08/25/2004 1 PAGE

52. LETTER: WASTE DISPOSAL ALTERNATIVES REVIEW FOR THE SHPACK SITE
TO: EDWARD A CONROY, METCALF & EDDY
AUTHOR: KENNETH M KASPER, SCIENTECH
DOC ID: 214124 09/22/2004 7 PAGES

53. MEMO : TRANSMITAL FOR SHPACK TRANSPORT AND DISPOSAL COSTS
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: EDWARD A CONROY, METCALF & EDDY
DOC ID: 214123 09/24/2004 1 PAGE

5. RECORD OF DECISION (ROD)

1. LETTER: STATE APPLICABLE, AND RELEVANT AND APPROPRIATE REQUIREMENTS FOR THE SHPACK LANDFILL
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DAVID BUCKLEY, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200406 01/15/2004 4 PAGES

2. LETTER: MA DEP COMMENTS ON THE DRAFT RECORD OF DECISION
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DAVID BUCKLEY, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 214125 09/22/2004 3 PAGES

3. RECORD OF DECISION: RECORD OF DECISION (ROD)
AUTHOR: US EPA REGION 1
DOC ID: 214530 09/30/2004

9. STATE COORDINATION

1. LETTER: REQUEST FOR ASSISTANCE IN COORDINATING THE SITE INVESTIGATION
TO: MERRILL S HOHMAN, US EPA REGION 1
AUTHOR: WILLIAM F CASS, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200405 12/28/1981 1 PAGE

9. STATE COORDINATION (cont)

   2. LETTER: ISSUES REGARDING ATTLEBORO LANDFILL INC WHICH MAY IMPACT CLEANUP AT THE SHPACK LANDFILL SITE
      TO: JAY NAPARSTEK, MA DEPT OF ENVIRONMENTAL PROTECTION
      AUTHOR: CAROL TUCKER, US EPA REGION 1
      DOC ID: 200438 02/18/2004 6 PAGES

   3. LETTER: GROUNDWATER USE AND VALUE DETERMINATION
      TO: CAROL TUCKER, US EPA REGION I
      AUTHOR: JAY NAPARSTEK, MA DEPT OF ENVIRONMENTAL PROTECTION
      DOC ID: 200436 04/12/2004 6 PAGES

10. ENFORCEMENT/NEGOTIATION

   1. LITIGATION: ADMINISTRATIVE ORDER BY CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), US EPA DOCKET NO. I-90-1113
      AUTHOR: US EPA REGION 1
      DOC ID: 41851 09/24/1990 102 PAGES

   2. LITIGATION: COST RECOVERY ADMINISTRATIVE AGREEMENT, CERCLA DOCKET NO. I-90-1114
      AUTHOR: US EPA REGION 1
      DOC ID: 200402 06/18/1991 19 PAGES

   3. LETTER: NO COMMENTS RECEIVED ON COST RECOVERY ADMINISTRATIVE AGREEMENT, CERCLA DOCKET NO. I-90-1114
      TO: PATRICIA L TRUSCELLI, PARKER CHAPIN FLATTAU & KLIMPL
      RICK JOOSTEN, TEXAS INSTRUMENTS INC
      AUTHOR: ANDREW RAUBVOGEL, US EPA REGION 1
      DOC ID: 200403 08/14/1991 2 PAGES

11. POTENTIALLY RESPONSIBLE PARTY

   1. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 1 OF 17]
      TO: HAZEL R OLEARY, US DEPT OF ENERGY
      ROBERT R NORDHAUS, US DEPT OF ENERGY
      AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
      DOC ID: 209706 12/20/1996 205 PAGES

11. POTENTIALLY RESPONSIBLE PARTY (cont)

2. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 10 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209715 12/20/1996 302 PAGES

3. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 11 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209716 12/20/1996 295 PAGES

4. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 12 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209717 12/20/1996 171 PAGES

5. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 13 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209718 12/20/1996 318 PAGES

6. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 14 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209719 12/20/1996 213 PAGES

11. POTENTIALLY RESPONSIBLE PARTY (cont)

7. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 15 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209720 12/20/1996 205 PAGES

8. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 16 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209721 12/20/1996 172 PAGES

9. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 17 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209722 12/20/1996 137 PAGES

10. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 2 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209707 12/20/1996 207 PAGES

11. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 3 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209708 12/20/1996 279 PAGES

11. POTENTIALLY RESPONSIBLE PARTY (cont)

12. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 4 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209709 12/20/1996 287 PAGES

13. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 5 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209710 12/20/1996 236 PAGES

14. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 6 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209711 12/20/1996 163 PAGES

15. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 7 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209712 12/20/1996 206 PAGES

16. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 8 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209713 12/20/1996 211 PAGES

11. POTENTIALLY RESPONSIBLE PARTY (cont)

17. LETTER: REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS [PART 9 OF 17]
TO: HAZEL R OLEARY, US DEPT OF ENERGY
ROBERT R NORDHAUS, US DEPT OF ENERGY
AUTHOR: WERNER H SCHUELE, TEXAS INSTRUMENTS INC
DOC ID: 209714 12/20/1996 182 PAGES

18. LETTER: RETRACTION OF PROPRIETARY INFORMATION CLAIM ON "REQUEST FOR REIMBURSEMENT OF COSTS ARISING OUT OF THE DECONTAMINATION AND DECOMMISSIONING OF THE TEXAS INSTRUMENTS INCORPORATED FACILITY IN ATTLEBORO, MASSACHUSETTS"
TO: GRETCHEN MUENCH, US EPA REGION 1
AUTHOR: FRANCIS J VEALE JR, TEXAS INSTRUMENTS INC
DOC ID: 209757 06/09/2004 2 PAGES

13. COMMUNITY RELATIONS

1. LETTER: DISPOSAL OF RADIOACTIVE WASTES IN NORTON AND ATTLEBORO. MA
TO: JOHN SULLIVAN, ATTLEBORO (MA) RESIDENT
AUTHOR: RONNIE SHORENSTEIN ALKIRE
DOC ID: 201266 04/18/1980 2 PAGES

2. PRESS RELEASE: INVESTIGATION BEGINS AT SHPACK SUPERFUND SITE
AUTHOR: US EPA REGION 1
DOC ID: 201263 07/29/1991 2 PAGES

3. REPORT: COMMUNITY RELATIONS PLAN TO: US EPA REGION 1
AUTHOR: ALLIANCE TECHNOLOGIES CORP
DOC ID: 201257 08/06/1991 31 PAGES

4. REPORT: COMMUNITY RELATIONS SUPPORT PLAN
TO: US EPA REGION 1
AUTHOR: ERM NEW ENGLAND INC
DOC ID: 201258 05/12/1992 37 PAGES

5. LETTER: DOE EVALUATION OF RADIOLOGICAL CHARACTERIZATION EFFORTS
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: LESTER K PRICE, US DEPT OF ENERGY
DOC ID: 201260 10/04/1993 2 PAGES

13. COMMUNITY RELATIONS (cont)

6. FACT SHEET: FUSRAP FACT SHEET
AUTHOR: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
DOC ID: 201261 12/01/1999 3 PAGES

7. PUBLIC MEETING RECORD: INVITATION TO A PUBLIC INFORMATION MEETING FOR AN UPDATE ON THE REMEDIAL INVESTIGATION AT THE SHPACK LANDFILL SITE
AUTHOR: US EPA REGION 1
DOC ID: 200434 09/18/2000 1 PAGE

8. FACT SHEET: SHPACK LANDFILL SITE UPDATE
AUTHOR: US ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
DOC ID: 201262 01/01/2001 2 PAGES

9. PUBLIC MEETING RECORD: INVITATION TO A PUBLIC INFORMATION MEETING ON THE SHPACK LANDFILL SITE
AUTHOR: US EPA REGION 1
DOC ID: 200433 03/06/2001 1 PAGE

10. PUBLIC MEETING RECORD: PUBLIC INFORMATION MEETING ON THE SHPACK LANDFILL SITE TO BE POSTPONED
AUTHOR: US EPA REGION 1
DOC ID: 200432 07/25/2001 1 PAGE

11. PUBLIC MEETING RECORD: INVITATION TO ATTEND A PUBLIC INFORMATION MEETING ON THE SHPACK LANDFILL SITE
AUTHOR: US EPA REGION 1
DOC ID: 200431 07/31/2001 1 PAGE

12. PUBLIC MEETING RECORD: INVITATION TO ATTEND A PUBLIC INFORMATION MEETING ON THE SHPACK LANDFILL SITE
AUTHOR: US EPA REGION 1
DOC ID: 200430 09/11/2001 1 PAGE

13. PUBLIC MEETING RECORD: INVITATION TO ATTEND A PUBLIC INFORMATION MEETING ON THE SHPACK LANDFILL SITE
AUTHOR: US EPA REGION 1
DOC ID: 200429 10/23/2001 1 PAGE

14. REPORT: COMMUNITY RELATIONS SUPPORT PLAN TO: SHPACK STEERING COMMITTEE
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 201259 12/21/2001 12 PAGES

13. COMMUNITY RELATIONS (cont)

15. PUBLIC MEETING RECORD: AGENDA AND HANDOUTS FOR THE LEGISLATIVE BRIEFING FOR THE SHPACK LANDFILL SITE
AUTHOR: MA DEPT OF PUBLIC HEALTH
DOC ID: 200435 05/22/2002 8 PAGES

16. PUBLIC MEETING RECORD: AGENDA FOR A PUBLIC INFORMATION MEETING ON CANCER INCIDENCE IN NORTON AND ATTLEBORO, MA
TO: SHPACK STEERING COMMITTEE
AUTHOR: MA DEPT OF PUBLIC HEALTH
DOC ID: 200428 06/11/2002 1 PAGE

17. PUBLIC MEETING RECORD: INVITATION TO AN OPEN HOUSE FOR THE SHPACK LANDFILL
TO: SHPACK STEERING COMMITTEE
AUTHOR: US EPA REGION 1
DOC ID: 200427 07/16/2002 2 PAGES

18. LETTER: CLARIFICATION OF SLIDES PREPARED AND PRESENTED BY CABRERA SERVICES
TO: HEATHER GRAF, SHPACK AD HOC COMMITTEE
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 201265 11/01/2002 1 PAGE

19. PUBLIC MEETING RECORD: INVITATION TO A PUBLIC INFORMATIONAL MEETING ON THE SHPACK LANDFILL
TO: SHPACK STEERING COMMITTEE
AUTHOR: US EPA REGION 1
DOC ID: 200426 11/12/2002 1 PAGE

20. LETTER: SUMMARY OF SAMPLING RESULTS FOR RESIDENTIAL PROPERTIES
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209661 05/15/2003 26 PAGES

21. SAMPLING & ANALYSIS DATA: VOAS IN DRINKING WATER, TRIP VOA BLANK
AUTHOR: US EPA REGION 1
DOC ID: 209660 08/27/2003 30 PAGES

22. SAMPLING & ANALYSIS DATA: LABORATORY REPORT, VOAS IN DRINKING WATER
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: WILLIAM J ANDRADE, US EPA REGION I
DOC ID: 209658 08/28/2003 41 PAGES

13. COMMUNITY RELATIONS (cont)

23. SAMPLING & ANALYSIS DATA: TOTAL RECOVERABLE METALS IN WATER, 59 AND 68 UNION STREET, 70, 77, 100 AND 106 PECKHAM STREET, 14 NORTH WORCESTER STREET, 35, 36, 82, 83, 94 AND 95 MAPLE STREET
AUTHOR: US EPA REGION 1
DOC ID: 209659 09/17/2003 14 PAGES

24. SAMPLING & ANALYSIS DATA: LABORATORY REPORT, TOTAL RECOVERABLE METALS IN WATER
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: WILLIAM J ANDRADE, US EPA REGION 1
DOC ID: 209657 09/18/2003 19 PAGES

25. SAMPLING & ANALYSIS DATA: TOTAL RECOVERABLE METALS IN WATER, 120 PECKHAM
AUTHOR: US EPA REGION 1
DOC ID: 209650 09/20/2003 1 PAGE

26. MEMO : SHPACK LANDFILL SITE PRIVATE WELL SAMPLING DATA
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DANIEL S GRANZ, US EPA REGION 1
DOC ID: 209656 09/24/2003 2 PAGES

27. LETTER: SUMMARY OF WELL MONITORING RESULTS FOR 59 AND 68 UNION ROAD, 14 NORTH WORCESTER, 35, 36, 82, 83, 94, AND 95 MAPLE STREET, 70, 77, 100, AND 106 PECKHAM STREET
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209655 11/04/2003 17 PAGES

28. SAMPLING & ANALYSIS DATA: LABORATORY REPORT, VOAS IN DRINKING WATER TO: DANIEL S GRANZ, US EPA REGION 1
AUTHOR: WILLIAM J ANDRADE, US EPA REGION 1
DOC ID: 209654 02/04/2004 17 PAGES

29. SAMPLING & ANALYSIS DATA: LABORATORY REPORT, TOTAL RECOVERABLE METALS IN WATER
TO: DANIEL S GRANZ, US EPA REGION 1
AUTHOR: WILLIAM J ANDRADE, US EPA REGION 1
DOC ID: 209653 02/17/2004 8 PAGES

30. LETTER: SUMMARY OF WELL MONITORING RESULTS FOR 77 PECKHAM STREET
AUTHOR: DAVID O LEDERER, US EPA REGION 1
DOC ID: 209652 02/23/2004 10 PAGES

13. COMMUNITY RELATIONS (cont)

31. MEMO : SHPACK LANDFILL SITE PRIVATE WELL SAMPLING DATA TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: DANIEL S GRANZ, US EPA REGION 1
DOC ID: 209651 02/23/2004 10 PAGES

32. PRESS RELEASE: THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ANNOUNCES THE AVAILABILITY OF THE ADMINISTRATIVE RECORD, AND THE RESCHEDULING OF A PUBLIC MEETING, HEARING, AND PUBLIC COMMENT PERIOD ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK LANDFILL SUPERFUND SITE
AUTHOR: US EPA REGION 1
DOC ID: 213581 06/18/2004 1 PAGE

33. FACT SHEET: INVITATION TO PUBLIC INFORMATION MEETING AND PUBLIC HEARING ON THE PROPOSED CLEANUP PLAN
AUTHOR: US EPA REGION 1
DOC ID: 210474 06/23/2004 1 PAGE

34. PRESS RELEASE: THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ANNOUNCES THE EXTENSION TO THE PUBLIC COMMENT PERIOD AND RESCHEDULING OF THE PUBLIC HEARING ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK LANDFILL SUPERFUND SITE
AUTHOR: US EPA REGION 1
DOC ID: 213582 07/21/2004 1 PAGE

35. PUBLIC MEETING RECORD: PUBLIC HEARING FOR THE PROPOSED CLEANUP PLAN
DOC ID: 213801 08/04/2004 62 PAGES

36. NEWS CLIPPING: EDITORIAL COMMENTING ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE, WITH HANDWRITTEN NOTE ATTACHED TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: WILLIAM GOUVEIA, NORTON MIRROR
DOC ID: 213809 08/13/2004 2 PAGES

14. CONGRESSIONAL RELATIONS

1. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: ROBERT W VARNEY, US EPA REGION 1
AUTHOR: BARNEY FRANK, US HOUSE OF REPRESENTATIVES
DOC ID: 213814 08/04/2004 2 PAGES

14. CONGRESSIONAL RELATIONS (cont)

2. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: CHRISTOPHER QUINN, ATTLEBORO (MA) CITY OF
JAMES MOONEY, ATTLEBORO BOARD OF HEALTH
DOC ID: 213817 08/23/2004 2 PAGES

3. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: JOHN A LEPPER, MA HOUSE OF REPRESENTATIVES
DOC ID: 213819 08/23/2004 2 PAGES

4. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
DOC ID: 213815 08/24/2004 20 PAGES

5. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: DAVID O LEDERER, US EPA REGION 1
AUTHOR: BARRY K LACASSE, ATTLEBORO (MA) CITY OF
DOC ID: 213816 08/24/2004 2 PAGES

6. LETTER: COMMENTS ON THE PROPOSED CLEANUP PLAN FOR THE SHPACK SUPERFUND SITE
TO: WALTER J THIBODEAU, ATTLEBORO (MA) CITY OF
AUTHOR: WALTER J THIBODEAU, ATTLEBORO (MA) CITY OF
DOC ID: 213818 08/24/2004 1 PAGE

16. NATURAL RESOURCE TRUSTEE

1. LETTER: NO ENDANGERED SPECIES OCCUR IN PROJECT AREA
TO: CHRISTINE BLUNDELL, ENVIRONMENTAL RESOURCES MANAGEMENT
AUTHOR: GORDON E BECKETT, US DOI/US FISH & WILDLIFE SERVICE
DOC ID: 200423 10/15/1992 1 PAGE

2. LETTER: TRANSMITTAL OF REMEDIAL INVESTIGATION DOCUMENTS
TO: DALE YOUNG, MA DEPT OF ENVIRONMENTAL PROTECTION
KENNETH C CARR, US DOI/US FISH & WILDLIFE SERVICE
AUTHOR: DAVED O LEDERER, US EPA REGION 1
DOC ID: 200440 09/23/2002 1 PAGE

SHPACK LANDFILL
ENTIRE SITE
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SHPACK OU1 ROD AR

17. SITE MANAGEMENT RECORDS

1. LETTER: NORTON ABANDONED INDUSTRIAL WASTE DISPOSAL AREA OFF UNION ROAD
TO: JOHN SULLIVAN, ATTLEBORO (MA) RESIDENT
AUTHOR: JEFFREY GOULD E, DIVISION OF WATER POLLUTION CONTROL
DOC ID: 200444 09/13/1978 1 PAGE

2. LETTER: NORTON - SOLID WASTE DISPOSAL, ABANDONED INDUSTRIAL WASTE LOCATED ON UNION ROAD ADJACENT TO ATTLEBORO LANDFILL
TO: NORTON (MA) BOARD OF HEALTH
AUTHOR: ROBERT P FAGAN, MA EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DOC ID: 200442 09/29/1978 1 PAGE

3. MEMO : RADIATION INCIDENT - ATTLEBORO/NORTON
TO: GERALD PARKER S, MA DEPT OF PUBLIC HEALTH
AUTHOR: GEORGE SWIBLE, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200443 06/07/1979 4 PAGES

4. LETTER: PRELIMINARY REPORT OF EG&G AERIAL RADIOLOGICAL SURVEY OF THE FORMER SHPACK LANDFILL
TO: RAYMOND PATENAUDE, NORTON BOARD OF SELECTMEN
AUTHOR: WILLIAM E MOTT, US DEPT OF ENERGY
DOC ID: 201270 01/07/1980 9 PAGES

5. REPORT: REPORT ON RESULTS OF ANALYSIS OF TEST WELL WATER AT ATTLEBORO LANDFILL SITE
AUTHOR: DOUGLAS R SHEARER
DOC ID: 200457 03/10/1980 12 PAGES

6. LETTER: SHPACK/ATTLEBORO WASTE DISPOSAL SITES
TO: DAVID K HILL, NORTON CONSERVATION COMMISSION
AUTHOR: WILLIAM F CASS, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200445 04/03/1980 1 PAGE

7. LETTER: ATTLEBORO - SOLID WASTES - GROUNDWATER MONITORING PROGRAM FOR ATTLEBORO LANDFILL INC, PECKHAM STREET
TO: GERALD J KEANE, ATTLEBORO (MA) TOWN OF
AUTHOR: MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200446 12/09/1980 2 PAGES

17. SITE MANAGEMENT RECORDS (cont)

8. LETTER: EXECUTED ACCESS AGREEMENT; FORMER SHPACK LANDFILL FUSRAP SITE
TO: LEO G YELLE, NORTON CONSERVATION COMMISSION
AUTHOR: E L KELLER, US DEPT OF ENERGY
DOC ID: 200421 07/07/1981 5 PAGES

9. REPORT: GUIDANCE DOCUMENT FOR PROVIDING ALTERNATE WATER SUPPLIES
AUTHOR: US EPA - OFFICE OF SOLID WASTE & EMERGENCY RESPONSE
DOC ID: 200424 02/01/1988 66 PAGES

10. LETTER: REQUEST FOR ADDITIONAL INFORMATION ON THE ATTLEBORO LANDFILL CLOSURE PLAN TO: ALBERT DUMONT, ATTLEBORO LANDFILL INC
AUTHOR: DAVID B ELLIS, MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200448 10/11/1994 7 PAGES

11. LETTER: COMMENTS ON THE ATTLEBORO LANDFILL INC (ALI) CLOSURE PLAN
TO: ROBERT JOHNSON, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
DOC ID: 200447 10/13/1994 6 PAGES

12. PHOTOGRAPH: SIX PHOTOS OF THE ATTLEBORO LANDFILL PERIMETER ROAD TEST PITS, ALONG THE SHPACK BORDER
DOC ID: 200450 11/17/1994 2 PAGES

13. MISC : MEETING NOTES ON THE ATTLEBORO LANDFILL
AUTHOR: MA DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 200451 11/21/1994 6 PAGES

14. LETTER: REVIEW OF ERM'S COMMENTS ON THE ATTLEBORO LANDFILL INC (ALI) CLOSURE PLAN
TO: VICKIE BLETSO, WRIGHT & MOEHRKE
AUTHOR: NEIL S SHIFRIN, GRADIENT CORPORATION
DOC ID: 200452 01/10/1995 6 PAGES

15. LETTER: RESPONSES TO ERM'S COMMENTS ON THE ATTLEBORO LANDFILL INC (ALI) CLOSURE PLAN
TO: DAVID O LEDERER, US EPA REGION 1
ROBERT JOHNSON, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: VICKIE BLETSO, WRIGHT & MOEHRKE
DOC ID: 200453 02/07/1995 2 PAGES

17. SITE MANAGEMENT RECORDS (cont)

16. LETTER: RESPONSES TO WRIGHT & MOEHRKE'S CORRESPONDENCE TO EPA AND DEP REGARDING THE ALI AND SHPACK LANDFILL
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: DUANE A WANTY, ERM NEW ENGLAND INC
ROBERT J FOXEN, ERM NEW ENGLAND INC
DOC ID: 200454 02/27/1995 5 PAGES

17. LETTER: RESULTS OF ADDITIONAL FILE REVIEW OF ATTLEBORO LANDFILL INC (ALI), DISCUSSION WITH DEP PROJECT MANAGER AND SITE VISIT [PORTIONS BARELY LEGIBLE]
TO: FRANCIS J VEALE, SHPACK STEERING COMMITTEE
AUTHOR: DUANE A WANTY, ERM NEW ENGLAND INC
ROBERT J FOXEN, ERM NEW ENGLAND INC
DOC ID: 200455 07/02/1996 5 PAGES

18. LETTER: SHPACK STEERING COMMITTEE COMMENTS ON THE ATTLEBORO LANDFILL CLOSURE DEFICIENCIES
TO: CATHY DORS, MA DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: DUANE A WANTY, ERM NEW ENGLAND INC
ROBERT J FOXEN, ERM NEW ENGLAND INC
DOC ID: 200456 09/30/1996 3 PAGES

19. WORK PLAN: SITE MANAGEMENT PLAN TO: SHPACK STEERING COMMITTEE
AUTHOR: ENVIRONMENTAL RESOURCES MANAGEMENT
DOC ID: 200422 12/01/2001 29 PAGES

20. REPORT: HISTORICAL AERIAL PHOTOGRAPHS (16) OF SHPACK LANDFILL, WITH TRANSMITTAL LETTERS TO DAVID LEDERER, EPA REGION 1 ON 4/1/04 AND 4/15/04
AUTHOR: US EPA - ENVIRONMENTAL PHOTOGRAPHIC INTERPRETATION CTR (EPIC)
DOC ID: 200478 04/01/2004 18 PAGES

21. REPORT: INTERIM HISTORICAL AERIAL PHOTOGRAPHIC ANALYSIS REPORT, WITH TRANSMITTAL TO DAVID LEDERER, EPA REGION 1 ON 4/19/04
AUTHOR: US EPA - ENVIRONMENTAL PHOTOGRAPHIC INTERPRETATION CTR (EPIC)
DOC ID: 200477 04/01/2004 12 PAGES

SHPACK LANDFILL
ENTIRE SITE
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SHPACK OU1 ROD AR

20. RECORDS MANAGEMENT

1. INDEX : LIST OF GUIDANCE DOCUMENTS FOR SHPACK LANDFILL RECORD OF DECISION (ROD) PROPOSED PLAN ADMINISTRATIVE RECORD
   AUTHOR: US EPA REGION 1
   DOC ID: 210631 05/05/2004 61 PAGES

GUIDANCE DOCUMENTS

EPA guidance documents may be reviewed at the EPA Region I Superfund Records Center in Boston, Massachusetts.

TITLE
EPA GUIDE FOR IDENTIFYING CLEANUP ALTERNATIVES AT HAZARDOUS-WASTE SITES AND SPILLS: BIOLOGICAL TREATMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
	EPA-600/3-83-063	2303

TITLE
ROLE OF ACUTE TOXICITY BIOASSAYS IN THE REMEDIAL ACTION PROCESS AT HAZARDOUS WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1987	EPA/600/8-87/044	5012

TITLE
QUALITY CRITERIA FOR WATER 1986

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1987	EPA/440/5-B6-001	4003

TITLE
GUIDELINES FOR GROUND-WATER CLASSIFICATION UNDER THE EPA GROUND-WATER PROTECTION STRATEGY (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1986		2404

TITLE
GROUND-WATER PROTECTION STRATEGY

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1984	EPA/440/6-84-002	2403

TITLE
GUIDELINES FOR THE HEALTH RISK ASSESSMENT OF CHEMICAL MIXTURES (FEDERAL REGISTER. SEPTEMBER 24, 1986, p. 34014)

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/24/1986		5007

TITLE
GUIDELINES FOR CARCINOGEN RISK ASSESSMENT (FEDERAL REGISTER, SEPTEMBER 24, 1986, p. 33992)

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/24/1986		5003

TITLE
GUIDELINES FOR EXPOSURE ASSESSMENT (FEDERAL REGISTER, SEPTEMBER 24, 1986, p. 34042)

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/24/1986		5004

GUIDANCE DOCUMENTS

TITLE
GUIDELINES FOR HEALTH ASSESSMENT OF SUSPECT DEVELOPMENTAL TOXICANTS (FEDERAL REGISTER, SEPTEMBER 24,1986, p. 34028)

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/24/1986		5005

TITLE
GUIDELINES FOR MUTAGENICITY RISK ASSESSMENT (FEDERAL REGISTER, SEPTEMBER. 24, p. 34000

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/24/1986		5006

TITLE
PROTOCOL FOR GROUND-WATER EVALUATIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1986	OSWER #9080.0-1	2406

TITLE
RCRA GROUND-WATER MONITORING TECHNICAL ENFORCEMENT GUIDANCE DOCUMENT(TEGD)

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1986	OSWER #99501	2407

TITLE
MANAGEMENT OF INVESTIGATION-DERIVED WASTES DURING SITE INSPECTIONS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1991	EPA/540/G-91/009	C189

TITLE
OPERATION AND MAINTENANCE INSPECTION GUIDE (RCRA GROUND-WATER MONITORING SYSTEMS)

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/30/1988	OSWER #9950-3	2405

TITLE
TECHNICAL GUIDANCE DOCUMENT: CONSTRUCTION QUALITY ASSURANCE FOR HAZARDOUS WASTE LAND DISPOSAL FACILITIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1986	OSWER #9472.003	2211

TITLE
RCRA GUIDANCE DOCUMENT: LANDFILL DESIGN LINER SYSTEMS AND FINAL COVER (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1982		2208

TITLE
LINING OF WASTE CONTAINMENT AND OTHER IMPOUNDMENT FACILITIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1988	EPA/600/2-88/052	2205

TITLE
COMPENDIUM OF SUPERFUND FIELD OPERATIONS METHODS

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1987	OSWER #9355.0-14	2100

GUIDANCE DOCUMENTS

TITLE
FIELD SCREENING METHODS CATALOG: USER'S GUIDE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1988 EPA/540/2-88/005 2105

TITLE
HEALTH EFFECTS ASSESSMENT DOCUMENTS (58 CHEMICAL PROFILES)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1984 EPA/540/1-86/001-058 5008

TITLE
INTEGRATED RISK INFORMATION SYSTEM (IRIS) [A COMPUTER-BASED HEALTH RISK INFORMATION SYSTEM AVAILABLE THROUGI E-MAIL-BROCHURE ON ACCESS IS INCLUDED]
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
5009

TITLE
PUBLIC HEALTH RISK EVALUATION DATABASE (PHRED) [USER'S MANUAL AND TWO DISKETTES CONTAINING THE DBASE III PLUS SYSTEM ARE INCLUDED]
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/16/1988 5011

TITLE
LABORATORY DATA VALIDATION FUNCTIONAL GUIDELINES FOR EVALUATING ORGANICS ANALYSES (DRAFT)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
2/1/1988 2114

TITLE
LABORATORY DATA VALIDATION FUNCTIONAL GUIDELINES FOR EVALUATING INORGANICS ANALYSES (DRAFT)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
7/1/1988 2113

TITLE
USER'S GUIDE TO THE CONTRACT LABORATORY PROGRAM
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
12/1/1988 OSWER #9240.0-1 2119

TITLE
GUIDANCE MANUAL ON THE RCRA REGULATION OF RECYCLED HAZARDOUS WASTES
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/1/1986 OSWER #9441.00-2 3004

TITLE
INTERIM RCRA/CERCLA GUIDANCE ON NON-CONTIGUOUS SITES AND ON-SITE MANAGEMENT OF WASTE AND TREATMENT RESIDUE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/27/1986 OSWER #9347.0-1 3005

GUIDANCE DOCUMENTS

TITLE
EXPANDED SITE INSPECTION (ESI) TRANSITIONAL GUIDANCE FOR FY-88

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1987	OSWER #9345.1-02	0001

TITLE
PRELIMINARY ASSESSMENT (PA) GUIDANCE FISCAL YEAR 1988

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988	OSWER #9345.0-01	0002

TITLE
FIELD SCREENING FOR ORGANIC CONTAMINANTS IN SAMPLES FROM HAZARDOUS WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/2/1986		2104

TITLE
EPA GUIDE FOR MINIMIZING ADVERSE ENVIRONMENTAL EFFECTS OF CLEANUP OF UNCONTROLLED HAZARDOUS-WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1985	EPA/600/8-85/008	2001

TITLE
CERCLA REMOVAL ACTIONS AT METHANE RELEASE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
½3/1986	OSWER #9360.0-8	1000

TITLE
REMOVAL COST MANAGEMENT MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1988	OSWER #9360.0-026	6001

TITLE
SUPERFUND REMOVAL PROCEDURES, REVISION # 3

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1988	OSWER #9360.0-036	1006

TITLE
EMERGENCY RESPONSE PROCEDURES FOR CONTROL OF HAZARDOUS SUBSTANCE RELEASES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1983	EPA-600/D-84-023	1002

TITLE
ROLE OF EXPEDITED RESPONSE ACTIONS (EPA) UNDER SARA

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/21/1987	OSWER #9360.0-15	1007

TITLE
INTERIM FINAL GUIDANCE ON REMOVAL ACTION LEVELS AT CONTAMINATED DRINKING WATER SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/6/1987	OSWER #9360.1-01	4002

GUIDANCE DOCUMENTS

TITLE
ENVIRONMENTAL REVIEW REQUIREMENTS FOR REMOVAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/13/1987	OSWER #9318.0-05	1003

TITLE
INTERIM GUIDANCE ON SUPERFUND SELECTION OF REMEDY

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/24/1986	OSWER #9355.0-19	9000

TITLE
GUIDANCE ON IMPLEMENTATION OF THE "CONTRIBUTE TO EFFICIENT REMEDIAL PERFORMANCE" PROVISION

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/6/1987	OSWER #9360.0-13	1004

TITLE
RCRA/CERCLA DECISIONS MADE ON REMEDY SELECTION

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/24/1985		9001

TITLE
COMPENDIUM OF TECHNOLOGIES USED IN THE TREATMENT OF HAZARDOUS WASTES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1987	EPA/625/8-87/014	2300

TITLE
ALTERNATE CONCENTRATION LIMIT GUIDANCE PART 1, ACL POLICY AND INFORMATION REQUIREMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1987	OSWER #9481.00-6C	4000

TITLE
APPLICABILITY OF THE HSWA MINIMUM TECHNICAL REQUIREMENTS RESPECTING LINERS AND LEACHATE COLLECTION SYSTEMS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1985	OSWER #9480.01 (85)	3000

TITLE
CARBON ABSORPTION ISOTHERMS FOR TOXIC ORGANICS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1980	EPA/600/8-80-023	2301

TITLE
COVERS FOR UNCONTROLLED HAZARDOUS WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1985	EPA/540/2-85/002	2200

TITLE
DATA QUALITY OBJECTIVES FOR REMEDIAL RESPONSE ACTIVITIES: DEVELOPMENT PROCESS

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1987	EPA/540/G-87/003	2101

GUIDANCE DOCUMENTS

TITLE
DATA QUALITY OBJECTIVES FOR REMEDIAL RESPONSE ACTIVITIES: EXAMPLE SCENARIO: RI/FS ACTIVITIES AT A SITE W/CONTAMINATED SOILS AND GROUNDWATER

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
3/1/1987	EPA/540/G-87/004	2102

TITLE
DESIGN AND DEVELOPMENT OF A HAZARDOUS WASTE REACTIVITY TESTING PROTOCOL

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
2/1/1984	EPA-600/2-84-057	2103

TITLE
ENGINEERING HANDBOOK FOR HAZARDOUS WASTE INCINERATION

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/1/1981	OSWER 09488.00-5	2302

TITLE
EPA GUIDE FOR INFECTIOUS WASTE MANAGEMENT

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
5/1/1986	OSWER #9410.00-2	2304

TITLE
EVALUATING COVER SYSTEMS FOR SOLID AND HAZARDOUS WASTE

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/1/1982	OSWER #9476.00-1	2202

TITLE
FIELD STANDARD OPERATING PROCEDURES MANUAL # 4-SITE ENTRY

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1985	OSWER 09285.2-01	2106

TITLE
FIELD STANDARD OPERATING PROCEDURES MANUAL # 6- WORK ZONES

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/1/1985	OSWER #9285.2-04	2107

TITLE
FIELD STANDARD OPERATING PROCEDURES MANUAL # 8 AIR SURVEILLANCE

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1985	OSWER #9285.2-03	2108

TITLE
FIELD STANDARD OPERATING PROCEDURES MANUAL # 9- SITE SAFETY PLAN

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/1/1985	OSWER #9285.2-05	2109

TITLE
GEOPHYSICAL METHODS FOR LOCATING ABANDONED WELLS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
7/1/1984	EPA-600/4-84-065	2110

GUIDANCE DOCUMENTS

TITLE
GEOPHYSICAL TECHNIQUES FOR SENSING BURIED WASTES AND WASTE MIGRATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1984	EPA-600/7-84/064	2111

TITLE
GUIDANCE DOCUMENT FOR CLEANUP OF SURFACE IMPOUNDMENT SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1986	OSWER #9380.0-06	2305

TITLE
GUIDANCE DOCUMENT FOR CLEANUP OF SURFACE TANK AND DRUM SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/28/1985	OSWER #9380.0-03	2306

TITLE
INTERIM FINAL GUIDANCE FOR CONDUCTING REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES UNDER CERCLA

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1988	OSWER #9355.3-01	2002

TITLE
GUIDANCE MANUAL FOR MINIMIZING POLLUTION FROM WASTE DISPOSAL SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1978	EPA-600/2-78-142	2203

TITLE
GUIDELINES AND SPECIFICATIONS FOR PREPARING QUALITY ASSURANCE PROGRAM DOCUMENTATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1987		2112

TITLE
HANDBOOK FOR EVALUATING REMEDIAL ACTION TECHNOLOGY PLANS

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1983	EPA-600/2-83-076	2307

TITLE
HANDBOOK FOR STABILIZATION/SOLIDIFICATION OF HAZARDOUS WASTE

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1986	EPA/540/2-86-001	2308

TITLE
LEACHATE PLUME MANAGEMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1985	EPA/540/2-85/004	2310

TITLE
LINING OF WASTE IMPOUNDMENT AND DISPOSAL FACILITIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1983	OSWER #9480.00-4	2206

GUIDANCE DOCUMENTS

TITLE
MOBILE TREATMENT TECHNOLOGIES FOR SUPERFUND WASTES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1986	EPA/540/2-86-003F	2311

TITLE
PRACTICAL GUIDE- TRIAL BURNS FOR HAZARDOUS WASTE INCINERATORS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1986	EPA/600/2-86/050	2312

TITLE
PRACTICAL GUIDE- TRIAL BURNS FOR HAZARDOUS WASTE INCINERATORS, PROJECT SUMMARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1986	EPA/600/S2-86/05C	2313

TITLE
PROCEDURES FOR MODELING FLOW THROUGH CLAY LINERS TO DETERMINE REQUIRED LINER THICKNESS (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1984	OSWER #9480.00-90	2207

TITLE
PROHIBITION ON THE PLACEMENT OF BULK LIQUID HAZARDOUS WASTE IN LANDFILLS-STATUTORY INTERPRETIVE GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/11/1986	OSWER #9487.00-2A	2314

TITLE
REVIEW OF IN-PLACE TREATMENT TECHNIQUES FOR CONTAMINATED SURFACE SOILS- VOL. 1: TECHNICAL EVALUATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/19/1984	EPA/540/2-84-003a	2316

TITLE
RI/FS IMPROVEMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/23/1987	OSWER #9355.0-20	2008

TITLE
RI/FS IMPROVEMENTS FOLLOW-UP

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/25/1988	OSWER #9355.3-05	2009

TITLE
SEDIMENT SAMPLING QUALITY ASSURANCE USER'S GUIDE

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1985	EPA/600/4-85/046	2116

TITLE
SETTLEMENT AND COVER SUBSIDENCE OF HAZARDOUS WASTE LANDFILLS: PROJECT SUMMARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1985	EPA-600/S2-85-035	2209

GUIDANCE DOCUMENTS

TITLE
SLURRY TRENCH CONSTRUCTION FOR POLLUTION MIGRATION CONTROL

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1984	EPA/540/2-84-001	2317

TITLE
SOIL SAMPLING QUALITY ASSURANCE USER'S GUIDE SUPERSEDED BY C091 IN REGIONAL COMPENDIUM

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1984	EPA 600/4-B4/043	2117

TITLE
SUPPLEMENTARY GUIDANCE ON DETERMINING LINER/LEACHATE COLLECTION SYSTEM COMPATIBILITY

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/7/1986	OSWER #9480.00-13	2210

TITLE
SYSTEMS TO ACCELERATE IN SITU STABILIZATION OF WASTE DEPOSITS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1986	EPA 540/2-86/002	2318

TITLE
TEST METHODS FOR EVALUATING SOLID WASTE, LABORATORY MANUAL PHYSICAL/CHEMICAL METHODS, THIRD EDITION (VOLUMES IA, IB, 1C, AND II)

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1986		2118

TITLE
TREATMENT OF REACTIVE WASTES AT HAZARDOUS WASTE LANDFILLS PROJECT SUMMARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1984	EPA/600/S2-83/118	2212

TITLE
TREATMENT TECHNOLOGY BRIEFS: ALTERNATIVES TO HAZARDOUS WASTE LANDFILLS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1986	EPA/600/8-86/017	2320

TITLE
TECHNOLOGY SCREENING GUIDE FOR TREATMENT OF CERCLA SOILS AND SLUDGES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1988	EPA 540/2-88/004	2319

TITLE
COSTS OF REMEDIAL RESPONSE ACTIONS AT UNCONTROLLED HAZARDOUS WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1981		1001

TITLE
REMEDIAL ACTION COSTING PROCEDURES MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1987		6000

GUIDANCE DOCUMENTS

TITLE
GUIDANCE DOCUMENT FOR PROVIDING ALTERNATE WATER SUPPLIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1988	OSWER #9355.3-03	4001

TITLE
INFORMATION ON DRINKING WATER ACTION LEVELS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/19/1988		1005

TITLE
PRACTICAL GUIDE FOR GROUND-WATER SAMPLING

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1985	EPA/600/2-85/104	2115

TITLE
CRITERIA FOR IDENTIFYING AREAS OF VULNERABLE HYDROGEOLOGY UNDER RCRA: STATUTORY INTERPRETIVE GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1986	OSWER #9472.00-2A	2400

TITLE
FINAL RCRA COMPREHENSIVE GROUND-WATER MONITORING EVALUATION (CME) GUIDANCE DOCUMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/19/1986	OSWER #9950.2	2401

TITLE
GROUND-WATER MONITORING AT CLEAN-CLOSING SURFACE IMPOUNDMENT AND WASTE PILE UNITS

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/31/1988	OSWER #9476.00-14	2402

TITLE
RCRA GROUND-WATER MONITORING TECHNICAL ENFORCEMENT GUIDANCE DOCUMENT, TEGD: EXECUTIVE SUMMARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1987	OSWER #9950.1-a	2408

TITLE
SUPERFUND FEDERAL-LEAD REMEDIAL PROJECT MANAGEMENT HANDBOOK (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1986	OSWER 09355.1-1	2010

TITLE
HANDBOOK REMEDIAL ACTION AT WASTE DISPOSAL SITES (REVISED)

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1985	EPA/625/6-85/006	2309

GUIDANCE DOCUMENTS

TITLE
LAND DISPOSAL RESTRICTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/11/1987		2204

TITLE
MODELING REMEDIAL ACTIONS AT UNCONTROLLED HAZARDOUS WASTE SITES (VOL. I-IV)

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1985	OSWER #9355.0-08	2004

TITLE
REVIEW OF IN-PLACE TREATMENT TECHNIQUES FOR CONTAMINATED SURFACE SOILS- VOL 2: BACKGROUND INFORMATION FOR IN-SITU TREATMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1984	EPA-540/2-84-0035	2315

TITLE
SUPERFUND REMEDIAL DESIGN AND REMEDIAL ACTION GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1986	OSWER #9355.0-4A	2011

TITLE
CASE STUDIES 1-23: REMEDIAL RESPONSE AT HAZARDOUS WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1984	EPA 540/2-84/002B	2000

TITLE
REMEDIAL RESPONSE AT HAZARDOUS WASTE SITES: SUMMARY REPORT

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1984	EPA 540/2-84/002A	2006

TITLE
REVISED PROCEDURES FOR IMPLEMENTING OFF-SITE RESPONSE ACTION?

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/13/1987	OSWER #9834.11	2007

TITLE
SUPERFUND STATE-LEAD REMEDIAL PROJECT MANAGEMENT HANDBOOK

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1986	OSWER #9355.2-1	2012

TITLE
ATSDR HEALTH ASSESSMENTS ON NPL SITES (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/16/1986		5000

TITLE
FINAL GUIDANCE FOR THE COORDINATION OF ATSDR HEALTH ASSESSMENT ACTIVITIES WITH THE SUPERFUND REMEDIAL PROCESS

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/14/1987	OSWER #9285.4-02	5002

GUIDANCE DOCUMENTS

TITLE
JOINT CORPS/EPA GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/24/1983	OSWER #9295.2-02	2003

TITLE
POLICY ON FLOOD PLAINS AND WETLAND ASSESSMENTS FOR CERCLA ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1985	OSWER #9280.0-02	2005

TITLE
EPA'S IMPLEMENTATION OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1981

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/21/1987		3003

TITLE
CERCLA COMPLIANCE WITH OTHER ENVIRONMENTAL STATUTES

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/2/1985	OSWER #9234.0-2	3001

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/8/1988	OSWER #9234.1-01	3002

TITLE
INTERIM GUIDANCE ON POTENTIALLY RESPONSIBLE PARTY PARTICIPATION IN REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/16/1988	OSWER #9835.1a	8001

TITLE
COMMUNITY RELATIONS IN SUPERFUND: A HANDBOOK (INTERIM VERSION). INCLUDES CHAPTER 6, DATED 11/03/88.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1988	OSWER #9230.0-038	7000

TITLE
ENDANGERMENT ASSESSMENT GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/22/1986	OSWER #9850.0-1	8000

TITLE
SUPERFUND EXPOSURE ASSESSMENT MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1988	OSWER #9285.5-1	5013

TITLE
SUPERFUND PUBLIC HEALTH EVALUATION MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1986	OSWER #9285.4-1	5014

GUIDANCE DOCUMENTS

TITLE
CHEMICAL. PHYSICAL & BIOLOGICAL PROPERTIES OF COMPOUNDS PRESENT AT HAZARDOUS WASTE SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/27/1985	OSWER #9850.3	5001

TITLE
TOXICOLOGY HANDBOOK

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1985	OSWER #9850.2	5015

TITLE
INTERIM POLICY FOR ASSESSING RISKS OF "DIOXINS" OTHER THAN 2.3,7,8-TCDD

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/7/1987		5010

TITLE
INDEX TO COMPENDIUM OF CERCLA RESPONSE SELECTION GUIDANCE DOCUMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1989		0000

TITLE
GUIDANCE ON NON-NPL REMOVAL ACTIONS INVOLVING NATIONALLY SIGNIFICANT OR PRECEDENT SETTING ISSUES

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/3/1989	OSWER #9360.0-19	1008

TITLE
ADVANCING THE USE OF TREATMENT TECHNOLOGIES FOR SUPERFUND REMEDIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/21/1989	OSWER #9355.0-26	2321

TITLE
RI/FS IMPROVEMENTS PHASE II, STREAMLINING RECOMMENDATIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989	OSWER #9355.3-06	2017

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL PART II: CLEAN AIR ACT AND OTHER ENVIRONMENTAL STATUTES AND STATE REQUIREMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1989	OSWER #9234.1-02	3013

TITLE
INTERIM GUIDANCE ON ESTABLISHING SOIL LEAD CLEANUP LEVELS AT SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1989	OSWER #9355.4-02	3015

GUIDANCE DOCUMENTS

TITLE
RISK ASSESSMENT GUIDANCE FOR SUPERFUND, VOLUME I, HUMAN HEALTH EVALUATION MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/29/1989	OSWER #9285.7-01a	5023

TITLE
RISK ASSESSMENT GUIDANCE FOR SUPERFUND, VOLUME II. ENVIRONMENTAL EVALUATION MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1989	EPA/540/1-69/001	5024

TITLE
TECHNOLOGICAL APPROACHES TO THE CLEANUP OF RADIOLOGICALLY CONTAMINATED SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1988	EPA/540/2-88/002	2328

TITLE
TREATMENT STANDARDS AND MINIMUM TECHNOLOGY REQUIREMENTS UNDER LAND DISPOSAL RESTRICTIONS (LDR)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	OSWER #9347.3-03FS	3018

TITLE
TOXICOLOGICAL PROFILE FOR 2, 3, 7, 8 -TETRACHLORO-DIBENZO-P-DIOXIN

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1989		5027

TITLE
GUIDANCE ON REMEDIAL ACTIONS FOR CONTAMINATED GROUND WATER AT SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1986	OSWER #9283.1-2	2413

TITLE
GUIDE TO TREATMENT TECHNOLOGIES FOR HAZARDOUS WASTES AT SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1989	EPA/540/2-89/052	2322

TITLE
LAND DISPOSAL RESTRICTIONS AS RELEVANT AND APPROPRIATE REQUIREMENTS FOR CERCLA CONTAMINATED SOIL AND DEBRIS

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/5/1989	OSWER 09347.2-01	3016

TITLE
OPTIONS FOR INTERIM POLICY FOR SOIL INGESTION ASSUMPTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/4/1988		5022

GUIDANCE DOCUMENTS

TITLE
CONSIDERATIONS IN GROUND WATER REMEDIATION AT SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/18/1989	OSWER #9355.4-03	2410

TITLE
MODEL STATEMENT OF WORK FOR A REMEDIAL INVESTIGATION AND FEASIBILITY STUDY CONDUCTED BY POTENTIALLY RESPONSIBLE PARTIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/2/1989	OSWER #9835.8	2016

TITLE
GUIDANCE FOR SOIL INGESTION RATES

DOC DATE	OSWER/EPA ID	DOC NUMBER
½7/1989	OSWER #9850.4	5021

TITLE
EXPOSURE FACTORS HANDBOOK

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	EPA/600/8-89/043	5020

TITLE
TOXICOLOGICAL PROFILE FOR BENZENE

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1989		5029

TITLE
TOXICOLOGICAL PROFILE FOR HEPTACHLOR/HEPTACHLOR EPOXIDE

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1989		5035

TITLE
TOXICOLOGICAL PROFILE FOR 1,4-DICHLOROBENZENE

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989		5026

TITLE
TOXICOLOGICAL PROFILE FOR DI(2-ETHYLHEXYL) PHTHALATE

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1989		5034

TITLE
TOXICOLOGICAL PROFILE FOR CHLOROFORM

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989		5032

TITLE
TOXICOLOGICAL PROFILE FOR CADMIUM

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1989		5031

GUIDANCE DOCUMENTS

TITLE
TOXICOLOGICAL PROFILE FOR CHROMIUM
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
7/1/1989 5033

TITLE
TOXICOLOGICAL PROFILE FOR N-NITRO SODIPHENYLAMINE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
12/1/1988 5037

TITLE
TOXICOLOGICAL PROFILE FOR SELECTED PCBs (AROCLOR-1260, -1254, -1248, -1242, -1232, -1221, AND -1010
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
6/1/1989 5039

TITLE
TOXICOLOGICAL PROFILE FOR METHYLENE CHLORIDE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
4/1/1989 5036

TITLE
TOXICOLOGICAL PROFILE FOR TRICHLOROETHYLENE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
10/1/1989 5040

TITLE
TOXICOLOGICAL PROFILE FOR NICKEL
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
12/1/1988 5038

TITLE
TOXICOLOGICAL PROFILE FOR VINYL CHLORIDE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
8/1/1989 5041

TITLE
TOXICOLOGICAL PROFILE FOR BERYLLIUM
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
12/1/1988 5030

TITLE
TOXICOLOGICAL PROFILE FOR ARSENIC
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/1/1989 5028

TITLE
EVALUATION OF GROUND-WATER EXTRACTION REMEDIES- VOLUME 1 SUMMARY REPORT
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1989 EPA/540/2-89/054 2412

GUIDANCE DOCUMENTS

TITLE
DETERMINING SOIL RESPONSE ACTION LEVELS BASED ON POTENTIAL CONTAMINANT MIGRATION TO GROUNDWATER A COMPENDIUM OF EXAMPLES

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1989	EPA/540/2-89/057	2411

TITLE
GUIDE FOR CONDUCTING TREATABILITY STUDIES UNDER CERCLA, INTERIM FINAL,

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	EPA/540/2-89/058	2015

TITLE
GUIDE TO SELECTING SUPERFUND REMEDIAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1990	OSWER 09355.0-27FS	9002

TITLE
SUPERFUND LDR GUIDE #1 OVERVIEW OF RCRA LAND DISPOSAL RESTRICTIONS (LDRs)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	OSWER #9347.3-01FS	2214

TITLE
SUPERFUND LDR GUIDE #2 COMPLYING WITH THE CALIFORNIA LIST RESTRICTIONS UNDER LAND DISPOSAL RESTRICTIONS (LDRs)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	OSWER 39347.3-02FS	2215

TITLE
RESTRICTIONS (LDRs)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	OSWER 09347.3-03FS	2216

TITLE
SUPERFUND LDR GUIDE #4 COMPLYING WITH THE HAMMER RESTRICTIONS UNDER LAND DISPOSAL RESTRICTIONS (LDRs)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	OSWER S9347.3-04FS	2217

TITLE
SUPERFUND LDR GUIDE #5 DETERMINING WHEN LAND DISPOSAL RESTRICTIONS (LDRs) ARE APPLICABLE TO CERCLA RESPONSE ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	OSWER #9347.3-05FS	2218

TITLE
SUPERFUND LDR GUIDE #6A OBTAINING A SOIL AND DEBRIS TREATABILITY VARIANCE FOR REMEDIAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1969	OSWER #9347.3-06FS	2219

GUIDANCE DOCUMENTS

TITLE
SUPER RESPONSE ACTIONS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/1/1986	OSWER #9347.3-08FS	2220

TITLE
MANAGEMENT REVIEW: RECOMMENDATION N0.26

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/27/1989	OSWER #9234.1-06	2213

TITLE
INNOVATIVE TECHNOLOGY - SOIL WASHING [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/1/1989	OSWER #9200.5-250FS	2327

TITLE
INNOVATIVE TECHNOLOGY - IN-SITU VITRIFICATION [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/1/1989	OSWER #9200.5-251FS	2325

TITLE
INNOVATIVE TECHNOLOGY - SLURRY-PHASE BIODEGRADATION [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/1/1989	OSWER # 200.5-252FS	2326

TITLE
INNOVATIVE TECHNOLOGY - GLYCOLATE DEHALOGENATION [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/1/1989	OSWER #9200.5-254FS	2324

TITLE
INNOVATIVE TECHNOLOGY - BEST SOLVENT EXTRACTION PROCESS [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/1/1989	OSWER #9200.5-253FS	2323

TITLE
GUIDE ON REMEDIAL ACTIONS FOR CONTAMINATED GROUND WATER [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/1/1989	OSWER #92831-2FS	2409

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL - SUMMARY OF PART II - CAA, TSCA, AND OTHER STATUTES [QUICK REFERENCE FACT SHEET]

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/1/1990	OSWER #9234.2-07FS	3012

TITLE
ARARs SHORT GUIDANCE QUARTERLY REPORT [QUICK REFERENCE FACT SHEET)

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/1/1989	OSWER #9234.3-001	3007

GUIDANCE DOCUMENTS

TITLE
ARARs SHORT GUIDANCE QUARTERLY REPORT [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1990	OSWER #9234.3-001	3008

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL RCRA ARARS FOCUS ON CLOSURE REQUIREMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1986	OSWER #9234.2-04FS	3017

TITLE
ARARs Q'S & A'S [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1989	OSWER #9234.2-01 FS	3006

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL - CERCLA COMPLIANCE WITH STATE REQUIREMENTS [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1969	OSWER #9234.2-05FS	3009

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL - OVERVIEW OF ARARs - FOCUS ON ARAR WAIVERS [QUICK REFERENCE FACT SHEET)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	OSWER #9234.2-03FS	3011

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL - CERCLA COMPLIANCE WITH THE CWA AND SDWA [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1990	OSWER #9234.2-06FS	3010

TITLE
CONTROL OF AIR EMISSIONS FROM SUPERFUND AIR STRIPPERS AT SUPERFUND GROUNDWATER SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/15/1989	OSWER #9533.0-28	3014

TITLE
GETTING READY - SCOPING THE RI/FS [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1989	OSWER #9355.3-01FS1	2013

TITLE
REMEDIAL INVESTIGATION - SITE CHARACTERIZATION AND TREATABILITY STUDIES [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1989	OSWER #9355.3-01FS2	5025

GUIDANCE DOCUMENTS

TITLE
FEASIBILITY STUDY - DEVELOPMENT AND SCREENING OF REMEDIAL ACTION ALTERNATIVES [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1989	OSWER #9355.3-01FS3	2018

TITLE
FEASIBILITY STUDY DETAILED ANALYSIS OF REMEDIAL ACTION ALTERNATIVES [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1990	OSWER #9355.3-01FS4	2019

TITLE
TREATABILITY STUDIES UNDER CERCLA AN OVERVIEW [QUICK REFERENCE FACT SHEET]

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	OSWER #9380.3-02FS	2020

TITLE
GUIDANCE ON REMEDIAL ACTIONS FOR SUPERFUND SITES WITH PCB CONTAMINATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1990	OSWER #9355.4-01	2014

TITLE
AIR/SUPERFUND NATIONAL TECHNICAL GUIDANCE STUDY SERIES VOLUME I - APPLICATION OF AIR PATHWAY ANALYSES FOR SUPERFUND ACTIVITIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1988		5016

TITLE
AIR/SUPERFUND NATIONAL TECHNICAL GUIDANCE STUDY SERIES VOLUME II - ESTIMATION OF BASELINE AIR EMISSIONS AT SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989	EPA/450/1-89/002	5017

TITLE
AIR/SUPERFUND NATIONAL TECHNICAL GUIDANCE STUDY SERIES VOLUME III - ESTIMATION OF AIR EMISSIONS FROM CLEANUP ACTIVITIES AT SUPERFUND SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989	EPA/450/1-89/003	5018

TITLE
AIR/SUPERFUND NAT'L TECHNICAL GUIDANCE STUDY SERIES - VOLUME IV PROCEDURES FOR DISPERSION MODELING AND AIR MONITORING FOR AIR PATHWAY ANALYSES (DRAFT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1988		5019

TITLE
ADDITIONAL INTERIM GUIDANCE FOR FISCAL YEAR 1987 RECORDS OF DECISION. FINAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/24/1987	OSWER #9355.0-21	C001

GUIDANCE DOCUMENTS

TITLE
ANALYSIS OF RCRA CLOSURE OPTIONS FOR SUPERFUND SITES IN SUPERFUND 1987: PROCEEDINGS OF THE 8TH NATIONAL CONFERENCE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C002

TITLE
PROTECTION OF WETLANDS: EXECUTIVE ORDER 11990. 42 FED. REG. 26961 (1977).

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/24/1977		C003

TITLE
BIODEGRADATION AND TREATABILITY OF SPECIFIC POLLUTANTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1979	EPA 600/9-79-034	C007

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL DRAFT GUIDANCE. SUPERSEDED BY 3002.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/6/1988	OSWER #9234.1-01	C009

TITLE
COMMUNITY RELATIONS IN SUPERFUND: A HANDBOOK. INTERIM VERSION. SUPERSEDED BY 7000.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1983	HW-6	C017

TITLE
COMPREHENSIVE ENVIRONMENTAL RESPONSE. COMPENSATION. AND LIABILITY ACT OF 1980. AMENDED BY PL 99-499. 10/17/86

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/17/1986		C018

TITLE
DEVELOPMENT OF ADVISORY LEVELS FOR POLYCHLORINATED BIPHENYLS (PCBS) CLEANUP.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1986	EPA 600/6-86/002	C019

TITLE
DEVELOPMENT OF STATISTICAL DISTRIBUTION OR RANGES STANDARD FACTORS USED IN EXPOSURE ASSESSMENTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1985	EPA OHEA-E-16	C020

TITLE
DRAFT GUIDANCE FOR CONDUCTING REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES UNDER CERCLA SUPERSEDED BY 2002

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1988	OSWER #9335.3-01	C021

GUIDANCE DOCUMENTS

TITLE
DRAFT GUIDANCE ON REMEDIAL ACTIONS FOR CONTAMINATED GROUND WATER AT SUPERFUND SITES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1986	OSWER #9283.1-2	C022

TITLE
DRINKING WATER CRITERIA DOCUMENT FOR POLYCHLORINATED BIPHENYLS (PCBS). SUPERSEDED BY C107

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1987	EPA ECAO-CIN-414	C024

TITLE
ENDANGERMENT ASSESSMENT HANDBOOK.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1985		C025

TITLE
ESTIMATED SOIL INGESTION RATES FOR USE IN RISK ASSESSMENT. TAKEN FROM RISK ANALYSIS, VOL. 7, NO. 3. 1987.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/8/1987		C026

TITLE
GUIDANCE ON FEASIBILITY STUDIES UNDER CERCLA.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1985	EPA 540/G-85-003	C034

TITLE
GUIDANCE ON REMEDIAL INVESTIGATIONS UNDER CERCLA

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1985	EPA 540/G-85/002	C035

TITLE
GUIDELINES ESTABLISHING TEST PROCEDURES FOR THE ANALYSIS OF POLLUTANTS UNDER THE CLEAN WATER ACT; FINAL. INTERIM FINAL & PROPOSED RULE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/26/1984		C036

TITLE
GUIDELINES FOR PCB LEVELS IN THE ENVIRONMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988		C037

TITLE
IMPACT OF THE RCRA LAND DISPOSAL RESTRICTIONS ON SUPERFUND RESPONSE ACTIONS IN SUPERFUND.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C039

GUIDANCE DOCUMENTS

TITLE
EPA IMPLEMENTATION OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA). DUPLICATE OF 3003

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/21/1987		C044

TITLE
APPLICATION OF INTERIM SEDIMENT CRITERIA VALUES AT SULLIVAN'S LEDGE SUPERFUND SITE

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/11/1988		C049

TITLE
COMMENTS ON THE PCB CONTAMINATION- REGULATORY AND POLICY BACKGROUND MEMO.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/14/1987		C050

TITLE
STATUS OF ALTERNATE CONCENTRATION (ACL) LIMIT FACT SHEET.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/24/1981		C051

TITLE
SCOPE OF CERCLA PETROLEUM EXCLUSION UNDER SECTIONS 101(14) AND 104(a)(2).

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/31/1987		C052

TITLE
COMMUNITY RELATIONS ACTIVITIES AT SUPERFUND ENFORCEMENT SITES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/28/1985		C053

TITLE
INTERIM GUIDANCE ON COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/9/1987	OSWER #9234.0-05	C055

TITLE
17TH REMEDY DELEGATION REPORT, PART 1.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/13/1988		C056

TITLE
APPLICABILITY OF PCB REGULATIONS TO SPILLS WHICH OCCURRED PRIOR TO THE EFFECTIVE DATE OF THE 1978 REGULATION.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/3/1979		C057

TITLE
PROCEDURES FOR IMPLEMENTING CERCLA DELEGATIONS FOR OFF-SITE RESPONSE ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C059

GUIDANCE DOCUMENTS

TITLE
EVALUATION OF TSCA REQUIREMENTS AS ARARS FOR THE RE-SOLVE. INC. SUPERFUND SITE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/24/1987		C061

TITLE
NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C063

TITLE
OCCUPATIONAL SAFETY AND HEALTH GUIDANCE MANUAL FOR HAZARDOUS WASTE SITE ACTIVITIES

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1985		C065

TITLE
PCB SPILL CLEANUP POLICY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/2/1987		C069

TITLE
PERSONNEL PROTECTION AND SAFETY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C071

TITLE
PROPOSED AMENDMENTS FOR LANDFILL, SURFACE IMPOUNDMENT AND WASTE PILE CLOSURES. PROPOSED AMENDMENT TO RULE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/19/1987		C079

TITLE
REMEDIAL ACTION AT WASTE DISPOSAL SITES (REVISED). HANDBOOK. DUPLICATE OF 2309.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1985	EPA/625/6-85/006	C080

TITLE
RISK ANALYSIS OF TCDD CONTAMINATED SOIL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
	EPA 600/8-84-031	C081

TITLE
STANDARD OPERATING SAFETY GUIDES

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1984		C082

TITLE
SUMMARY OF THE REQUIREMENTS: LAND DISPOSAL RESTRICTIONS RULE

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C084

GUIDANCE DOCUMENTS

TITLE
SUPERFUND REMEDIAL DESIGN AND REMEDIAL ACTION GUIDANCE. DUPLICATE OF 2011

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1986	OSWER#9355.04A	C087

TITLE
SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION PROGRAM. PROGRESS AND ACCOMPLISHMENTS. A REPORT TO CONGRESS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1988	EPA/540/5-88/001	C085

TITLE
TECHNOLOGY BRIEFS: DATA REQUIREMENTS FOR SELECTING REMEDIAL ACTION TECHNOLOGY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1987	EPA/606/2-87/001	C088

TITLE
TECHNOLOGY SCREENING GUIDE FOR TREATMENT OF CERCLA SOILS AND SLUDGES. DUPLICATE OF 2319.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1988	EPA/540/2-88/004	C090

TITLE
CATALOG OF SUPERFUND PROGRAM DIRECTIVES, INTERIM EDITION

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1988	OSWER #9200.7-01	C012

TITLE
UPDATE PCB CLEANUP-LEVEL DOCUMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/6/1988		C060

TITLE
FEASIBILITY TESTING OF IN SITU VITRIFICATION OF NEW BEDFORD HARBOR SEDIMENTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1988		C028

TITLE
B. E. S. T. IS CURRENTLY TECHNICALLY UNACCEPTABLE FOR USE AT BROS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/20/1988		C004

TITLE
ORGANIC EXTRACTION UTILIZING SOLVENTS. DEMONSTRATION BULLETIN SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1989	EPA/540/M5-89/006	C066

TITLE
FINAL REPORT: LABORATORY TESTING RESULTS: KPEG TREATMENT OF NEW BEDFORD SOIL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/20/1988		C030

GUIDANCE DOCUMENTS

TITLE
BRIDGEPORT BID PROTEST.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
		C008

TITLE
MATERIAL SAFETY DATA SHEET: TRIETHYLAMINE

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
3/1/1986		C092

TITLE
GUIDANCE MANUAL FOR WRITERS OF PCB DISPOSAL PERMITS FOR ALTERNATE TECHNOLOGIES. DRAFT REPORT.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/30/1988		C033

TITLE
STATIONARY SOURCE SAMPLING REPORT. EEI REF. NO 5448. BENZENE, MERCURY, TOLUENE, TRIETHYLAMINE AND XYLENE EMISSIONS TESTING.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
2/26/1987		C006

TITLE
INCINERATION OF A CHEMICALLY CONTAMINATED SYNTHETIC SOIL MATRIX (SSM) USING A PILOT-SCALE ROTARY KILN SYSTEM.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
		C041

TITLE
NCR WORKGROUP MEETINGS.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/9/1989		C062

TITLE
POLICY FOR SUPERFUND COMPLIANCE WITH THE RCRA LAND DISPOSAL RESTRICTIONS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/17/1989	OSWER #9347.1-0	C058

TITLE
LAND DISPOSAL RESTRICTIONS AS RELEVANT AND APPROPRIATE REQUIREMENTS FOR CERCLA CONTAMINATED SOIL AND DEBRIS DUPLICATE OF 3016.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/5/1989	OSWER #9347.2-01	C054

TITLE
PCB CONTAMINATION AT SUPERFUND SITES.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/7/1989		C048

GUIDANCE DOCUMENTS

TITLE
LABORATORY SCALE TESTING REPORT: KPEG PROCESSING OF WIDE BEACH DEVELOPMENT SITE SOILS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/30/1968		C042

TITLE
HIGH TEMPERATURE THERMAL TREATMENT FOR CERCLA WASTE. EVALUATION AND SELECTION OF ONSITE AND OFFSITE SYSTEMS

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1988	EPA/640/X-88/006	C038

TITLE
TECHNOLOGY EVALUATION REPORT SITE PROGRAM DEMONSTRATION TEST, HAZCON SOLIDIFICATION, DOUGLASSVILLE, PENNSYLVANIA. VOLUME 1.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1989	EPA/540/5-89/001A	C089

TITLE
NEW BEDFORD HARBOR. ACUSHN6T RIVER ESTUARY ENGINEERING FEASIBILITY STUDY OF DREDGING. RPT 9: LABORATORY-SCALE APPLICATION OF SOLIDIFICATION.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989		C064

TITLE
CLASSIFICATION OF SURFACE WATERS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1979		C016

TITLE
FEASIBILITY OF APEG DETOXIFICATION OF DIOXIN-CONTAMINATED SOILS. PROJECT SUMMARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1984	EPA-600/S2-84-071	C078

TITLE
DESTRUCTION OF PCBS: ENVIRONMENTAL APPLICATIONS OF ALKALI METAL POLYETHYLENE GLYCOLATE COMPLEXES. PROJECT SUMMARY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1985	EPA/600/S2-85/108	C076

TITLE
CHEMICAL REACTION OF POLYCHLORINATED BIPHENYLS ON SOILS WITH POLY(ETHYLENE GLYCOL)/KOH. TAKEN FROM "CHEMOSPHERE" VOL. 14. NO. 2, 1985.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C015

TITLE
PCB DESTRUCTION: A NOVEL DEHALOGENATION REAGENT (TAKEN FROM JOURNAL OF HAZARDOUS MATERIALS, 12 (1985) 161-176

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1985		C067

GUIDANCE DOCUMENTS

TITLE
GROUNDWATER CLASSIFICATION SYSTEM.
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
5/1/1986 C031

TITLE
IN SITU VITRIFICATION OF PCB-CONTAMINATED SOILS. FINAL REPORT.
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
10/1/1986 C040

TITLE
CHEMICAL DESTRUCTION OF CHLORINATED DIOXINS AND FURANS.
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
C013

TITLE
PCB SEDIMENT DECONTAMINATION - TECHNICAL/ECONOMIC ASSESSMENT OF SELECTED ALTERNATIVE TREATMENTS. PROJECT SUMMARY.
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/1/1987 EPA/600/S2-86/112 C077

TITLE
CATALYTIC DEHYDROHALOGENATION: A CHEMICAL DESTRUCTION METHOD FOR HALOGENATED ORGANICS. PROJECT SUMMARY.
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/1/1987 EPA/600/S2-86/113 C075

TITLE
CHEMICAL DESTRUCTION OF HALOGENATED ALIPHATIC HYDROCARBONS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
6/23/1987 C014

TITLE
SUPERFUND RECORD OF DECISION: LIQUID DISPOSAL, MI.
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1987 EPA/ROD/R05-87/051 C086

TITLE
ANALYSIS OF KPEG/GUAM SOIL PCB DETOXIFICATION FROM THE GUAM FIELD TEST
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
6/24/1988 C046

TITLE
IN SITU VITRIFICATION TECHNOLOGY INFORMATION
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
7/13/1988 C043

TITLE
GUAM II. RETREATMENT OF GUAM SOILS AND THE CONTINUATION OF APEG FOR PCB DETOXIFICATION
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
10/13/1988 C045

GUIDANCE DOCUMENTS

TITLE
BASIC EXTRACTIVE SLUDGE TREATMENT (B.E.S.T.) DEMONSTRATED AVAILABLE TECHNOLOGY

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/16/1986		C005

TITLE
PCB SEDIMENT DECONTAMINATION PROCESSES SELECTION FOR TEST AND EVALUATION (TAKEN FROM HAZARDOUS WASTE & HAZARDOUS MATERIALS. VOL 5, NUMBER, 3. 1988)

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988		C068

TITLE
EVALUATION OF THE B.E.S.T. SOLVENT EXTRACTION SLUDGE TREATMENT TECHNOLOGY TWENTY-FOUR HOUR TEST

DOC DATE	OSWER/EPA ID	DOC NUMBER
	EPA 600/2-88/051	C027

TITLE
DISTRIBUTION OF DRAFT CLEAN WATER ACT/SAFE DRINKING WATER ACT (CWA/SWDA) VOLUME OF THE SUPERFUND COMPLIANCE MANUAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C047

TITLE
DRAFT STANDARD REVIEW PLAN INFORMATION REQUIREMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C023

TITLE
SUMMARY OF BIOASSAY TESTS ON APEG BYPRODUCTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C083

TITLE
FIELD EXPERIENCE WITH THE KPEG REAGENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C029

TITLE
POLYCHLORINATED BIPHENYLS (PCBS) MANUFACTURING. PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1987		C074

TITLE
POLYCHLORINATED BIPHENYLS, CRITERIA MODIFICATION, HEARINGS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/31/1979		C072

TITLE
POLYCHLORINATED BIPHENYLS (PCBS): FINAL RULES AND NOTICE OF REQUEST FOR ADDITIONAL COMMENTS ON CERTAIN INDIVIDUAL AND CLASS PETITIONS FOR EXEMPTION.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/10/1984		C073

TITLE
GUIDANCE MANUAL FOR HAZARDOUS WASTE INCINERATOR PERMITS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1983	EPA SW-966	C032

TITLE
PERMIT WRITER'S GUIDE TO TEST BURN DATA. HAZARDOUS WASTE INCINERATION. HANDBOOK.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1986	EPA/625/6-86/012;	C070

TITLE
APPLICATION OF LOW-TEMPERATURE THERMAL TREATMENT TECHNOLOGY TO CERCLA SOILS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C093

TITLE
DISCHARGE OF WASTEWATER FROM CERCLA SITES INTO POTWS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/15/1966		C094

TITLE
SEDIMENT QUALITY VALUES REFINEMENT: 1988 UPDATE AND EVALUATION OF PUGET SOUND AET.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1988		C095

TITLE
EVALUATION OF THE APPARENT EFFECTS THRESHOLD (AET) APPROACH FOR ASSESSING SEDIMENT QUALITY. REPORT OF THE SEDIMENT CRITERIA SUBCOMMITTEE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	SAB-EETFC-69-027	C096

TITLE
NBH SUPERFUND PROJECT, ACUSHNET RIVER ESTUARY ENG. FS OF DREDGED MATERIAL DISPOSAL ALTERNATIVES. RPT. 10. EVALUATION OF DREDGING CONTROL TECHNOLOGIES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1988	EL-88-15	C097

TITLE
HOT SPOT FEASIBILITY STUDY. NEW BEDFORD HARBOR. DRAFT FINAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989		C098

TITLE
INTERIM FINAL GUIDANCE ON SOIL INGESTION RATES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/9/1989	OSWER #9650.4	C099

GUIDANCE DOCUMENTS

TITLE
PCB SEDIMENT DECONTAMINATION-TECHNICAL/ECONOMIC ASSESSMENT OF SELECTED ALTERNATIVE TREATMENTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/15/1986		C100

TITLE
B.E.S.T. PROCESS-EFFECTIVE TREATMENT OF SLUDGES, SOILS. AND SEDIMENTS CONTAMINATED WITH PCBS, SEMI-VOLATILE ORGANICS (PAHS). VOCS. PCP, CREOSOTES

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/24/1989		C101

TITLE
B.E.S.T. PROCESS-EFFECTIVE TREATMENT OF SLUDGES, SEDIMENTS AND SOILS CONTAMINATED WITH PCBS, POLYNUCLEAR AROMATICS (PNAS). VOCS, PCP, CREOSOTE

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/14/1989		C102

TITLE
HAZARDOUS WASTE MANAGEMENT SYSTEM, LAND DISPOSAL RESTRICTIONS, FINAL RULE

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/7/1986		C103

TITLE
SUPPLEMENTAL RISK ASSESSMENT GUIDANCE FOR THE SUPERFUND PROGRAM. DRAFT FINAL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1989	EPA 901/5-89-001	C104

TITLE
LAND DISPOSAL RESTRICTIONS FOR CERTAIN "CALIFORNIA LIST' HAZARDOUS WASTES AND MODIFICATIONS TO THE FRAMEWORK FINAL RULE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/8/1987		C105

TITLE
GUIDANCE ON REMEDIAL ACTIONS FOR CONTAMINATED GROUND WATER AT SUPERFUND SITES. INTERIM FINAL. DUPLICATE OF 2413.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1988	OSWER #9283.1-2	C106

TITLE
DRINKING WATER CRITERIA FOR POLYCHLORINATED BIPHENYLS (PCBS). FINAL. RESEARCH AND DEVELOPMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1968	ECAO-CIN-414	C107

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL: DRAFT GUIDANCE. DUPLICATE OF 3002.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/8/1988	EPA/540/G-89/006	C108

GUIDANCE DOCUMENTS

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL: PART II. CLEAN AIR ACT AND OTHER ENVIRONMENTAL STATUTES AND STATE REQUIREMENTS. INTERIM FINAL. DUP. OF 3013.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1989	EPA/540/G-89/009	C109

TITLE
AIR STRIPPER CONTROL GUIDANCE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/12/1989	OSWER #9355.0-28	C110

TITLE
IN SITU TREATMENT OF HAZARDOUS WASTE-CONTAMINATED SOILS HANDBOOK.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990	EPA/540/2-90/002	C111

TITLE
SUPERFUND GLOSSARY, WINTER 1986.

DOC DATE	OSWER/EPA ID	DOC NUMBER
	WH/FS-86-007	C112

TITLE
PUBLIC INVOLVEMENT IN THE SUPERFUND PROGRAM, FALL 1987.

DOC DATE	OSWER/EPA ID	DOC NUMBER
	WH/FS-67-004R	C113

TITLE
SUPERFUND, FALL 1987

DOC DATE	OSWER/EPA ID	DOC NUMBER
	WH/FS-87-001R	C114

TITLE
SUPERFUND REMEDIAL PROGRAM, FALL 1987.

DOC DATE	OSWER/EPA ID	DOC NUMBER
	WH/FS-87-002R	C115

TITLE
INTERIM SEDIMENT CRITERIA VALUES FOR NONPOLAR HYDROPHOBIC ORGANIC CONTAMINANTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1988	SCDHM7	C116

TITLE
APPLICABILITY OF LDRS TO RCRA AND CERCLA GROUND WATER TREATMENT REINJECTION SUPERFUND MANAGEMENT REVIEW: RECOMMENDATION NO. 26. DUPLICATE OF 2213.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/27/1989	OSWER#9234.1-06	C119

TITLE
FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/10/1989		C118

GUIDANCE DOCUMENTS

TITLE
GUIDE ON REMEDIAL ACTIONS FOR CONTAMINATED GROUND WATER. DUPLICATE OF 2409.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1989	9283.1-2FS	C120

TITLE
TECHNOLOGY EVALUATION REPORT: SITE PROGRAM DEMONSTRATION TEST TERRA VAC IN SITU VACUUM EXTRACTION SYSTEM VOLUME 1.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1989	EPA/540/5-89/003a	C121

TITLE
ARARS Q'S & A'S. GENERAL POLICY: RCRA. CWA & SDWA. SUPERFUND FACT SHEET. DUPLICATE OF 3006.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1989	OERR 9234.2-01 FS	C122

TITLE
LAND DISPOSAL RESTRICTIONS. SUMMARY OF REQUIREMENTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1989	OS-520	C123

TITLE
SUPERFUND LDR GUIDE #1. OVERVIEW OF RCRA LAND DISPOSAL RESTRICTIONS (LDRS). DUPLICATE OF 2214.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	9347.3-01 FS	C124

TITLE
SUPERFUND CDR GUIDE #2. COMPLYING WITH THE CALIFORNIA LIST RESTRICTIONS UNDER LAND DISPOSAL RESTRICTIONS (LDRS). DUPLICATE OF 2215.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	9347.3-02 FS	C125

TITLE
SUPERFUND LDR GUIDE #3. TREATMENT STANDARDS AND MINIMUM TECHNOLOGY REQUIREMENTS UNDER LAND DISPOSA RESTRICTIONS (LDRS). DUPLICATE OF 3018.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	9347.3-03FS	C126

TITLE
SUPERFUND LDR GUIDE #5. DETERMINING WHEN LAND DISPOSAL RESTRICTIONS (LDRS) ARE APPLICABLE TO CERCLA RESPONSE ACTIONS. DUPLICATE OF 2218.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	9347.3-05 FS	C127

TITLE
SUPERFUND LDR GUIDE #8A. OBTAINING A SOIL AND DEBRIS TREATABILITY VARIANCE FOR REMEDIAL ACTIONS DUPLICATE OF 2219.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	9347.3-06 FS	C128

GUIDANCE DOCUMENTS

TITLE
CODE OF FEDERAL REGULATIONS. TITLE 40. PARTS 190 TO 299. PROTECTION OF ENVIRONMENT. REVISED AS OF JULY 1, 1989.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989		C129

TITLE
STATE AND LOCAL INVOLVEMENT IN THE SUPERFUND PROGRAM. FALL 1989.

DOC DATE	OSWER/EPA ID	DOC NUMBER
	9375.5-01/FS	C130

TITLE
EVALUATION OF GROUND-WATER EXTRACTION REMEDIES. VOLUME 1. SUMMARY REPORT. DUPLICATE OF 2412.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1989	EPA/540/2-89/054	C131

TITLE
DETERMINING SOIL RESPONSE ACTION LEVELS BASED ON POTENTIAL CONTAMINANT MIGRATION TO GROUND WATER: A COMPENDIUM OF EXAMPLES. DUPLICATE OF #2411.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1989	EPA/540/2-89/057	C133

TITLE
GROUND WATER ISSUE. PERFORMANCE EVALUATIONS OF PUMP-AND-TREAT REMEDIATIONS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1989	EPA/540/4-89/005	C134

TITLE
SUPERFUND LDR GUIDE #4 COMPLYING WITH THE HAMMER RESTRICTIONS UNDER LAND DISPOSAL RESTRICTIONS (LDRS) DUPLICATE OF 2217

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	9347.3-04FS	C135

TITLE
CONSIDERATIONS IN GROUND WATER REMEDIATION AT SUPERFUND SITES DUPLICATE OF 2410

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/18/1989	93554-03	C136

TITLE
SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION PROGRAM TECHNOLOGY PROFILES

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1989	EPA/540/5-89/013	C137

TITLE
ANALYSIS OF TREATABILITY DATA FOR SOIL & DEBRIS EVALUATION OF LAND BAN IMPACT ON USE OF SUPERFUND TREATMENT TECHNOLOGIES SF MGMT REVIEW REC 34A

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/30/1989	93803-04	C138

GUIDANCE DOCUMENTS

TITLE
SUPERFUND LDR GUIDE #7 DETERMINING WHEN LAND DISPOSAL RESTRICTIONS (LDRS) ARE RELEVANT AND APPROPRIATE TO CERCLA RESPONSE ACTIONS DUPLICATE OF 2220

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	9347.3-08FS	C139

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL CERCLA COMPLIANCE WITH STATE REQUIREMENTS DUPLICATE OF 3009

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	9234.2-05/FS	C140

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL OVERVIEW OF ARARS FOCUS ON ARAR WAIVERS DUPLICATE OF 3011

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	92342-03/FS	C141

TITLE
TECHNOLOGY EVALUATION REPORT SITE PROGRAM DEMONSTRATION OF THE ULTROX INTERNATIONAL ULTRAVIOLET RADIATION/OXIDATION TECHNOLOGY

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990	EPA/540/5-89/012	C142

TITLE
PRESUMPTIVE REMEDIES POLICY AND PROCEDURES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1993	93550-47FS	C143

TITLE
STATE OF TECHNOLOGY REVIEW SOIL VAPOR EXTRACTION SYSTEMS PROJECT SUMMARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990	EPA/600/S2-089/024	C144

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL CERCLA COMPLIANCE WITH THE CWA AND SDWA DUPLICATE OF 3010

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1990	92342-06/FS	C145

TITLE
FIELD EVALUATION OF THE UV/OXIDATION TECHNOLOGY TO TREAT CONTAMINATED GROUNDWATER. MARCH/APRIL 1990.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C146

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL. SUMMARY OF PART II CAA, TSCA, AND OTHER STATUTES. DUPLICATE OF 3012.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1990	9234.2-07/FS	C147

GUIDANCE DOCUMENTS

TITLE
FIELD DEMONSTRATION OF THE UV/OXIDATION TECHNOLOGY TO TREAT GROUND WATER CONTAMINATED WITH VOCS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1990		C148

TITLE
FEASIBILITY STUDY ANALYSIS. UNION CHEMICAL

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/8/1990		C149

TITLE
ATSDR FACT SHEET.

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C150

TITLE
TECHNOLOGY EVALUATION REPORT: CF SYSTEMS ORGANICS EXTRACTION SYSTEM. VOLUME I.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990	EPA/540/5-90/002	C151

TITLE
TECHNOLOGY EVALUATION REPORT: SITE PROGRAM DEMONSTRATION TEST. SOLIDITECH, INC. SOLIDIFICATION/STABILIZATION PROCESS. VOLUME 1.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1990	EPA/540/5-B9/005a	C152

TITLE
ROD ANNUAL REPORT: FY 1989.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1990	EPA/540/8-90/006	C153

TITLE
FINAL METHODOLOGY FOR EARLY DE MINIMIS WASTE CONTRIBUTOR SETTLEMENTS UNDER CERCLA SECTION 122(g)(1)(A).

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/2/1992	OSWER 9834.7-1C	C154

TITLE
FINAL METHODOLOGIES FOR IMPLEMENTATION OF CERCLA SECTION 122(g)(1XA) DE MINIMIS WASTE CONTRIBUTOR SETTLEMENT PROPOSALS AND AGREEMENTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/20/1988	OSWER 9634.7-1B	C155

TITLE
FINAL GUIDANCE ON PREMIUM PAYMENTS IN CERCLA SETTLEMENTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/17/1988	OSWER 9835.6	C156

GUIDANCE DOCUMENTS

TITLE
PRESUMPTIVE REMEDY FOR CERCLA MUNICIPAL LANDFILL SITES.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/1/1993	OSWER 9355.0-49FS	C157

TITLE
GUIDANCE FOR EVALUATING THE TECHNICAL IMPRACTICABILITY OF GROUND WATER RESTORATION.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
10/4/1993	OSWER 9234.2-25	C158

TITLE
FINAL GUIDANCE ON PREPARING AND RELEASING WASTE- IN LISTS AND VOLUMETRIC RANKINGS TO PRPS UNDER CERCLA.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
2/22/1991	OSWER 9835.16	C159

TITLE
FINAL INTERIM GUIDANCE ON SETTLEMENTS WITH DE MINIMIS WASTE CONTRIBUTORS UNDER SECTION 122 (g) OF SARA

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/19/1987	OSWER 9834.7	C160

TITLE
INTERIM CERCLA SETTLEMENT POLICY.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
5/30/7986	OSWER 9835.0	C161

TITLE
OFF-SITE RULE IMPLEMENTATION.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/27/1993	EPA 9834.11FSa	C162

TITLE
SEWAGE SLUDGE, USE AND DISPOSAL RULE (40 CFR PART 503} - FACT SHEET.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/1/1992	EPA-822-F-92-002	C163

TITLE
SUMMARY OF THE STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE. 40 CFR PART 503 (58 FR 32: 9248-9415).

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/30/1993		C164

TITLE
RCRA REGULATORY STATUS OF CONTAMINATED GROUNDWATER.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/1/1984		C165

GUIDANCE DOCUMENTS

TITLE
RCRA REGULATORY STATUS OF CONTAMINATED GROUND WATER.

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/13/1986	9441.1986(83:	C166

TITLE
CERCLA SITE DISCHARGES TO POTWS GUIDANCE MANUAL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1990	EPA/540/G-90/005	C167

TITLE
QUALITY ASSURANCE AND QUALITY CONTROL FOR WASTE CONTAINMENT FACILITIES. TECHNICAL GUIDANCE DOCUMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1993	EPA/600/R-93/182	C168

TITLE
DRAFT GUIDANCE ON CERCLA COMPLIANCE WITH OTHER LAWS MANUAL. DUPLICATE OF C108.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/8/1988	OSWER 9234.1-01	C169

TITLE
INTERIM FINAL GUIDANCE FOR CONDUCTING REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES UNDER CERCLA. DUPLICATE OF 2002.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1988	OSWER #9355.3-01	C170

TITLE
REQUIREMENTS FOR HAZARDOUS WASTE LANDFILL DESIGN, CONSTRUCTION, AND CLOSURE

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1989	EPA/625/4-89/02;	C171

TITLE
FINAL COVERS ON HAZARDOUS WASTE LANDFILLS AND SURFACE IMPOUNDMENTS. TECHNICAL GUIDANCE DOCUMENT.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	EPA/530-SW-89-047	C172

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL. RCRA ARARS: FOCUS ON CLOSURE REQUIREMENTS. DUPLICATE OF 3017.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1989	OSWER #9234.2-04FS	C173

TITLE
RISK ASSESSMENT GUIDANCE FOR SUPERFUND. VOLUME I. HUMAN HEALTH EVALUATION MANUAL (PART A). INTERIM FINAL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1989	EPA/540/1-89/002	C174

GUIDANCE DOCUMENTS

TITLE
HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE MODEL - VERSION 2.05.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988		C175

TITLE
STREAMLINING THE RI/FS FOR CERCLA MUNICIPAL LANDFILL SITES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1990	OSWER #9355.3-11FS	C176

TITLE
CONDUCTING REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES FOR CERCLA MUNICIPAL LANDFILL SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1991	OSWER 09355.3-11	C177

TITLE
DRAFT GUIDANCE ON CERCLA COMPLIANCE WITH OTHER LAWS MANUAL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/25/1987	OSWER 9234.1-01	C178

TITLE
GUIDANCE ON PREPARING SUPERFUND DECISION DOCUMENTS: THE PROPOSED PLAN, THE RECORD OF DECISION, E S.D.' S, ROD. AMENDMENT. INTERIM FINAL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1969	OSWER 9355.3-02	C179

TITLE
RISK ASSESSMENT GUIDANCE FOR SUPERFUND. HUMAN HEALTH EVALUATION MANUAL PART A.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989		C180

TITLE
FINAL COVERS ON HAZARDOUS WASTE LANDFILLS AND SURFACE IMPOUNDMENTS. TECHNICAL GUIDANCE DOCUMENT. DUPLICATE OF C172.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	EPA/530-SW-89-047	C181

TITLE
DRAFT ENGINEERING EVALUATION/COST ANALYSIS GUIDANCE FOR NON-TIME-CRITICAL REMOVAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1988		C182

TITLE
SUPERFUND REMOVAL PROCEDURES: GUIDANCE ON THE CONSIDERATION OF ARARS DURING REMOVAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1991	EPA 540/P-91/011	C183

GUIDANCE DOCUMENTS

TITLE
RAYOX: A SECOND GENERATION ENHANCED OXIDATION PROCESS FOR DESTROYING WATERBORNE TOXIC CONTAMINANTS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/15/1989		C010

TITLE
CERCLA COMPLIANCE WITH OTHER LAWS MANUAL. RCRA ARARS: FOCUS ON CLOSURE REQUIREMENTS. DUPLICATE OF 3017.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1989	OSWER #9234.2-04FS	C011

TITLE
SOIL SAMPLING QUALITY ASSURANCE USER'S GUIDE. SECOND EDITION.

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1989	EPA/600/B-89/046	C091

TITLE
APPLICABILITY OF LDRS TO RCRA AND CERCLA GROUND WATER TREATMENT REINJECTION SUPERFUND MANAGEMENT REVIEW: RECOMMENDATION NO. 26. DUPLICATE OF C119.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/27/1989	OSWER #9234.1-06	C117

TITLE
AMBIENT WATER QUALITY CRITERIA FOR POLYCHLORINATED BIPHENYLS

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1989	EPA 440/5-80-066	C132

TITLE
FINAL GUIDANCE ON OVERSITE OF POTENTIALLY RESPONSIBLE PARTY REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES. VOLUMES 1 & 2.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1991	9835.1(d)	C184

TITLE
EARLY ACTION AND LONG-TERM ACTION UNDER SACM (SUPERFUND ACCELERATED CLEANUP MODEL). INTERIM GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1992	OSWER #9203.1-051	C185

TITLE
GUIDANCE ON CONDUCTING NON-TIME-CRITICAL REMOVAL ACTIONS UNDER CERCLA.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1993	EPA 540-R-93-057	C186

TITLE
SUPERFUND ACCELERATED CLEANUP MODEL (SACM) COORDINATION STRATEGY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/14/1993	OSWER 09203.1-11	C187

TITLE
CONDUCTING NON-TIME-CRITICAL REMOVAL ACTIONS UNDER CERCLA

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1993	OSWER #9360 0-32FS	C188

TITLE
DESIGN. CONSTRUCTION, AND EVALUATION OF CLAY LINERS FOR WASTE MANAGEMENT FACILITIES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1988	EPA/530/SW-86/007F	2201

TITLE
ARARs Q's & A's: STATE GROUND-WATER ANTIDEGRADATION ISSUES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1990	9234.2-11FS	C191

TITLE
CERCLA COMPLIANCE WITH THE RCRA TOXICITY CHARACTERISTICS (TC) RULE: PART II.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1990	9347.3-11FS	C190

TITLE
ARARs Q's & A's: COMPLIANCE WITH FEDERAL WATER QUALITY CRITERIA.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1990	9234.2-09/FS	C192

TITLE
ARARs Q's & A's. COMPLIANCE WITH THE TOXICITY CHARACTERISTICS RULE: PART I.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1990	9234.2-08/FS	C193

TITLE
BASICS OF PUMP-AND-TREAT GROUND-WATER REMEDIATION TECHNOLOGY

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1990	EPA/600/8-90/003	C194

TITLE
FINAL GUIDANCE FOR COORDINATING ATSDR HEALTH ASSESSMENT ACTIVITIES WITH THE SUPERFUND REMEDIAL PROCESS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/11/1987	9285.4-02	C195

TITLE
ALTERNATE CONCENTRATION LIMIT GUIDANCE BASED ON S264.94(b) CRITERIA. PART I. INFORMATION REQUIRED IN ACL DEMONSTRATIONS. DRAFT

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1985		C196

TITLE
FATE OF POLYCHLORINATED BIPHENYLS (PCBs) IN SOIL FOLLOWING STABILIZATION WITH QUICKLIME

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1991	EPA/600/2-91/052	C197

GUIDANCE DOCUMENTS

TITLE
STABILIZATION/SOLIDIFICATION OF CERCLA AND RCRA WASTES. PHYSICAL TESTS, CHEMICAL TESTING PROCEDURES, TECHNOLOGY SCREENING, AND FIELD ACTIVITIES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1989	EPA/625/6-89/022	C198

TITLE
HEALTH CONSULTATION, DENNY FARM INCINERATOR CLOSURE PLAN

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/14/1968		C199

TITLE
GUIDANCE ON KEY TERMS USED IN SUPERFUND.

DOC DATE	OSWER/EPA ID	DOC NUMBER
	9200.5-220	C200

TITLE
INNOVATIVE TREATMENT TECHNOLOGIES. DRAFT.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1991	9380.3-OSFS	C201

TITLE
IMMOBILIZATION AS TREATMENT. DRAFT.

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1991	9380.3-07FS	C202

TITLE
SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION. INTERNATIONAL WASTE TECHNOLOGIES/ GEO-CON IN SITU STABILIZATION/SOLIDIFICATION. APPLICATIONS ANALYSIS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1990	EPA/540/A5-89/004	C203

TITLE
TOXICOLOGICAL PROFILE FOR POLYCYCLIC AROMATIC HYDROCARBONS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1990	ATSPR/TP-90-20	C204

TITLE
SUPERFUND RESPONSIVENESS SUMMARIES. (SUPERFUND MANAGEMENT REVIEW: RECOMMENDATION # 43E)

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/7/1990	9203.0-06	C205

TITLE
SUGGESTED ROD LANGUAGE FOR VARIOUS GROUND WATER REMEDIATION OPTIONS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/10/1990	9283.1-03	C206

TITLE
NATIONAL PRIMARY DRINKING WATER REGULATIONS, SYNTHETIC ORGANIC CHEMICALS; MONITORING FOR UNREGULATED CONTAMINANTS; FINAL RULE. 40 CFR PARTS 141 & 142.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
7/8/1987		C207

TITLE
NATIONAL PRIMARY DRINKING WATER REGULATIONS; VOLATILE SYNTHETIC ORGANIC CHEMICALS; FINAL RULE AND PROPOSED RULE. 40 CFR PARTS 141 & 142.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/13/1965		C208

TITLE
DRINKING WATER REGULATIONS; MAXIMUM CONTAMINANT LEVEL GOALS AND NATIONAL PRIMARY DRINKING WATER REGULATIONS FOR LEAD AND COPPER; PROPOSED RULE.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
8/18/1988		C209

TITLE
NATIONAL PRIMARY AND SECONDARY DRINKING WATER REGULATIONS; SYNTHETIC ORGANIC CHEMICALS AND INORGANIC CHEMICALS PROPOSED RULE. 40 CFR PART 141 et at.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
7/25/1990		C210

TITLE
NATIONAL PRIMARY AND SECONDARY DRINKING WATER REGULATIONS; PROPOSED RULE. 40 CFR PARTS 141, 142 & 143.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
5/22/1969		C211

TITLE
REMEDIAL ACTION AT WASTE DISPOSAL SITES. HANDBOOK

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/1/1982	EPA-625/6-82-006	C212

TITLE
CONSISTENT IMPLEMENTATION OF THE FY 1993 GUIDANCE ON TECHNICAL IMPRACTICABILITY OF GROUND-WATER RESTORATION AT SUPERFUND SITES

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/19/1995	9200.4-14	C213

TITLE
FINAL REVISIONS TO OMB CIRCULAR A-94 ON GUIDELINES AND DISCOUNT RATES FOR BENEFIT-COST ANALYSIS.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/25/1993	9355.3-20	C214

TITLE
DENSE NONAQUEOUS PHASE LIQUIDS. A WORKSHOP SUMMARY. DALLAS, TX APRIL 16-18, 1991.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
2/1/1992	EPA/600/R-92/030	C215

GUIDANCE DOCUMENTS

TITLE
CONSIDERATIONS IN GROUND-WATER REMEDIATION AT SUPERFUND SITES AND RCRA FACILITIES. UPDATE

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/27/1992	9283.1-06	C216

TITLE
AIR/SUPERFUND NATIONAL TECHNICAL GUIDANCE STUDY SERIES. ASSESSING POTENTIAL INDOOR AIR IMPACTS FOR SUPERFUND SITES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1992	EPA-451/R-92-002	C217

TITLE
ESTIMATING POTENTIAL FOR OCCURRENCE OF DNAPL AT SUPERFUND SITES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1992	9355.4-07FS	C218

TITLE
RISK ASSESSMENT GUIDANCE FOR SUPERFUND. VOL 1. HUMAN HEALTH EVALUATION MANUAL SUPPLEMENTAL GUIDANCE. STANDARD DEFAULT EXPOSURE FACTORS. INTERIM FINAL.

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/25/1991	9265.6-03	C219

TITLE
FINAL GUIDELINES FOR EXPOSURE ASSESSMENT. PCS. 22888-22938

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/29/1992		C220

TITLE
REDUCING RISK: SETTING PRIORITIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1990	SAB-EC-90-021	C221

TITLE
SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION. CF SYSTEMS ORGANICS EXTRACTION PROCESS. NEW BEDFORD HARBOR. MA. APPLICATIONS ANALYSIS REPORT.

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1990	EPA/540/A5-90/002	C222

TITLE
PROCEEDINGS OF THE SYMPOSIUM ON SOIL VENTING. APRIL 29 - MAY 1, 1991. HOUSTON, TX.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1992	EPA/600/R-92/174	C223

TITLE
SITE CHARACTERIZATION FOR SUBSURFACE REMEDIATION. SEMINAR PUBLICATION.

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1991	EPA/625/4-91/026	C224

GUIDANCE DOCUMENTS

TITLE
COMPENDIUM OF METHODS FOR THE DETERMINATION OF TOXIC ORGANIC COMPOUNDS IN AMBIENT AIR. INCLUDES SEPT. 1986 SUPPLEMENT EPA/600/4-87/006.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
4/1/1984	EPA-600/4-84-041	C225

TITLE
SUPERFUND AUTOMATED RECORDS OF DECISION SYSTEM (RODS) USERS MANUAL.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
8/1/1988	EPA/540/G-89/005	C226

TITLE
DERMAL EXPOSURE ASSESSMENT: PRINCIPLES AND APPLICATIONS. INTERIM REPORT

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1992	EPA/600/8-91/0116	C227

TITLE
HEALTH EFFECTS ASSESSMENT SUMMARY TABLES (HEAST). FY-1994 ANNUAL.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
3/1/1994	EPA/540/R-94/020	C228

TITLE
PINETTES FEASIBILITY STUDY (FS) SCOPING MEETING HANDOUT.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
8/18/1967		C229

TITLE
PROPOSAL FOR THE CONNECTICUT CLEAN-UP STANDARD REGULATIONS.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/1/1994		C230

TITLE
STREAMLINED APPROACH FOR SETTLEMENTS WITH DE MINIMIS WASTE CONTRIBUTORS UNDER CERCLA SECTION 122 (g)(1)(A)

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
7/30/1993	OSWER #9834.7-10	C231

TITLE
INTERIM CASHOUT SETTLEMENT PROCEDURES.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/7/1992		C232

TITLE
CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/1/1979	FWS/OBS-79/31	C233

TITLE
INTERIM GUIDELINES AND SPECIFICATIONS FOR PREPARING QUALITY ASSURANCE PROJECT PLANS.

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
12/29/1980	QAMS-005/80	C234

GUIDANCE DOCUMENTS

TITLE
RISK ASSESSMENT IN SUPERFUND: A PRIMER. FIRST EDITION. SEPTEMBER 1990.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1991	EPA/540/X-91/002	C235

TITLE
INNOVATIVE TREATMENT TECHNOLOGIES: OVERVIEW AND GUIDE TO INFORMATION SOURCES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1991	EPA/540/9-91/002	C236

TITLE
SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION. TERRA VAC IN SITU VACUUM EXTRACTION SYSTEM. APPLICATIONS ANALYSIS REPORT.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1989	EPA/540/A5-89/D03	C237

TITLE
ASBESTOS-CONTAINING MATERIALS IN SCHOOL BUILDINGS: A GUIDANCE DOCUMENT. PART I

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1979	C00090	C238

TITLE
GUIDANCE ON LANDOWNER LIABILITY UNDER SECTION 107(a)(1) OF CERCLA, DE MINIMIS SETTLEMENTS UNDER SECTION 122(g)(1)(B) OF CERCLA.

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/6/1989	9835.9	C239

TITLE
SUMMARY OF GUIDANCE ON LANDOWNER LIABILITY UNDER SECTION 107(a) 1 OF CERCLA, DE MINIMIS SETTLEMENTS UNDER SECTION 122(g)(1)(b) OF CERCLA. FACT SHEET

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1991	9835.9FS	C240

TITLE
BRODHEAD CREEK, STROUDSBURG, PA. EPA REGION III. RECORD OF DECISION. MAY BE VIEWED AT THE EPA NEW ENGLAND LIBRARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/29/1991		C241

TITLE
FAIRFIELD COAL GASIFICATION, FAIRFIELD, IA. EPA REGION VII. RECORD OF DECISION. MAY BE VIEWED AT EPA NEW ENGLAND LIBRARY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1990		C242

TITLE
LIQUID DISPOSAL, INC., UTICA, MI. EPA REGION V. RECORD OF DECISION. MAY BE VIEWED AT EPA NEW ENGLAND LIBRARY

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/30/1987		C243

GUIDANCE DOCUMENTS

TITLE
PEOPLES NATURAL GAS COAL GASIFICATION, DUBUQUE, IA. EPA REGION VII RECORD OF DECISION. MAY BE VIEWED AT EPA NEW ENGLAND LIBRARY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1991		C244

TITLE
PEPPER STEEL. FLORIDA. EPA REGION IV. ENFORCEMENT DECISION DOCUMENT. MAY BE VIEWED AT EPA NEW ENGLAND LIBRARY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/19/1986		C24S

TITLE
WIDE BEACH. NEW YORK. EPA REGION II. RECORD OF DECISION. MAY BE VIEWED AT EPA NEW ENGLAND LIBRARY.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/30/1965		C246

TITLE
DESIGN AND CONSTRUCTION OF RCRA/CERCLA FINAL COVERS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1991	EPA/625/4-91/025	C247

TITLE
GUIDE FOR CONDUCTING TREATABILITY STUDIES UNDER CERCLA: SOIL VAPOR EXTRACTION. INTERIM GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1991	EPA/540/2-91/019A	C24B

TITLE
INTERIM FINAL GUIDANCE ON PREPARING SUPERFUND DECISION DOCUMENTS: PROPOSED PLAN, RECORD OF DECISION, ESD, RECORD OF DECISION AMENDMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1989	OSWER #9355.3-02	C249

TITLE
FURTHERING THE USE OF INNOVATIVE TREATMENT TECHNOLOGIES IN OSWER PROGRAMS. MISSING PCS. 15 & i

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/10/1991	OSWER #9380.0-17	C250

TITLE
ECOLOGICAL ASSESSMENT OF HAZARDOUS WASTE SITES: A FIELD AND LABORATORY REFERENCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1969	EPA/600/3-69/013	C251

TITLE
TRANSPORT AND FATE OF CONTAMINANTS IN THE SUBSURFACE. SEMINAR PUBLICATION.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1989	EPA/625/4-89/019	C252

GUIDANCE DOCUMENTS

TITLE
RAPID BIOASSESSMENT PROTOCOLS FOR USE IN STREAMS AND RIVERS. BENTHIC MACROINVERTEBRATES AND FISH.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1989	EPA/444/4-89-001	C253

TITLE
GUIDE ON REMEDIAL ACTIONS AT SUPERFUND SITES WITH PCB CONTAMINATION. QUICK REFERENCE FACT SHEET

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1990	OSWER #9355.4-01 FS	C254

TITLE
STRUCTURE AND COMPONENTS OF FIVE YEAR REVIEWS.

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/23/1991	OSWER #9355.7-02	C255

TITLE
COMPLIANCE WITH THE CLEAN AIR ACT AND ASSOCIATED AIR QUALITY REQUIREMENTS. ARARS FACT SHEET.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1992	OSWER 09234.2-22FS	C256

TITLE
CONTAMINANTS AND REMEDIAL OPTIONS AT SELECTED METAL-CONTAMINATED SITES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1995	EPA/540/R-95/512	C257

TITLE
GROUND-WATER TREATMENT TECHNOLOGY RESOURCE GUIDE.

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1994	EPA/542-B-94-009	C258

TITLE
GUIDE TO ADDRESSING PRE-ROD AND POST-ROD CHANGES.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1991	OSWER #9355.02FS-4	C259

TITLE
COMMUNITY RELATIONS IN SUPERFUND: A HANDBOOK

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1986	OSWER #9230.0-3A	C260

TITLE
SUPERFUND REFORMS: UPDATING REMEDY DECISIONS MEMORANDUM

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/27/1996	EPA 540/F-96/026	C261

TITLE
AMBIENT WATER QUALITY CRITERIA FOR ARSENIC - 1984

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1985	EPA 440/5-84-033	C262

GUIDANCE DOCUMENTS

TITLE
SUPERFUND REMOVAL PROCEDURES ACTION MEMORANDUM GUIDANCE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1990 OSWER #9380.3-01 C263

TITLE
USER'S GUIDE TO THE VOCS IN SOILS PRESUMPTIVE REMEDY
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
7/1/1996 OSWER #9355.063FS C264

TITLE
RESIDENTS GUIDE TO TEMPORARY RELOCATION RALPH GRAY TRUCKING COMPANY SUPERFUND SITE, WESTMINSTER, CA. (REVISED)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/1/1995 C265

TITLE
EFFECT OF SUPERFUND ON INVOLUNTARY ACQUISITIONS OF CONTAMINATED PROPERTY BY GOVERNMENT ENTITIES QUICK REFERENCE FACT SHEET
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
12/1/1995 C266

TITLE
ENGINEERING FORUM ISSUE PAPER: SOIL VAPOR EXTRACTION IMPLEMENTATION EXPERIENCES
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
4/1/1996 OSWER #9200.5-223FS C267

TITLE
ECO UPDATE. ECOLOGICAL SIGNIFICANCE AND SELECTION OF CANDIDATE ASSESSMENT ENDPOINTS INTERMITTENT BULLETIN VOLUME 3, NUMBER 1
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1996 OSWER #9345.0-11 FSI C26B

TITLE
ECO UPDATE. ECOTOX THRESHOLDS. INTERMITTENT BULLETIN VOLUME 3. NUMBER 2
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1996 OSWER 89345.0-12FSI C269

TITLE
INITIATIVES TO PROMOTE INNOVATIVE TECHNOLOGY IN WASTE MANAGEMENT PROGRAMS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
4/29/1996 OSWER #9380.0-25 C270

TITLE
FINAL POLICY TOWARD OWNERS OF PROPERTY CONTAINING CONTAMINATED AQUIFERS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
5/24/1995 C271

TITLE
GUIDANCE ON AGREEMENTS WITH PROSPECTIVE PURCHASERS OF CONTAMINATED PROPERTY
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
5/24/1995 C272

GUIDANCE DOCUMENTS

TITLE
GROUNDWATER USE AND VALUE DETERMINATION GUIDANCE. A RESOURCE-BASED APPROACH TO DECISION MAKING. FINAL DRAFT.

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/3/1996		C273

TITLE
INNOVATIVE TREATMENT TECHNOLOGIES: ANNUAL STATUS REPORT (FIFTH EDITION)

DOC DATE	OSIER/EPA ID	DOC NUMBER
9/1/1993	EPA 542-R-93-003	C274

TITLE
GUIDE TO DEVELOPING SUPERFUND NO ACTION. INTERIM ACTION, AND CONTINGENCY REMEDY RODS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1991	OSWER 89355.3-02FS-3	C275

TITLE
ROLE OF THE BASELINE RISK ASSESSMENT IN SUPERFUND REMEDY SELECTION DECISION:

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/22/1991	OSWER 09355.0-30	C276

TITLE
RISK-BASED CONCENTRATION TABLE. THIRD QUARTER 1994

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/11/1994		C277

TITLE
FINAL GROUND WATER USE AND VALUE DETERMINATION GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/4/1996		C278

TITLE
DOCUMENTATION OF CLOSE OUT REQUIREMENTS AT SITES WHERE THERE IS NO ACTION RECORD OF DECISION (DOCUMENT MISSING)

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/2/1993		C279

TITLE
ARAR'S FACT SHEET: COMPLIANCE WITH CLEAN THE CLEAN AIR ACT AND ASSOCIATED AIR QUALITY REQUIREMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1992		C281

TITLE
SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C282

TITLE
DETERMINATION OF IMMINENT AND SUBSTANTIAL ENDANGERMENT FOR REMOVAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/19/1993	OSWER #360.0-34	C2B3

GUIDANCE DOCUMENTS

TITLE
TRANSMITTAL OF SUPERFUND REMOVAL PROCEDURES- REMOVAL ENFORCEMENT GUIDANCE FOR ON-SCENE COORDINATORS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
8/6/1992	OSIER #9360.3-06	C284

TITLE
TRANSMITTAL OF SUPERFUND REMOVAL PROCEDURES- PUBLIC PARTICIPATION GUIDANCE FOR ON-SCENE COORDINATORS COMMUNITY RELATIONS AND THE ADMINISTRATIVE RECORD

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
6/23/1992	OSIER #9360.3-05	C265

TITLE
TOXICOLOGICAL PROFILE FOR POLYCHLORINATED BIPHENYLS (UPDATE)

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/1/1997		C286

TITLE
REGULATION FILING AND PUBLICATION- REGULATION CHAPTER NUMBER AND HEADING 310 CMR 40.000

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
11/19/1993		C287

TITLE
RISK UPDATE ISSUE NO. 2

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
8/1/1994		C288

TITLE
POLYCHLORINATED BIPHENYLS (PCBS): DERMAL ABSORPTION, SYSTEMIC ELIMINATION, AND DERMAL WASH EFFICIENCY

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1963		C289

TITLE
EFFECT OF INTRAUTERINE PCB EXPOSURE ON VISUAL RECOGNITION MEMORY

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1985		C290

TITLE
STUDY OF HUMAN LACTATION FOR EFFECTS OF ENVIRONMENTAL CONTAMINANTS: THE NORTH CAROLINA BREAST MILK AND FORMULA PROJECT AND SOME OTHER IDEAS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1985		C291

TITLE
POTENTIAL REPRODUCTIVE AND POSTNATAL MORBIDITY FROM EXPOSURE TO POLYCHLORINATED BIPHENYLS: EPIDEMIOLOGIC CONSIDERATIONS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1985		C292

TITLE
IN VIVO IN VITRO ABSORPTION AND BINDING TO POWDERED STRATUM CORNEUM AS METHODS TO EVALUATE SKIN ABSORPTION OF ENVIRONMENTAL CHEMICAL CONTAMINANTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1987		C293

TITLE
STATISTICAL METHODS FOR ENVIRONMENTAL POLLUTION MONITORING

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1987		C294

TITLE
SUPERFUND REMOVAL PROCEDURES: ACTION MEMORANDUM GUIDANCE (EPA/540/P-90/004)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1990		C295

TITLE
CONGENITAL POISONING BY POLYCHLORINATED BIPHENYLS AND THEIR CONTAMINANTS IN TAIWAN

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988		C296

TITLE
POTENTIAL FOR BIOLOGICAL EFFECTS OF SEDIMENT-SORBED CONTAMINANTS TESTED IN THE NATIONAL STATUS AND TRENDS PROGRAM

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1991		C510

TITLE
PERCUTANEOUS ABSORPTION AND SKIN DECONTAMINATION OF PCBS: IN VITRO STUDIES WITH HUMAN SKIN AND IN VIVO STUDIES IN THE RHESUS MONKEY

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990		C299

TITLE
EFFECTS OF EXPOSURE OF TO PCBS AND RELATED COMPOUNDS ON GROWTH AND ACTIVITY IN CHILDREN

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990		C300

TITLE
POLYCHLORINATED BIPHENYLS AND THE DEVELOPING NERVOUS SYSTEM: CROSS-SPECIES COMPARISONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990		C301

TITLE
EFFECTS OF IN UTERO EXPOSURE TO POLYCHLORINATED BIPHENYLS AND RELATED CONTAMINANTS ON COGNITIVE FUNCTIONING IN YOUNG CHILDREN

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990		C302

GUIDANCE DOCUMENTS

TITLE
PERCUTANEOUS ABSORPTION OF PCBS FROM SOIL: IN VIVO RHESUS MONKEY. IN VITRO HUMAN SKIN, AND BINDING TO POWDERED HUMAN STRATUM CORNEUM

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1993		C303

TITLE
ESTIMATING CONSUMPTION OF FRESHWATER FISH AMONG MAINE ANGLERS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1993		C308

TITLE
NEUROTOXCITY OF LEAD, METHYLMERCURY, AND PCBS IN RELATION TO THE GREAT LAKES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1995		C309

TITLE
EFFECT OF POSTNATAL EXPOSURE TO A PCB MIXTURE IN MONKEYS ON MULTIPLE FIXED INTERVAL-FIXED RATIO PERFORMANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1997		C310

TITLE
WORKSHOP REPORT ON DEVELOPMENTAL NEUROTOXIC EFFECTS ASSOCIATED WITH EXPOSURE TO PCBS-SEPTEMBER 14-15, 1992

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1993		C312

TITLE
LAND USE IN THE CERCLA REMEDY SELECTION PROCESS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1995	OSIER #9355.704	C317

TITLE
TOXICOLOGICAL CONSEQUENCES OF AROCLOR 1254 INGESTION BY FEMALE RHESUS (MACACA MULATTA) MONKEYS. PART 2 REPRODUCTION AND INFANT FINDINGS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1995		C318

TITLE
WATER QUALITY GUIDANCE FOR THE GREAT LAKES SYSTEM: SUPPLEMENTARY INFORMATION DOCUMENT (SID) (EPA-820-B95-001)

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/1/1995		C324

TITLE
PUBLIC HEALTH IMPLICATIONS OF PCB EXPOSURES

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1996		C329

GUIDANCE DOCUMENTS

TITLE
LESSONS FOR NEUROTOXICOLOGY FROM SELECTED MODEL COMPOUNDS: SGOMSEC JOINT REPORT

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1996		C330

TITLE
PCBS: CANCER DOSE-RESPONSE ASSESSMENT AND APPLICATION TO ENVIRONMENTAL MIXTURES

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1996		C340

TITLE
HEALTH ADVISORIES FOR CONSUMERS OF GREAT LAKES SPORT FISH: IS THE MESSAGE BEING RECEIVED?

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1997		C347

TITLE
DERMAL WORKGROUP RESPONSE TO GE'S CHALLENGE TO THE SOIL DERMAL ABSORPTION VALUE FOR PCBS OF 14%

DOC DATE	OSWER/EPA ID	DOC NUMBER
½7/1998		C350

TITLE
EXPOSURE FACTORS HANDBOOK; GENERAL FACTORS, VOLUME I

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1997	EPA/600/P-95/002FA	C356

TITLE
ECOLOGICAL RISK ASSESSMENT GUIDANCE FOR SUPERFUND PROCESS FOR DESIGNING AND CONDUCTING ECOLOGICAL RISK ASSESSMENTS (EPA 540-R-97-006)

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/2/1997		C361

TITLE
REVIEW OF ECOLOGICAL ASSESSMENT CASE STUDIES FROM A RISK ASSESSMENT PERSPECTIVE

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1993		C363

TITLE
SPECIAL REPORT ON ENVIRONMENTAL ENDOCRINE DISRUPTION. AN EFFECTS ASSESSMENT AND ANALYSIS

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/29/1997		C362

TITLE
FRAMEWORK FOR ECOLOGICAL RISK ASSESSMENT (EPA/630/R-92/001)

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/1/1992		C364

GUIDANCE DOCUMENTS

TITLE
REPORT FROM THE WORKSHOP ON THE APPLICATION OF 2,3.7,8 - TCDD TOXICITY EQUIVALENCY FACTORS TO FISH AND WILDLIFE

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/31/1998		C365

TITLE
DRAFT FINAL GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/18/1997		C366

TITLE
REVIEW OF ECOLOGICAL ASSESSMENT CASE STUDIES FROM A RISK ASSESSMENT PERSPECTIVE - VOLUME II (EPA/630/R-94/003)

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1994		C367

TITLE
TOXICOLOGICAL BENCHMARKS FOR WILDLIFE: 1996 REVISION

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1996		C36B

TITLE
ECOLOGICAL RISK ASSESSMENT ISSUE PAPERS (EPA/630/R-94/009)

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1994		C369

TITLE
ENFORCEMENT UNDER SACM - INTERIM GUIDANCE (VOL. 1, NO. 3)

DOC DATE	OSWER/EPA ID	DOC NUMBER
½0/1992	OSIER #9203.1 -051	C370

TITLE
SACM REGIONAL DECISION TEAMS - INTERIM GUIDANCE (VOLUME I, NO. 5)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1992	OSIER #9203.1-051	C371

TITLE
SAB REPORT: REVIEW OF SEDIMENT CRITERIA DEVELOPMENT METHODOLOGY FOR NON-IONIC ORGANIC CONTAMINANTS (EPA-SAB-EPEC-92-002)

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1992		C372

TITLE
TOXICOLOGICAL BENCHMARKS FOR SCREENING POTENTIAL CONTAMINANTS OF CONCERN FOR EFFECTS ON AQUATIC BIOTA: 1994 REVISION

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1994		C376

GUIDANCE DOCUMENTS

TITLE
EVALUATION OF BIOMARKERS IN BROWN BULLHEAD
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
3/22/1996 C377

TITLE
UPTAKE OF PLANAR POLYCHLORINATED BIPHENYLS AND 2,3,7,8 - SUBSTITUTED POLYCHLORINATED DIBENZOFURANS BY BIRDS NESTING IN THE LOWER FOX RIVER
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1993 C378

TITLE
CURRENT STATUS OF PCB TOXICITY TO MINK, AND EFFECT ON THEIR REPRODUCTION
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1977 C379

TITLE
POLYCHLORINATED BIPHENYLS (AROCLORS 1016 AND 1242): EFFECTS ON SURVIVAL AND REPRODUCTION IN MINK AND FERRET
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1980 C380

TITLE
MONO-ORTHO-CHLORINATED CHLORBIPHENYLS: TOXICITY AND INDUCTION OF 7-ETHOYRESPRUFIN 0-DEETHYLASE (EROD) ACTIVITY IN CHICK EMBRYOS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1990 C381

TITLE
EPA'S CONTAMINATED SEDIMENT MANAGEMENT STRATEGY
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
11/1/1997 C382

TITLE
ESTIMATING EXPOSURE OF TERRESTIAL WILDLIFE TO CONTAMINANTS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1994 C383

TITLE
POLYCHLORINATED BIPHENYL HAZARDS TO FISH, INVERTEBRATES: A SYNOPTIC REVIEW
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
4/1/1986 C386

TITLE
EFFECT OF PCB INGESTION ON SLEEPING TIMES, ORGAN WEIGHTS. FOOD CONSUMPTION, SERUM CORTICOSTERONE, AND SURVIVAL OF ALBINO MICE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1974 C388

GUIDANCE DOCUMENTS

TITLE
BIOACCUMULATION OF TOXICANTS. ELEMENT AND NUTRIENT COMPOSITION, AND SOFT TISSUE HISTOLOGY OF ZEBRA MUSSELS (DREISSENA POLYMORPHA) FROM NEW YORK STATE

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1993		C389

TITLE
GUIDELINES FOR THE PROTECTION AND MANAGEMENT OF AQUATIC SEDIMENT QUALITY IN ONTARIO

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1996		C390

TITLE
ASSESSMENT OF THE REPRODUCTIVE TOXIC POTENTIAL AROCLOR 1254 IN FEMALE SPRAGUE-DAWLEY RATS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1982		C391

TITLE
MICROBIAL DEGRADATION OF POLYCHLORINATED BIPHENYLS IN AQUATIC ENVIRONMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1992		C392

TITLE
WATER-RELATED ENVIRONMENTAL FATE OF 129 PRIORITY POLLUTANTS (VOLUME I) (EPA-440/4-79-029A)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1979		C393

TITLE
ENVIRONMENTAL CONTAMINANTS AND REPRODUCTIVE SUCCESS OF GREAT BLUE LAKE HERONS ARDEA HERODIAS IN BRITISH COLUMBIA, 1986-87

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989		C394

TITLE
TECHNICAL BASIS FOR ESTABLISHING SEDIMENT QUALITY CRITERIA FOR NONIONIC ORGANIC CHEMICALS USING EQUILIBRIUM PARTITIONING

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1991		C395

TITLE
SUPERFUND REMOVAL PROCEDURES SPECIAL CIRCUMSTANCES AND FACT SHEET

DOC DATE	OSWER/EPA ID	DOC NUMBER
½2/1998	OSIER #9360.3-09FS C280	

TITLE
GUIDANCE ON THE CONSIDERATION OF ARARS DURING REMOVAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/23/1991	OSIER #9360.3-02	C297

GUIDANCE DOCUMENTS

TITLE
FRAMEWORK FOR ECOLOGICAL RISK ASSESSMENT AT THE EPA
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1992 C396

TITLE
ONTARIO ECOSYSTEM
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1988 C397

TITLE
GUIDELINES FOR DERIVING SITE-SPECIFIC SEDIMENT QUALITY CRITERIA FOR THE PROTECTION OF BENTHIC ORGANISMS (EPA-822-R-93-017)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1993 C398

TITLE
TECHNICAL BASIS FOR DERIVING SEDIMENT QUALITY CRITERIA FOR NONIONIC ORGANIC CONTAMINANTS FOR THE PROTECTION OF BENTHIC ORGANISMS BY (EPA-822-R-93-011)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
9/1/1993 C399

TITLE
GREAT LAKES WATER QUALITY INITIATIVE CRITERIA DOCUMENTS FOR THE PROTECTION OF WILDLIFE (PROPOSED) DDT MERCURY 2,3.7.8 - TCDD PCBS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
4/1/1983 C400

TITLE
AROCLOR 1254 RESIDUES IN BIRDS' LETHAL LEVELS AND LOSS RATES
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1984 C401

TITLE
CHARACTERIZATION OF COMMERCIAL AROCLORS BY AUTOMATED MASS SPECTROMETRIC DETERMINATION OF POLYCHLORINATED BIPHENYLS BY LEVEL OF CHLORINATION
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1986 C402

TITLE
MICROCONTAMINANTS AND REPRODUCTIVE IMPAIRMENT OF THE FORSTER'S TERN ON GREEN BAY. MICHIGAN - 198
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1989 C403

TITLE
MORPHOLOGICAL CHANGES IN LIVERS OF RATS FED POLYCHLORINATED BIPHENYLS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
11/1/1972 C404

GUIDANCE DOCUMENTS

TITLE
LETHAL DIETARY TOXICITIES OF ENVIRONMENTAL CONTAMINANTS AND PESTICIDES TO COTURNIX-FISH AND WILDLIFE TECHNICAL REPORT 2

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1986		C405

TITLE
ENDPOINTS FOR RESPONSES OF FISH TO CHRONIC TOXIC EXPOSURES - (HAZARD ASSESSMENT)

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1987		C406

TITLE
DIETARY ACCUMULATION OF PCBS FROM A CONTAMINATED SEDIMENT SOURCE BY A DERMERSAL FISH (LEIOSTOMUS XANTHURUS)

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1984		C407

TITLE
SUBLETHAL RESPONSES OF PLATICHTHYS STELLATUS TO ORGANIC CONTAMINATION IN SAN FRANCISCO BAY WITH EMPHASIS ON REPRODUCTION

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1990		C408

TITLE
HEPATIC MICROSOMAL MONOOXYGENASES OF SEA BIRDS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1984		C409

TITLE
PCBS: STRUCTURE-FUNCTION RELATIONSHIPS AND MECHANISM OF ACTION

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1985		C410

TITLE
PERINATAL PCB EXPOSURE AND ITS EFFECT ON THE IMMUNE SYSTEM OF YOUNG RABBITS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1980		C411

TITLE
DIETARY EFFECTS OF POLYCHLORINATED BIPHENYLS ON MINK

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1973		C412

TITLE
DETERMINATION OF CRITICAL POLLUTANT LEVELS IN WILD POPULATIONS, WITH EXAMPLES FROM ORGANOCHLORINE INSECTICIDES IN BIRDS OF PREY

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988		C413

GUIDANCE DOCUMENTS

TITLE
EFFECT OF POLYCHLORINATED BIPHENYLS ON RAT REPRODUCTION

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1974		C415

TITLE
ROLE OF STAG'S IN ECOLOGICAL ASSESSMENT - ECO UPDATE - VOL. 1, NO. 1

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/1/1991	OSIER #9345.0-051	C416

TITLE
EFFECT OF POLYCHLORINATED BIPHENYLS (AROCLOR 1260) ON HISTOLOGY OF ADRENAL OF RATS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1993		C417

TITLE
INCIDENCE OF ADVERSE BIOLOGICAL EFFECTS WITHIN RANGES OF CHEMICAL CONCENTRATIONS IN MARINE AND ESTUARINE SEDIMENTS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1995		C418

TITLE
BIOACCUMULATION OF POLYCHLORINATED ORGANIC CONTAMINANTS FROM SEDIMENT BY THREE MENTHIC MARINE SPECIES

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1993		C420

TITLE
BIOACCUMULATION PATTERNS OF HYDROCARBONS AND POLYCHLORINATED BIPHENYLS IN BIVALVES, CRUSTACEANS AND FISHES

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1993		C420

TITLE
ENDOCRINE BIOMARKERS, ORGANOCHLORINE AND CONGENER SPECIFIC POLYCHLORINATED BIPHENYLS (PCBS) IN LARGEMOUTH BAS (MICROPTERUS SALMOIDES) FROM WOODS POND

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
9/1/1994		C424

TITLE
BIOLOGICAL AND TOXICOLOGICAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS IN FISH AND THEIR EGGS

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1983		C428

TITLE
POSSIBLE EFFECTS OF POLYCHLORINATED BIPHENYLS ON SEX DETERMINATION IN RAINBOW TROUT

DOC DATE	**OSWER/EPA ID**	**DOC NUMBER**
1/1/1998		C429

GUIDANCE DOCUMENTS

TITLE
PATTERNS OF PCB ACCUMULATION BY FRY OF LAKE TROUT
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1981 C430

TITLE
EFFECTS OF POSTNATAL EXPOSURE TO A PCB MIXTURE IN MONKEYS ON NONSPATIAL REVERSAL AND DELAYED ALTERNATION PERFORMANCE
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1997 C434

TITLE
PCB LITERATURE SEARCH (VARIOUS ARTICLES)
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1997 C433

TITLE
ORGANOCHLORINE AND HEAVY METAL RESIDUES IN STANDARD FILLETS OF COHO AND CHINOOK SALMON OF THE GREAT LAKES- 1980
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1982 C435

TITLE
FOOD OF VERTEBRATE PREDATORS ON TROUT WATERS IN NORTH CENTRAL LOWER MICHIGAN
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1977 C436

TITLE
PATTERNS OF ACCUMULATION BY FRY OF LAKE TROUT
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1981 C437

TITLE
BIOLOGICAL AND TOXICOLOGICAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS IN FISH AND THEIR EGGS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1963 C438

TITLE
STUDY OF THE HEPATIC MONOOXYGENASE OF SEA BIRDS AND ITS RELATIONSHIP TO ORGANCHLORINE POLLUTANTS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1982 C439

TITLE
PCBS AS AHH INDUCERS
DOC DATE **OSWER/EPA ID** **DOC NUMBER**
1/1/1982 C440

GUIDANCE DOCUMENTS

TITLE
2,3,7,8 TETRACHLORODIBENZO-P-DIOXIN AND RELATED HALOGENATED AROMATIC HYDROCARBONS: EXAMINATION OF THE MECHANISM OF TOXICITY

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1982		C441

TITLE
INFLUENCE OF SYMMETRICAL POLYCHLORINATED BIPHENYL ISOMERS ON EMBRYO AND FETAL DEVELOPMENT IN MICE

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989		C442

TITLE
POLYCHLORINATED BIPHENYLS (PCBS). ENVIRONMENTAL IMPACT, BIOCHEMICAL AND TOXIC RESPONSES, AND IMPLICATIONS FOR RISK ASSESSMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1994		C443

TITLE
BELTED KINGFISHERS AS ECOLOGICAL MONITORS OF CONTAMINATION: A REVIEW

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1993		C444

TITLE
FIELD METABOLIC RATE AND FOOD REQUIREMENT SCALING IN MAMMALS AND BIRDS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1987		C445

TITLE
GUIDELINES FOR DERIVING NUMERICAL NATIONAL WATER QUALITY FOR THE PROTECTION OF AQUATIC ORGANISMS AND THEIR USES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1985		C447

TITLE
POLYCHLORINATED BIPHENYLS (PCBS) AND POLYBROMINATED BIPHENYLS (PBBS): BIOCHEMISTRY, TOXICOLOGY, AND MECHANISM IN ACTION

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1985		C446

TITLE
ENVIRONMENT AND DISEASE: ASSOCIATION OR CAUSATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1965		C448

TITLE
SUMMARY OF EPA SEDIMENT POLICY GOALS

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/9/1997		C449

GUIDANCE DOCUMENTS

TITLE
INITIATION OF FINAL AGENCY REVIEW FOR CONTAMINATED SEDIMENT MANAGEMENT STRATEGY

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/26/1997		C450

TITLE
TRANSFER OF THE CHLORINATED HYDROCARBON PCB IN A LABORATORY MARINE FOOD CHAIN

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1977		C456

TITLE
RESIDUE LEVELS OF ORGANOCHLORINE AND MERCURY COMPOUNDS IN UNHATCHED EGGS AND THE RELATIONSHIPS TO BREEDING SUCCESS IN WHITE-TAILED SEA EAGLES

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1982		C457

TITLE
DEVELOPMENT OF A RAPID. SENSITIVE, AND QUANTITATIVE TEST FOR THE ASSESSMENT OF THE EFFECTS OF XENOBIOTICS ON REPRODUCTION IN FISH

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1984		C458

TITLE
REPRODUCTION DECLINE OF HARBOUR SEALS: PCBS IN THE FOOD AND THEIR EFFECT ON MINK

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1983		C459

TITLE
HEPATIC MONOOXYGENASE INDUCTION AND PROMUTAGEN ACTIVATION IN CHANNEL CATFISH FROM A CONTAMINATED RIVER BASIN

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1988		C460

TITLE
MODELING THE LONG-TERM BEHAVIOR OF AN ORGANIC CONTAMINANT IN A LARGE LAKE: APPLICATION TO PCBS IN LAKE ONTARIO

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1989		C461

TITLE
EPA'S CONTAMINATED SEDIMENT MANAGEMENT STRATEGY

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1998		C462

TITLE
POSSIBLE EFFECTS OF POLYCHLORINATED BIPHENYLS ON SEX DETERMINATION IN RAINBOW TROUT

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1998		C463

GUIDANCE DOCUMENTS

TITLE
ENVIRONMENTAL TRANSPORT AND TRANSFORMATION OF POLYCHLORINATED BIPHENYLS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1983		C464

TITLE
POLYCHLORINATED BIPHENYLS: THEIR EFFECTS ON PENNED PHEASANTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/1/1972		C465

TITLE
CANADIAN WATER QUALITY GUIDELINES FOR POLYCHLORINATED BIPHENYLS IN COASTAL AND ESTUARINE WATERS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1991		C466

TITLE
IRIS SUBSTANCE FILE: POLYCHLORINATED BIPHENYLS (PCBS)

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1997		C467

TITLE
HEALTH EFFECTS ASSESSMENT SUMMARY TABLES - FY 1997 UPDATE (EPA -540-R-97-036)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1997		C468

TITLE
DERMAL EXPOSURE ASSESSMENT PRINCIPLES AND APPLICATIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1992		C469

TITLE
DOCUMENTATION FOR THE RISK ASSESSMENT SHORTFORM RESIDENTIAL SCENARIO(POLICY 8WCS/ORS-142-92)

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1992		C470

TITLE
DRAFT INTERIM FINAL OSIER MONITORED NATURAL ATTENUATION POLICY

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1997	OSIER #9200.4-17	C474

TITLE
EXECUTIVE ORDER 119B8 - FLOODPLAIN MANAGEMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/24/1977		C471

TITLE
EXECUTIVE ORDER 11990 - PROTECTION OF WETLANDS

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/24/1977		C472

GUIDANCE DOCUMENTS

TITLE
RULES OF THUMB FOR SUPERFUND REMEDY SELECTION (EPA 540-R-97-013)

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1997	OSIER #9355.0-69	C473

TITLE
USE OF MONITORED NATURAL ATTENUATION AT SUPERFUND, RCRA CORRECTIVE ACTION. AND UNDERGROUND STORAGE TANK SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1997	OSIER #9200.4-17	C475

TITLE
TRANSMITTAL OF OSIER DIRECTIVE ON COMPREHENSIVE STATE GROUND WATER PROTECTION PROGRAMS (CSGWPPS)

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/14/1997	OSIER #9283.1-09	C476

TITLE
LETTER AND ATTACHED MEMORANDUM OF AGREEMENT BETWEEN U.S. EPA AND MASS DEP FOR IMPLEMENTATION OF GROUND WATER USE AND VALUE DETERMINATION GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/23/1998		C477

TITLE
INNOVATIVE SITE REMEDIATION TECHNOLOGY: CHEMICAL TREATMENT, VOL. 2

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1994	EPA 542-B-94-004	C478

TITLE
INNOVATIVE SITE REMEDIATION TECHNOLOGY, SOIL WASHING/SOIL FLUSHING, VOL. 3

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1993	542-B-93-012	C479

TITLE
INNOVATIVE REMEDIATION TECHNOLOGY: SOLIDIFICATION/STABILIZATION VOLUME 4

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1994	542-B-94-001	C480

TITLE
INNOVATIVE SITE REMEDIATION TECHNOLOGY-SOLVENT CHEMICAL EXTRACTION VOLUME 5

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1995	542-B-94-005	C481

TITLE
INNOVATIVE SITE REMEDIATION TECHNOLOGY: THERMAL DESORPTION, VOL 6

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1993	542-B-93-011	C482

TITLE
INNOVATIVE SITE REMEDIATION TECHNOLOGY: THERMAL DESTRUCTION, VOL 7

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/1/1994	542-B-94-003	C483

GUIDANCE DOCUMENTS

TITLE
ENGINEERING BULLETIN. SOLIDIFICATION/STABILIZATION OF ORGANICS AND INORGANICS

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/1993	EPA/540/S-92/015	C484

TITLE
CITIZEN'S GUIDE TO PHYTOREMEDIATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1998	EPA 542-F-98-011	C485

TITLE
MANAGEMENT OF REMEDIATION WASTE UNDER RCRA

DOC DATE	OSWER/EPA ID	DOC NUMBER
10/14/1998	EPA530-F-98-026	C486

TITLE
USE OF THE AREA OF CONTAMINATION (AOC) CONCEPT DURING RCRA CLEANUPS

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/13/1996		C4B7

TITLE
COMMUNITY RELATIONS IN SUPERFUND: A HANDBOOK

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1992	EPA/50/R-92/009	C488

TITLE
TOXICOLOGICAL PROFILE FOR CHLOROBENZENE

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1990	TP-90-06	C489

TITLE
TOXICOLOGICAL PROFILE FOR 1,4-DICHLOROBENZENE (UPDATE)

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1998		C490

TITLE
PRESUMPTIVE REMEDIES: SITE CHARACTERIZATION AND TECHNOLOGY SELECTION FOR CERCLA SITES WITH VOLATILE ORGANIC COMPOUNDS IN SOILS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1993	9355.0-48FS	C491

TITLE
GASTROINTESTINAL ABSORPTION OF SELECTED CHEMICALS: REVIEW OF EVIDENCE FOR DERIVING RELATIVE ABSORPTION FACTORS

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1993	CONTRACT 68-WO-0032	C492

TITLE
INVESTIGATION OF DERMAL CONTACT WITH SOIL IN CONTROLLED TRIALS

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1998		C493

GUIDANCE DOCUMENTS

TITLE
SOIL REMEDIATION GOALS FOR SPRAGUE ELECTRIC BROWN SITE, NORTH ADAMS, MI

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/3/1992		C494

TITLE
ALTERNATIVE CAP DESIGN GUIDANCE PROPOSED FOR UNLINED, HAZARDOUS WASTE LANDFILLS IN EPA REGION I

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/30/1997		C495

TITLE
FEDERAL REGISTER. PART II. 40 CFR PART 300 NATIONAL OIL AND HAZARDOUS SUBSTANCES CONTINGENCY PLAN, FINAL RULE. VOL. 55, NO. 46

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/8/1990		C496

TITLE
DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBS); FINAL RULE, FEDERAL REGISTER. VOL. 63, NO. 124

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/29/1998		C497

TITLE
TOXICOLOGICAL PROFILE FOR CHLORINATED DIBENZO-P-DIOXINS, DRAFT FOR PUBLIC COMMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1997		C498

TITLE
TOXICOLOGICAL PROFILE FOR LEAD, DRAFT FOR PUBLIC COMMENT

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1997		C499

TITLE
MASSACHUSETTS CONTINGENCY PLAN; CODE OF MASSACHUSETTS REGULATIONS, 310 CMR 40.000

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/29/1998		C500

TITLE
EXPOSURE FACTORS HANDBOOK; FOOD INGESTION FACTORS. VOLUME II

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1997	EPA/600/P-95/002FB	C501

TITLE
EXPOSURE FACTORS HANDBOOK; ACTIVITY FACTORS, VOLUME III

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/1997	EPA/600/P-95/002FC	C502

GUIDANCE DOCUMENTS

TITLE
NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN; CODE OF FEDERAL REGULATIONS (TITLE 40, PART 300)

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1998		C503

TITLE
APPROACH FOR ADDRESSING DIOXIN IN SOIL AT CERCLA AND RCRA SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/13/1998	OSIER 9200.4-26	C504

TITLE
REUSE AND DISPOSAL OF CONTAMINATED SOIL AT MASS. LANDFILLS, DEPARTMENT OF ENVIRONMENTAL PROTECTION POLICY #COMM-97-001 (SUPERSEDES POLICY #BWP-94-037)

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C506

TITLE
USERS GUIDE FOR THE JOHN AND ETTINGER (1991) MODEL FOR SUBSURFACE VAPOR INTRUSION INTO BUILDINGS, CONTRACT NO, 68-D30035. WORK ASSIGNMENT NO. 111-106

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1997		C508

TITLE
SEDIMENTS. ENVIRONMENTAL MANAGEMENT. V. 19,1

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1995		C509

TITLE
FINAL OSIER DIRECTIVE “USE OF MONITORED NATURAL ATTENUATION AT SUPERFUND, RCRA CORRECTIVE ACTION, AND UNDERGROUND STORAGE TANK SITES"

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/21/1999	OSIER #9200.4-17P	C512

TITLE
INTERIM POLICY ON THE USE OF PERMANENT RELOCATIONS AS PART OF SUPERFUND REMEDIAL ACTIONS

DOC DATE	OSWER/EPA ID	DOC NUMBER
	OSIER 9355.0-71 P	C505

TITLE
TOXICOLOGICAL BENCHMARKS FOR SCREENING POTENTIAL CONTAMINANTS OF CONCERN FOR EFFECTS ON AQUATIC BIOTA: 1996 REVISION, ES/ER/TMN-96/R2

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/1996		C513

TITLE
CONDUCTING NON-TIME-CRITICAL REMOVAL ACTIONS UNDER CERCLA. (EPA/540-R-93-057)

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/6/1993	OSIER #9360.0-32	C514

GUIDANCE DOCUMENTS

TITLE
USE OF MONITORED NATURAL ATTENUATION AT SUPERFUND, RCRA CORRECTIVE ACTION, AND UNDERGROUND STORAGE TANK SITES

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/21/1999	OSIER #9200.4-17P	C515

TITLE
GROUND WATER ISSUE: MICROBIAL PROCESSES AFFECTING MONITORED NATURAL ATTENUATION OF CONTAMINANTS IN THE SUBSURFACE

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1999	EPA/540/S-99/001	C516

TITLE
ANALYSIS OF GROUND-WATER REMEDIAL ALTERNATIVES AT A SUPERFUND SITE, GROUNDWATER, VOL. 29. NO 6

DOC DATE	OSWER/EPA ID	DOC NUMBER
11/1/1991		C517

TITLE
USE OF NON-TIME-CRITICAL REMOVAL AUTHORITY IN SUPERFUND RESPONSE ACTIONS, (REGIONS I-X)

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/14/2000		C518

TITLE
NATIONAL PRIMARY DRINKING WATER REGULATIONS: ARSENIC AND CLARIFICATIONS TO COMPLIANCE AND NEW SOURCE CONTAMINANTS MONITORING. (CFR, VOL. 65. NO. 121)

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/22/2000		C519

TITLE
PROPOSED REVISION TO ARSENIC DRINKING WATER STANDARD (815-F-00-012)

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/1/2000		C520

TITLE
IMPLEMENTING FY2000 APPROPRIATIONS REPORT LANGUAGE ON SEDIMENT DREDGING

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/19/2000		C521

TITLE
GUIDANCE ON EXERCISING CERCLA ENFORCEMENT DISCRETION IN ANTICIPATION OF FULL COST ACCOUNTING CONSISTENT WITH THE STATEMENT OF FEDERAL FINANCIAL ACCOUNTING STANDARDS NO. 4

DOC DATE	OSWER/EPA ID	DOC NUMBER
5/26/2000		C522

TITLE
SUPERFUND INDIRECT COST RATES FOR FISCAL YEARS (FY) 1990-2001

DOC DATE	OSWER/EPA ID	DOC NUMBER
		C523

GUIDANCE DOCUMENTS

TITLE
REVISED ALTERNATIVE CAP DESIGN GUIDANCE PROPOSED FOR UNLINED HAZARDOUS WASTE LANDFILLS IN THE EPA REGION I

DOC DATE	OSWER/EPA ID	DOC NUMBER
2/5/2001		C524

TITLE
GUIDE TO PREPARING SUPERFUND PROPOSED PLANS RECORDS OF DECISION AND OTHER REMEDY SELECTION DECISION DOCUMENT:

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/1/1999	OSIER #9200.1-23P	C525

TITLE
ABANDONED MINE SITE CHARACTERIA2TION & CLEANUP HANDBOOK (available on cd-rom)

DOC DATE	OSWER/EPA ID	DOC NUMBER
8/1/2000	EPA 910-B-00-001	C526

TITLE
INTRODUCTION TO HARD ROCK MINING A CD-ROM APPLICATION (available on cd-rom)

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1997	EPA 530-C-97-005	C527

TITLE
MINING WASTE SCIENTIST TO SCIENTIST MEETING (available on cd-rom)

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/15/2000		C528

TITLE
FISCAL YEAR 2001 APPROPRIATIONS CONFERENCE REPORT LANGUAGE ON CONTAMINATED SEDIMENTS

DOC DATE	OSWER/EPA ID	DOC NUMBER
3/22/2001	OSIER #9200.0-36	C529

TITLE
RISK ASSESSMENT GUIDANCE FOR SUPERFUND, VOLUME 1, HUMAN HEALTH EVALUATION MANUAL, INTERIM

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1998		C530

TITLE
INSTITUTIONAL CONTROL A SITE MANAGER'S GUIDE TO IDENTIFYING, EVALUATING AND SELECTING INSTITUTIONAL CONTROLS AT SUPERFUND AND RCRA CORRECTIVE ACTION CLEANUPS

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/2000		C531

TITLE
GUIDANCE FOR EVALUATING THE TECHNICAL IMPRACTICABILITY OF GROUND-WATER RESTORATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1993	540-R-93-080	C532

GUIDANCE DOCUMENTS

TITLE
RECOMMENDATIONS OF THE TECHNICAL REVIEW WORK GROUP FOR LEAD FOR AN INTERIM APPROACH

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1996		C511

TITLE
FIELD APPLICATIONS OF IN SITU REMEDIATION TECHNOLOGIES CHEMICAL OXIDATION

DOC DATE	OSWER/EPA ID	DOC NUMBER
9/1/1998	EPA 542-R-9B-008	C533

TITLE
Dioxin and Dioxin-Like Compounds in Soil. Part 1 ATSDR Interim Policy Guideline

DOC DATE	OSWER/EPA ID	DOC NUMBER
1/1/1997		C534

TITLE
TOXIC EQUIVALENCY FACTORS (TEFs) FOR PCBs, PCDDs, PSDFs FOR HUMANS AND WILDLIFE

DOC DATE	OSWER/EPA ID	DOC NUMBER
12/1/1998		C535

TITLE
WITHDRAWAL OF CYANIDE AND SULFIDE REACTIVITY GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
4/21/1992		C536

TITLE
ELEMENTS FOR EFFECTIVE MANAGEMENT OF OPERATING PUMP AND TREAT SYSTEMS

DOC DATE	OSWER/EPA ID	DOC NUMBER
	OSIER 9355.4-27FS-A	C537

TITLE
TRANSFER OF LONG-TERM RESPONSE ACTION (LTRA) PROJECTS TO STATES

DOC DATE	OSWER/EPA ID	DOC NUMBER
7/2/2003	OSIER 9355.0-81 FS-A	C536

TITLE
COMPREHENSIVE FIVE-YEAR REVIEW GUIDANCE

DOC DATE	OSWER/EPA ID	DOC NUMBER
6/1/2003	OSIER 9355.7-03B-P	C539

Appendix D: List of Acronyms and Abbreviations

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym/ Abbreviation	**Definition**
ALI	Attleboro Landfill, Inc.
AGO	Administrative Consent Order
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
BERA	Baseline Environmental Risk Assessment
BTEX	Benzene, toluene, ethylbenzene and xylene
CAA	Clean Air Act
CAST	Citizens Advisory Shpack Team
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	CERCLA Information System Database
CFR	Code of Federal Regulations
cis-l, 2-DCE	cis-1,2-Dichloroethene
COC	Contaminant of Concern
COPC	Contaminants of Potential Concern
CWA	Clean Water Act
DCE	1,2-Dichloroethene
DDT	dichloro-diphenyl-trichloroethane
DEQE	Department of Environmental Quality Engineering (now the MADEP)
DNAPL	Dense Non-Aqueous Phase Liquid
DOE	United States Department of Energy
EO	Executive Order
ERA	Environmental Risk Assessment
ERM	Environmental Resources Management, Inc.
ESD	Explanation of Significant Difference
EPA	United States Environmental Protection Agency
EPC	Exposure Point Concentration
FS	Feasibility Study
FUSRAP	Formerly Utilized Sites Remedial Action Program
gpm	gallons per minute
HQ	Hazard Quotient
HRS	Hazard Ranking System
IEUBK	Integrated Exposure and Uptake Biokinetic model
ISC	Initial Site Characterization
LDR	RCRA Land Disposal Restrictions
LNAPL	Light Non-Aqueous Phase Liquid
LOAEL	Lowest Observed Adverse Effects Level
LOED	Lowest Observed Effects Dose
LTM	Long Term Monitoring
MADEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCP	Massachusetts Contingency Plan
M&E	Metcalf & Eddy, Inc.
MNA	Monitored Natural Attenuation
MTBE	methyl-ter butyl ether
NAPL	Non-Aqueous Phase Liquid
NCP	National Contingency Plan
ND	Not Detected

Acronym/ Abbreviation	Definition
NHESP	Natural Heritage and Endangered Species Act
NOAEL	No Observed Adverse Effects Level
NOED	No Observed Effects Dose
NPL	National Priorities List
NRC	United States Nuclear Regulatory Commission
O&M	Operation and Maintenance
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
OSIER	EPA Office of Solid Waste and Emergency Response
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
ppb	parts per billion
ppm	parts per million
PRO	Preliminary Remediation Goal
PRP	Potentially Responsible Party
psi	Pounds per square inch
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RfD	Reference Dose
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Maximum Exposure
ROD	Record of Decision
RPM	Remedial Project Manager
SDWA	Safe Drinking Water Act
SC	Source Control
SE	southeast
SLERA	Screening Level Environmental Risk Assessment
SSC	Shpack Steering Committee
SVOC	Semi-Volatile Organic Compound
TBCs	To Be Considered
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
1,1,1-TCA	1,1,1-Trichloroethane
TEL	Threshold Effects Level
TEQ	Toxicity Equivalent
trans-1,2-DCE	trans-1,2-Dichloroethene
TRY	Toxicity Reference Value
TSCA	Toxic Substances Control Act
UCL	Upper Confidence Limit
USACE	United States Army Corps of Engineers
VOC	Volatile Organic Compound
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VLDPE	Very Low Density Polyethylene