U. S. ENVIRONMENTAL PROTECTION AGENCY
EPA NEW ENGLAND - REGION 1

RECORD OF DECISION
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

SEPTEMBER 2013

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DECLARATION FOR THE RECORD OF DECISION

A. SITE NAME AND LOCATION

Scovill Industrial Landfill
Waterbury, Connecticut
CT0002265551

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Scovill Industrial Landfill (the Site), in Waterbury, Connecticut, 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 (ROD).

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 Silas Bronson Library, 267 Grand Street, Waterbury, and at the United States Environmental Protection Agency (EPA) Region 1 OSRR Records Center in Boston, Massachusetts. The Administrative Record Index (Appendix A to the ROD) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

The State of Connecticut concurs with the Selected Remedy.

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

This ROD sets forth the selected remedy for the Site, which includes several soil and vapor intrusion remedial alternatives for the various risk areas defined at the Site. For consideration of soil exposures, the Site was divided into 10 risk areas (Areas D1, D3, E1, E2, E3, F, G, H, I, and J) based on current land use and potential exposures. The risk areas are shown in Figure 1 (Appendix B). The selected alternatives for the 10 risk areas form a comprehensive approach for this Site that addresses all current and potential future risks caused

by soil contamination and potential vapor intrusion issues from contaminated groundwater. These alternatives are briefly described in the paragraphs below.

Soil Remedy

Areas D3, E2, E3, G, and H – In Areas D3, E2, G, and H, the human health risks are within the EPA acceptable cancer risk range[1]. Human health risks for these risk areas are below 1 in 10,000 (1.0E-04), which is the threshold for remedial action for the Site. In Area E3, risk is equal to or greater than 1.0E-04, but no cleanup level (CUL) exceedances were observed that are considered to be accessible (shallower than 4 feet below the ground surface). Alternative SO2 has been selected for these risk areas and will consist of: institutional controls to prevent potential exposures and excavations in contaminated soil; prevent residential uses in areas that are not currently used as residential; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review Site conditions and the protectiveness of remedy.

Areas D1, E1, and F – Human health risks for these risk areas are unacceptable, or have soil contaminants levels that exceed the CUL. Alternative SO3 has been selected for these risk areas and will consist of: targeted excavations with off-site disposal to prevent exposure to contaminated soil in these areas; institutional controls to prevent exposures and excavations in contaminated soil; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review site conditions and protectiveness of remedy.

Area J – Human health risks for this risk area exceed the EPA acceptable cancer risk range and the soil contaminant levels also exceed the CUL. Alternative SO6 has been selected for Area J and will consist of: a pre-design investigation to further characterize the extent of soil contamination for remedial design and remedial action; soil capping to prevent exposure to contaminated soil; operation and maintenance (O&M) of the soil cap; institutional controls to prevent exposures and excavations in contaminated soil and to require the long-term care of the soil cap; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review site conditions and protectiveness of remedy.

Area I – Human health risks for this risk area exceed the EPA acceptable cancer risk range and soil contaminant levels also exceed the CUL. Alternative SO8 has been selected for Area I and will consist of: a pre-design investigation to further characterize the extent of soil contamination; excavation with off-site disposal to prevent exposure to contaminated soil; institutional controls to prevent exposures and excavations in contaminated soil; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review site conditions and protectiveness of remedy.

[1] EPA generally views site-related cancer risks in excess of 1 in 10,000 ($1E10^{-4}$) to 1 in 1,000,000 (10^{-6}) as unacceptable. See "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions", EPA 1991.

Vapor Intrusion Remedy

Area E1 – The vapor intrusion pathway was determined to be potentially complete for Area E1. Alternative VI3 was selected for Area E1 (where a building is currently occupied by residents) and will consist of: a preliminary design investigation to evaluate existence of exposure pathway and if present install an active soil vapor mitigation to prevent exposure to potential vapor intrusion from contaminated groundwater; O&M of the active soil vapor mitigation system; institutional controls to prevent potential exposure by requiring the use of a vapor mitigation system; and Five-Year Reviews to review site conditions and protectiveness of remedy.

Area J – The vapor intrusion pathway was determined to be potentially complete for Area J. Alternative VI2 was selected for Area J (currently undeveloped) and will consist of: institutional controls to prevent potential exposure by requiring the use of a vapor mitigation system for new construction; and Five-Year Reviews to review site conditions and protectiveness of remedy.

In summary, these soil and vapor intrusion remedial actions for the Site include a combination of soil excavation and capping to remove exposure risks to soil contamination and prevent contamination migration; active vapor mitigation to prevent potential exposure to vapor intrusion from groundwater contamination; and institutional controls to prevent exposures. The major components of this remedy are:

- Perform pre-design investigations to characterize soil and delineate cleanup level exceedances (Areas E1, I, and J) ;

- Perform pre-design investigations to assess contaminant concentrations in indoor air and sub-slab soil gas, evaluate existing building foundations, and potential vapor intrusion routes (Area E1);

- Excavate and dispose off-site (Areas D1, E1, F, and I) or consolidate and cap (Area J) soil that exceeds soil cleanup levels;

- Construct an active vapor mitigation system within an existing structure (in Area E1) using vapor extraction trenches, exhaust fans, and discharge stacks;

- Implement restrictions on uses of properties within the Site boundary in perpetuity to prevent potential human exposure to contaminants in the subsurface soils (all Risk Areas) and to prohibit activities that might harm the cap including deed restrictions, fencing, and warning signs (Area J).

- Implement institutional controls to prevent human exposure to soil, including prevention of residential uses in areas that are not currently used as residential (Areas D3, E2, G, H, J and I);

- Implement institutional controls to prevent human exposure to soil vapors including prevention of residential uses in areas that are not currently used as residential (Area J); requirement of vapor mitigation systems for new construction unless information demonstrating the systems are not needed is provided to the regulatory agencies (Area J); and prohibition of the use of first floor residential units without vapor mitigation systems (Area E1) if systems are warranted based on PDI results.

- Maintain the soil cap (Area J) and vapor mitigation system (Area E1) in the long term; and

- Perform reviews at least every 5 years to ensure that the remedy remains protective of human health and the environment (all Risk Areas).

No principal threat waste was identified at the Site. The selected response action addresses low-level threat wastes by: removing or capping contaminated soils, controlling potential exposures to contaminated soils or soil vapors through institutional controls (undeveloped property), and installing an active vapor mitigation system (occupied property).

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), and is cost-effective. There are no principal threat wastes present at the Site. 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. Wastes generally considered to be principal threats are liquid, mobile and/or highly-toxic source material. Because there are no principal threat wastes present, the selected remedy does not achieve the statutory preference for treatment as a principal element.

Because this remedy will result in hazardous substances remaining on-site above levels that would allow for unlimited use and unrestricted exposure (and because land use restrictions are necessary), a review will be conducted within 5 years after initiation of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

F. ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this Site.

- Chemicals of concern (COCs) and their respective concentrations;

- Baseline risk represented by the COCs;

- Remediation levels established for COCs and the basis for the levels;
- Current and future land and ground-water use assumptions used in the baseline risk assessment and ROD;
- Land and groundwater use that will be available at the site as a result of the selected remedy;
- Estimated capital, O&M, and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected; and
- Decisive factor(s) that led to selecting the remedy.

G. AUTHORIZING SIGNATURES

This ROD documents the selected remedy for soil contamination and potential vapor intrusion issues at the Site. This remedy was selected by the EPA with concurrence of the Connecticut Department of Energy and Environmental Protection (CT DEEP).

Concur and recommended for immediate implementation:

U.S. Environmental Protection Agency

By: _____ Date: 9/30/13

James T. Owens, III
Director
Office of Site Remediation and Restoration
Region 1

A. SITE NAME, LOCATION AND BRIEF DESCRIPTION

The Scovill Industrial Landfill (the Site, CERCLIS Identification Number CT0002265551) is located in the City of Waterbury, New Haven County, Connecticut (Figure 1, Appendix B). The 25-acre Site is generally flat and slopes slightly to the south. The Site is bounded to the north by residential properties along Newbury Street and Academy Avenue, to the east by a steep hill topped by residential properties abutting Academy Avenue, to the south by Meriden Avenue (State Route 69) with commercial property beyond, and to the west by a steep hill topped by residential properties along Monroe Avenue (Figure 1, Appendix B).

Approximately 18 of the 25 acres of the Site are developed along Meriden Road, Store Avenue, Dunbar Street, and Newman Street. The developed parcels consist of two- and three-story residential structures (condominiums and apartment buildings), small commercial buildings that include a landscaping firm, a child daycare facility, elderly housing, a social club, a cab service, a former medical office, a used car lot, car repair shop, and a shopping mall (East Gate Shopping Plaza). Two seasonally wet areas are located at the northeastern and northwestern boundaries.

The Scovill Manufacturing Company (the Company) used the Site as a landfill from 1919 to the mid-1970s for disposal of ash, cinders, demolition debris, and other wastes generated by Scovill Manufacturing Company. In 1998, the northern portion of the Site was an undeveloped 6.8-acre parcel, referred to as the Calabrese parcel (Area J). This parcel was in the initial stages of development when a number of capacitors, ash, cinder, crushed drums containing sludge material, metal waste, demolition debris and other waste materials were encountered at depths ranging between 8 and 20 feet below grade. The waste materials contained elevated levels of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals. The Site was listed on the National Priorities List (NPL) on July 27, 2000 and the EPA took on the role as lead agency.

A more complete description of the Site can be found in Section 1.2 of the Remedial Investigation (RI) Report (Nobis, 2013a).

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

1. History of Site Activities

The Company used the Site as a landfill from 1919 to the mid-1970s for disposal of its ash, cinders, demolition debris, and other wastes generated. The Company manufactured various metal parts that used aluminum, chromium, copper, silver, tin, and zinc including brass buttons, belt buckles, clasps, and other products. In addition, the Company produced appliances, small motors, watches, injection molded plastics, and photographic equipment. The Company also

produced numerous products for the military during World Wars I and II and the Korean War, including munitions, fuzes, and brass artillery casings.

The Company's past manufacturing processes included: anodizing, aluminum finishing, buffing, box making, fastener production, carpentry, metal casting, electrical instrument calibration and maintenance, metal forging, laundry and cleaning services, metals research and analyses, painting and lacquering, metal milling, electro-annealing, electroplating, grinding, wastewater treatment, welding, steam and hot water generation, solenoid coil production, solvent degreasing, and power generation. Wastes from these operations may have been disposed of at the Site.

Based on interpretations of historical aerial photographs, there is evidence of Site filling prior to 1934, which is the earliest available historical image. Filling at the Site commenced along Meriden Road and progressed northward. Once filling was completed in the southeastern portion of the Site, the Company subdivided the property and sold it to developers. As the adjacent wetlands and the stream valley were filled, those portions of the property too were subdivided and sold for development. Approximately 25 acres were filled, which now constitutes the Site. A summary of waste filling activities is shown in Figure 2, Appendix B.

By the mid-1990s, the southern portion, which consists of approximately 18 acres, had been developed for residential and commercial uses. In 1988, the northern portion of the Site was an undeveloped 6.8-acre parcel, referred to as the Calabrese parcel (Figure 1, Appendix B). This parcel was in the initial stages of development for a proposed elderly housing complex when a number of capacitors, ash, cinder, crushed drums containing sludge material, metal waste, demolition debris and other waste materials were encountered at depths ranging between 8 and 20 feet below grade. The waste materials were found to contain elevated levels of PAHs, PCBs, and metals. Development of the Calabrese parcel ceased and the parcel remains undeveloped.

A more detailed description of the Site history can be found in Section 1.3 the RI Report (Nobis, 2013a).

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

The discovery of PAH, PCB, and metals contamination in soil at the Calabrese parcel led to subsequent investigations throughout the Site and the NPL listing of the Site in 2000. Investigations and actions taken to date are summarized below. A more complete description of these can be found in Sections 1.3 and 2.0 of the RI Report (Nobis, 2013a).

- In 1988, Calabrese initiated excavation activities on the Calabrese parcel for a planned development. In March 1989, the Connecticut Department of Energy and Environmental Protection (CT DEEP) inspected the Calabrese parcel following citizen complaints to the City of Waterbury regarding suspected wetland violations. CT DEEP noted waste

materials excavated and staged in piles located throughout the property and water within the excavations exhibited an oily sheen. CT DEEP also observed electrical capacitors, rusted drums containing sludge material, metal wastes, and other materials and collected soil samples. Sample results indicated elevated concentrations of PCBs and several metals. The City of Waterbury issued a cease and desist order on all work being conducted at the property based on the soil contamination and wetland violations.

- In October 1989, CT DEEP issued a Hazardous Material Order (No. HM-637) to Joseph Calabrese requiring: investigating the impacts of contamination to human health and the environment; developing a remedial strategy; and once approved, performing remediation and follow-up monitoring. Joseph Calabrese attempted to conduct some investigation/remediation activities; however, the extent of these activities is not currently known and he did not complete the required work.

- In January 1998, CT DEEP and EPA initiated Phase I site assessment activities at the Calabrese parcel, and added it to the EPA list of potential Superfund candidate sites. CT DEEP indicated that numerous capacitors and waste material remained exposed at the ground surface, and trespassing was evident. Follow-up soil sampling confirmed the presence of several metals, volatile organic compounds (VOCs), petroleum-related substances, and PCBs.

- In the spring of 1998, CT DEEP removed approximately 2,300 tons of PCB-contaminated soil and 18 capacitors from the Calabrese parcel. The area was temporarily capped with 1 foot of topsoil and hydroseeded. After the installation of the temporary cap, a fence was installed around the perimeter of the Calabrese parcel.

- In 1999, EPA completed a Site Inspection and collected 124 surface soil samples. Samples collected from within the Site limits showed elevated levels of PAHs, PCBs, and metals (chromium, copper, nickel, silver, vanadium, and zinc) (Weston, 1999). These data were used to support the listing of the Site on the NPL.

- In July 2000, the Site was added to the NPL.

- During the fall of 2002, EPA initiated Phase I of the RI. Phase I included 45 surface and 76 subsurface soil samples, a geophysical survey, and surface water and sediment sampling.

- In March 2003, EPA issued an Administrative Order to Saltire Industrial, Inc. (Saltire) (successor to the Company) and others to complete the remaining RI activities. During the summer of 2004, Saltire's contractors began Phase II of the RI. However, in August 2004, Saltire filed for Chapter 11 Bankruptcy protection and halted any further data

collection and/or analysis by its contractors. In March 2005, EPA compiled all available data collected prior to the Saltire bankruptcy.

- From 2008 to 2011, EPA conducted remaining RI (Phase III) activities. Phase III included surface and subsurface soil sampling for chemical and physical properties, monitoring well installations, groundwater sampling, vertical groundwater profiling, and ecological and human health risk assessments. Varying concentrations of numerous organic and inorganic chemicals were detected in the surface and subsurface soil and groundwater; but were primarily limited to semi-volatile organic compounds (SVOCs), PCBs (Area J or Calabrese parcel only), and metals in soil, and sporadic detections of VOCs in groundwater.

A more detailed description of historic investigations can be found in Sections 1.3 and 2.0 the RI Report (Nobis, 2013a).

3. History of CERCLA Enforcement Activities

- In July 2000, EPA placed the Scovill Site on the NPL making it eligible for federal assistance for clean up.

- Searches for Potentially Responsible Parties (PRPs) were conducted between 1999 through 2003.

- Information request letters were issued to various parties under Section 104(e) of CERCLA in 2000, 2001, 2002, and 2004.

- EPA issued letters to Scovill Manufacturing Company, Joseph Calabrese and Calabrese Construction Company notifying them of their potential liability for costs of cleanup at the Site.

- EPA issued a Unilateral Administrative Order to Saltire Industrial Inc. (the successor to Scovill Manufacturing Company), Joseph Calabrese, Calabrese Construction Company and Store Avenue Associates, LLC (the owner of Area J) in 2003. Saltire started Phase II of the Remedial Investigation but filed for bankruptcy protection in 2004.

- After Saltire filed for bankruptcy, EPA entered into a settlement agreement with the bankrupt estate in March 2006.

- A description of EPA's and CT DEEP's investigations of the Site is provided in the previous section of this ROD (History of Federal and State Investigations and Removal and Remedial Actions).

- To date, no remedial or removal action under CERCLA has been performed.

C. COMMUNITY PARTICIPATION

Throughout the Site's history, community concern and involvement has been high. The 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.

- In September 2000, the EPA initiated a community relations plan to address community concerns and keep citizens informed about and involved in remedial activities.

- EPA provided the City of Waterbury with grant assistance in July 2004 for a reuse planning study for a portion of the site.

- In November 2004 a community meeting was held to undertake a reuse planning process to develop future land use recommendations for a portion of the Site.

- In February 2005 a second community meeting was held to discuss the reuse strategy for a portion of the Site.

- In October 2008, the EPA held a public informational meeting to describe the plans for the RI and Feasibility Study (FS).

- On March 3, 2011, EPA held an informational meeting at the WARC facility in Waterbury, CT to discuss the results of the RI.

- In July 2013**,** EPA made the Administrative Record available for public review on-line as well as at EPA's offices in Boston and at the Silas Bronson Library, 267 Grand Street, Waterbury, CT, 06705. The library will be the primary information repository for local residents and will be kept up to date by EPA.

- In July 2013, EPA mailed the Proposed Plan to 20 owners of property considered part of the Site, and 80 nearby property owners.

- On July 24, 2013, EPA published a notice and brief analysis of the Proposed Plan which presents the proposed remedy for the Site in the Waterbury Republican American and made the Proposed Plan available to the public at the Silas Bronson Library.

- From July 24, 2013 to August 24, 2013**,** the Agency held a 30-day public comment period to accept public comments on the alternatives presented in the FS (Nobis, 2013b), the Proposed Plan, and on any other documents previously released to the public.

- On August 6, 2013**,** EPA held an informational meeting to discuss the results of the RI and the cleanup alternatives presented in the FS (Nobis, 2013b) and to present the Agency's Proposed Plan to a broader community audience than those that had already been involved at the Site. At this meeting, representatives from EPA, CT DEEP, and CT Department of Public Health (CT DPH) answered questions from the public.

- On August 6, 2013, the Agency held a public hearing to discuss the Proposed Plan and to accept any oral comments on the Proposed Plan. A transcript of this hearing, the comments received, and the Agency's response to comments are included in the Responsiveness Summary, which is part of this ROD (Part 3).

- From 2000 through 2011 EPA has issued Fact Sheets and Activity Updates to keep the community up to date on ongoing activities at the Site.

D. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

The selected remedy was developed by combining components of different remedial alternatives to address potential health risks resulting from exposure to Site contamination (estimated health risks are summarized by risk area on Figure D-1 in Appendix B). In summary, the remedy provides a comprehensive approach for this Site that addresses all current and potential future risks caused by soil contamination and potential vapor intrusion issues from contaminated groundwater. These soil and vapor intrusion remedial actions include soil excavation and capping to remove exposure risks to soil contamination from the top 4 feet of soil and prevent leaching of soil contaminants into groundwater; active vapor mitigation to prevent potential exposure in buildings to vapor intrusion from groundwater contamination; and institutional controls to prevent exposures.

The remedy was developed to be consistent with ARARs (specifically the state's Remediation Standard Regulations or RSRs) and the definition of "inaccessible soil". Per the RSRs, inaccessible soil is defined as follows:

- Contaminated soil deeper than 4 feet;
- Contaminated soil deeper than 2 feet below a paved surface; and
- Contaminated soil below an existing building and/or permanent structure.

Institutional controls are needed to ensure these conditions are maintained.

Specifically, the remedy will utilize:

- In Risk Areas D3, E2, E3, G and H – Human health risks for these risk areas based on current uses are below 1.0E-04, the threshold for remedial action for the Site (Areas D3,

E2, G, and H) or where CULs are not exceeded in accessible soil (Area E3). However, limited actions are appropriate to prevent exposures in the event of future changes in site use. Alternative SO2 has been selected for these risk areas and will consist of: institutional controls to prevent potential exposures and excavations in contaminated soil; prevent residential uses in areas that are not currently used as residential; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review Site conditions and the protectiveness of remedy.

- In Risk Areas D1, E1, and F – Human health risks for these risk areas are equal to or exceed 1.0E-04, or levels of contaminants in soil exceed the CUL. Alternative SO3 has been selected for these risk areas and will consist of: targeted excavations (within the top 4 feet of soil for PRG exceedances or to the top of groundwater for PMC exceedances) with off-site disposal to prevent exposure to contaminated soil in these areas; institutional controls to prevent exposures and excavations in contaminated soil; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review site conditions and protectiveness of remedy.

- In Risk Area J – Human health risks for this risk area exceed 1.0E-04 and levels of contaminants in soil also exceed the CUL. Alternative SO6 has been selected for Area J and will consist of: a pre-design investigation to further characterize the extent of soil contamination for remedial design and remedial action; soil capping to prevent exposure to contaminated soil; operation and maintenance (O&M) of the soil cap; institutional controls to prevent exposures and excavations in contaminated soil and to require the long-term care of the soil cap; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review site conditions and protectiveness of remedy.

- In Risk Area I – Human health risks for this risk area exceed 1.0E-04 and levels of contaminants in soil also exceeds the state's PMC. Alternative SO8 has been selected for Area I and will consist of: a pre-design investigation to further characterize the extent of soil contamination; excavation with off-site disposal to prevent exposure to contaminated soil; institutional controls to prevent exposures and excavations in contaminated soil; periodic assessments to ensure institutional controls are implemented; and Five-Year Reviews to review site conditions and protectiveness of remedy.

- In Risk Area E1 – There is a potential for VOCs to volatilize from groundwater beneath the existing building and reach indoor living areas in Area E1. Therefore presumptive remedy, Alternative VI3, was selected for Area E1 (which includes a building currently occupied by residents) and will consist of: a PDI to evaluate exposure pathway and if present install an active soil vapor mitigation to prevent exposure to potential vapor intrusion from contaminated groundwater; O&M of the active soil vapor mitigation system; institutional controls to prevent potential exposure by requiring the use of a vapor

mitigation system; and Five-Year Reviews to review site conditions and protectiveness of remedy; and

- In Risk Area J – There is a potential for VOCs to volatilize from groundwater and reach future living areas in Area J. Alternative VI2 was selected for Area J (currently undeveloped) and will consist of: institutional controls to prevent potential exposure by requiring the use of a vapor mitigation system for new construction; and Five-Year Reviews to review site conditions and protectiveness of remedy.

The source material waste at the Site, consisting primarily of ash mixed into soil, constitutes a Low-Level Threat due to the lengthy exposure duration necessary for the identified Contaminants of Concern (COCs) to create risk, and the general non-mobility of the identified COCs. There are no Principal Threat Wastes identified for the Site.

The low-level threats that this ROD addresses are summarized in the following table:

Low-Level Threats	Medium	Contaminant(s)	Action To Be Taken
Cancer risks	Soil	Low level PAHs, PCBs , dioxins, and few metals	Excavation and off-site disposal (Areas D1, E1, F, and I), soil cap (Area J), institutional controls (All Risk Areas)
Cancer risks	Groundwater	VOCs	Active vapor mitigation system (Area E1); institutional controls (Areas E1 and J)

E. SITE CHARACTERISTICS

The significant findings of the RI can be found in the 2013 RI Report (Nobis, 2013a) and are summarized below. In addition, Section 1 of the FS (Nobis, 2013b) contains an overview of the RI results. Refer also to CT DEEP's Groundwater and Use Value Determination (CT DEEP, 2010) for a more detailed discussion of groundwater use at the Site.

1. Physical Setting

This section has been divided into the following subsections: Site geology, hydrogeology, surface water hydrology, and groundwater use and value.

Site Geology

Based on the Phase I (2002), Phase IIA (2004), and Phase III (2008) soil investigations, along with a subsequent review of available boring logs and field notes, the overburden subsurface lithology of the Site is interpreted to consist primarily of 12 to 18 feet of a dark brown, gray, and black ash/waste mixed with varying amounts of silt and sand. A discontinuous peat layer ranging between 13 to 24 feet below the ground surface (ft bgs) and between 6 inches and 5 feet in thickness was encountered in the southwestern and central portions of the site. Deeper sample locations indicate clayey silt/silty clay with little to trace gravel (dense) but these strata are not described as till. Phase III boring logs for deeper soil borings indicate a saturated, very dense sandy silt layer with some gravel at depths of between 11 and 22 ft bgs, which is characterized as till.

The ash material, generally characterized as soft, fine, and black in color, when found was deepest through central portions of the Site (18 ft bgs) and extends to the southern boundary as well as the eastern and western side slopes. Along the southern edge of the Site, ash depths reach approximately 14 ft bgs. The waste appears to terminate at the northern end of the Site prior to reaching Dallas Avenue in the vicinity of a small wooded area, the adjacent wetlands, and the Meridian Apartments.

Bedrock at the Site is mapped as Waterbury Gneiss Formation which is characterized as a dark gray, fine to medium grained composite of schist and gneiss. The seismic refraction study performed at the site found bedrock sloping south to southeast at approximately 5 percent dip. The sole bedrock borehole advanced at the Site corroborated the seismic refraction study relative to depth to bedrock.

Hydrogeology

The groundwater underlying the Site is classified by CT DEEP in the 2011 Connecticut Water Quality Standards as GB, indicating "…a historically highly urbanized area or an area of intense industrial activity and where public water supply service is available. Such ground water may not be suitable for human consumption without treatment due to waste discharges, spills or leaks of chemicals or land use impacts." Based upon available soil boring observations coupled with permeability data and groundwater elevations, two separate overburden hydrogeologic units (fill material and till deposits), and one bedrock hydrogeologic unit are present beneath the Site. Although till was found overlying bedrock, it does not act as an aquaclude based on a relatively high permeability.

Both overburden aquifer units exhibit similar groundwater flow directions, from topographically-high zones to lower zones (south to southwest, following the historical flow path of Carrington Brook). Only one bedrock monitoring well is located at the Site, and groundwater flow direction could not be determined. Vertical gradient data suggest that minimal vertical flow exists between the shallow and deeper overburden. These flows are variable, generally

downward, and reversible on occasion. A consistent vertical flow in the upward direction was noted between the sole bedrock and deep overburden couplet located at the southern end of Risk Area J.

Surface Water Hydrology

There are two seasonally wet areas located in depressions on the eastern and western edges of the Calabrese parcel. These are topographic low areas created by the raised surface of the Calabrese parcel cap area on one side and the uphill slopes of Monroe Avenue on the west and Academy Avenue on the east. In the eastern area, precipitation and surface water runoff from the sloping backyards on Academy Avenue, Dallas Ave and the Sanford Condominiums as well as a small portion of the Calabrese Parcel are eventually trapped with no outlet by the raised surface of Radcliffe Avenue. In the western area, precipitation and surface water runoff from the Calabrese parcel and the sloping backyards on Monroe Avenue and the Meriden Apartments are eventually trapped with no outlet by the raised area behind 119 Store Avenue. There is no standing water during dry periods.

Aside from the small pond at Hamilton Park, the nearest surface water body is the Mad River, located approximately 1 mile southwest and downgradient of the Site. According to the CT DEEP's Use and Value of Groundwater evaluation, Site groundwater is incorporated into the regional groundwater flow towards the Mad River.

The Site is located outside of the 500-year floodplain (US Department of Housing and Urban Development, 1979); however, observations at the Site indicated that topographic low areas in the northeastern and southwestern portions of the Site are seasonally wet and accumulate runoff from adjacent on-site and off-site areas.

Groundwater Use and Value

In 2010 CT DEEP determined that the contaminated aquifer within the Review Area for the Scovill Industrial Landfill NPL Site in Waterbury, Connecticut, is a Low/Medium Use and Value Aquifer, based on the considerations presented in the Ground Water Use and Value Determination Document. The CT DEEP has also determined that immediate restoration of the contaminated aquifer is not required.

2. Conceptual Site Model

The sources of contamination, release mechanisms, exposure pathways to receptors for the soil, groundwater, surface water, sediment and air as well as other site-specific factors, are considered while developing a Conceptual Site Model (CSM). The CSM is a three-dimensional "picture" of Site conditions that illustrates contaminant sources, release mechanisms, exposure pathways, migration routes, and potential human and ecological receptors. It documents current and potential future Site conditions and shows what is known about human and environmental

exposure through contaminant release and migration to potential receptors. The risk assessment and response action for the contaminated soil and soil vapor at the Site are based on this CSM.

The CSM constructed for this Site is based on the results from three different phases of the RI program conducted between 2002 and 2011, and includes the following observations:

- Soil mixed with ash is present throughout the 25-acre Site. COCs as determined by the human health risk assessment (Summarized in Section G.1) primarily consist of PAHs and metals. PCBs are also COCs in the Calabrese parcel (Area J), only.

- Most of the Risk Areas are currently paved or occupied by buildings or structures. Some of the occupied areas are vegetated by lawns and turf. Area J is currently undeveloped.

- Contaminated soil exceeding PRGs is present in surface (0 to 2 ft bgs below the turf) and subsurface soil (2 to 10 ft bgs). No one is currently exposed to contaminated soil.

- If pavement is not maintained or erodes, contaminated soil will become exposed and potential exposure to residents and commercial/industrial workers will occur resulting in excess risks in several risk areas.

- Contaminated soil (vanadium) is present at concentrations in discrete locations throughout the Site that may pose threats to surface water quality, if leached into the underlying aquifer.

- VOCs have been detected sporadically in monitoring wells in Area E1 at concentrations that may pose potential vapor intrusion threats to the residents on the groundwater floor units in the apartment complex at 119 Store Avenue.

Known and Suspected Sources of Contamination

Landfilled waste reportedly consisted of ash, cinders, debris, metal materials and other unknown waste materials generated by the Company's operations. Presumably, the ash materials were derived from the burning of coal; however, the specific components of the wastes disposed of at the Site are not known. While much of the Site area appeared to have received a consistent waste material, the waste material excavated from the Calabrese Parcel appeared to contain materials not observed in other areas of the Site (i.e., high PCB concentrations, capacitors, rusted drums, and sludge). Additionally, one debris sample collected from 10 to 12 ft bgs on the Calabrese Parcel contained 16.2% asbestos (chrysotile). No additional potential asbestos containing materials were found.

Soil Contamination

Soil contamination at the Site occurs in surface (0-2 ft bgs), subsurface (>2-10 ft bgs), and deep subsurface (>10 ft bgs). While VOCs were detected in soil samples, only one sample slightly exceeded the CT DEEP's Remediation Standard Regulations (RSR) Direct Exposure Criteria (DEC) (Figure E-1, Appendix B). Benzene, carbon tetrachloride, tetrachloroethylene (PCE), trichloroethylene (TCE), and vinyl chloride exceeded the RSR GB PMC; but subsequent Synthetic Precipitation Leaching Procedure (SPLP) tests suggest there is little likelihood of leaching. The elevated VOC concentrations appeared to be limited to areas either currently or formerly utilized for automotive sales/service or dry cleaning.

SVOCs were detected in soil samples collected throughout the Site area and are dominated by the presence of PAH compounds associated with the coal ash and combustion by-products (Figure E-2, Appendix B). The PAH distribution appears to be somewhat consistent throughout the Site area and waste depths. PAHs detected in Site soil include: benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dibenz(a,h)anthracene; and indeno(1,2,3-cd)pyrene. Numerous SVOCs (including PAH compounds) exceeded DEC and PMC throughout the Site. Again, SPLP tests suggest there was little likelihood of leaching for the SVOCs with the exception of bis(2-ethylhexyl) phthalate in a couple of samples.

Pesticide concentrations in soil samples did not exceed or slightly exceeded DEC (Figure E-3, Appendix B). Alpha-chlordane, gamma-chlordane, dieldrin, and heptachlor-epoxide each exceeded the GB PMC in surface soils. 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, and heptachlor-epoxide also exceeded GB PMC in subsurface soils. These pesticides have a strong affinity for sorbing to soil and are unlikely to leach. 4,4'-DDE and 4,4'-DDT are the most frequently detected pesticides in the surface soil samples, and their distribution may be indicative of post development application rather than a component of the waste material. With the extensive reworking of the area as part of the post-Scovill development, an intermixing of any applied pesticides could have been incorporated into deeper deposits.

PCB and dioxin/furan concentrations exceed DEC in soil samples collected primarily from the Calabrese parcel, but also on the northern extent of 119 Store Avenue (Area E1, adjacent to the Area J). PCB contamination in surface soil appears to be limited to the central and southern portions of the Area J (Figure E-4, Appendix B). The limit of PCB contamination detected in the surface soil is based upon a relatively small number of samples. Given the reportedly irregular deposition of the waste, there may be additional PCB contamination in parts of Area J. PCB contamination in the deeper soil zones extends to the north and northeast from the surface soil PCB contamination to a maximum depth of approximately 20 ft bgs. PCBs were not detected in SPLP leachate, suggesting that the PCB contamination particularly in the Area J is unlikely to leach to groundwater.

Dioxins/furans (as toxicity equivalents, TEQ) were detected in Site soil, primarily in and adjacent to Area J. There are no RSR DECs for dioxin/furan TEQ. However, a qualitative comparison with EPA health-based screening levels indicated that dioxin/furan TEQ may be a potential contaminant of interest.

Several metals including arsenic, beryllium, cadmium, chromium, copper, lead, nickel, and vanadium exceeded DEC and GB PMC (Figures E-5 through E-9, Appendix B). Beryllium only exceeds the DEC once out of 213 total samples and is not of concern. Like the SVOCs, these metals are widely distributed across the Site both laterally and vertically. SPLP analyses of soil samples collected from across the Site reported three exceedances of the GB PMC for lead and four exceedances of the vanadium criteria indicating a potential for leaching to groundwater in some areas of the Site. A supplemental evaluation using a 95% Upper Confidence Limit confirmed the leaching potential for vanadium but not for lead.

Groundwater Contamination

Overburden groundwater within the shallow aquifer has low concentrations of several organic and inorganic chemicals. There is no coherent or distinct VOCs contaminant plume. The groundwater is classified GB and does not serve as a drinking water supply. Of particular note is the presence of two VOCs, vinyl chloride and 1,1-dichloroethene, in monitoring well MW-12S located near an occupied apartment complex (in Area E1) that exceed the RSR Groundwater Volatilization Criteria. Detections of vinyl chloride at other monitoring wells were sporadic, at trace concentrations, from deep overburden groundwater (with overlying shallow overburden groundwater at non-detect concentrations), or at locations over 100 feet from the nearest structure. In addition, other VOCs including cis-1,2-dichloroethene, PCE, and TCE also were sporadically detected in overburden groundwater samples, but did not exceed Volatilization Criteria. Based on results from the sole bedrock monitoring well, it does not appear that contamination extends into the bedrock aquifer at this location. The irregular detections and scattered occurrences across the Site and through time do not suggest a coherent VOC groundwater plume. Some biodegradation of these compounds is assumed based on the presence of daughter products (Figure E-10, Appendix B).

The majority of the PAH compounds were detected infrequently in all aquifers. SVOCs detected more frequently included the PAHs acenaphthene and fluorene, bis(2-ethylhexyl)phthalate (BEHP), and caprolactam. None of these compounds was detected at elevated concentrations, and with the possible exception of BEHP, are generally derived from coal ash or other combustion by-products.

No elevated pesticide or PCB contamination was noted in groundwater samples.

Numerous metals were detected in groundwater samples, both total and dissolved. No comparisons were made to drinking water criteria because the groundwater underlying the Site area is classified as GB and is not used as a drinking water source.

CT DEEP Surface-Water Protection Criteria (SWPC) were exceeded for several chemicals. A supplemental evaluation showed that Site contaminants do not pose a threat to the nearest surface water body.

Surface Water Contamination

Several VOCs, SVOCs, and metals were detected in surface water samples collected from the ephemeral northeast Wetland 1. Total metals concentrations were much greater than the dissolved metals concentrations, suggesting a significant quantity of suspended solids in the standing water in the wetland area. Several metals detected in the total metals samples exceeded acute and chronic values for National and Connecticut water quality criteria. The dissolved metals samples exceeded only one acute Connecticut and two chronic Connecticut screening criteria. It is possible that this suspended solid material may also be a contributing factor in the detection of VOCs and moderately-insoluble SVOCs in these surface water samples. The presence of previously noted refuse and garbage within this wetland likely contribute to the detection of these contaminants.

Sediment Contamination

Analytical results of sediment samples collected from the two ephemeral wetlands reported the presence of a number of organic and inorganic contaminants at concentrations exceeding screening criteria. Though it is possible that the contaminants may have been Site-derived, the presence of a large quantity of potentially contaminated debris in and around these wetland areas and also parking lot and upgradient runoff may also have contributed to the contaminants present within these wetlands.

Analytical results of sediment samples collected from areas upstream of Wetland 1 identified the presence of numerous SVOCs, several pesticides, and PCBs at concentrations exceeding screening levels. It is likely that these substances resulted at least partially, from parking lot runoff or releases onto the adjacent parking lot migrating to either a nearby upstream storm drain or to the upstream sediment sampling location.

One sample of catch basin bottom sediment was collected from the downstream catch basin nearest the Site. Minimal PAH contamination was noted in this sample and no PCBs were detected. Two sediment samples were collected downstream of the Site. One where the Carrington Brook storm drain and comingled storm water from other parts of urban Waterbury discharge to the small impoundment pond at Hamilton Park, and the other at the pond outlet located approximately 0.8 miles southwest of the Site. Low concentrations of VOCs and pesticides were reported in these samples. SVOC contamination was dominated by PAH compounds. PCBs were also detected in each of these downstream sediment samples. Low concentrations of several metals were reported with copper, lead, and zinc exceeding screening criteria.

Conceptual Site Model Summary

The CSM is summarized below:

- Chemical concentrations in soil vary widely across the Site, including elevated concentrations of PAHs, metals, and PCBs (Area J only). These analytes are present in soil at concentrations exceeding PRGs in surface (0 to 2 ft bgs below the turf) and subsurface soil (2 to 10 ft bgs). However, no one is currently exposed to contaminated soil.

- If pavement is not maintained or erodes, contaminated soil will become exposed and potential exposure to residents and commercial/industrial workers will occur resulting in future excess risks in several risk areas.

- In general, soil contaminants are relatively immobile and do not easily leach to groundwater. However, vanadium is present at concentrations in discrete locations that may pose threats to surface water quality, if leached into the underlying aquifer.

- Site groundwater is located in a GB aquifer and is considered unsuitable for potable water uses.

- Irregular detections and scattered occurrences of various analytes across the Site do not suggest a contaminant plume in groundwater.

- VOCs have been detected sporadically in monitoring wells in Area E1 at concentrations that may pose potential vapor intrusion threats to the residents on the groundwater floor units in the apartment complex at 119 Store Avenue.

- There is no Principal Threat Waste identified for the Site.

F. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

As shown on Figure 1, the Site was divided into 10 exposure "Areas" for risk assessment purposes. Approximately 18 of the 25 acres of the Site are developed, consisting of two- and three-story condominiums and apartment buildings (Areas D1, E1, E3, and F), small commercial buildings (Areas D3, E2, G, and H), and a shopping center (Area I). Area J is undeveloped. Except for Area E3, which is zoned for residential use, the Site is currently zoned for commercial use. However, as noted above, some commercially-zoned parcels with apartment buildings are actually used for residential purposes.

Land Uses:

Approximately 18 of the 25 acres of the Site are developed along Store Avenue and Dunbar Street, and consist of two and three story residential structures (single family homes and apartment buildings), small commercial buildings that include a landscaping firm, child daycare facility, elderly housing, social club, department store, cab service, former medical office, car repair shop, and a shopping mall (East Gate Shopping Plaza). The remaining 7-acre parcel is undeveloped and was in the initial stages of development by Calabrese Construction, Inc. prior to listing of the Site on the National Priorities List. Approximately 4 of the 7 acres are currently fenced and posted.

The City of Waterbury, Connecticut is a medium-density city. As of the 2010 US Census, the city population is estimated at 110,366 people. Land usage in the areas proximal to the Site is urban and includes both residential and commercial.

Existing municipal zoning of the Site area is primarily classified as Arterial Commercial with smaller portions classified as Neighborhood Shopping. The only property on the Site zoned Low-Density Residential is the apartment complex at 136 Store Ave in parcel E3 (City of Waterbury, 1999). However, other portions of the site are also currently used as residential, including buildings in Areas E1, D1 and F.

The majority of the Site is currently developed. While it is reasonably anticipated that current land use will remain in place, based on past history at the Site, it is also possible that properties now zoned commercial could have residential uses in the future (for this reason, institutional controls will be used to restrict residential uses in certain areas as part of this ROD, Section L). EPA provided funding for the City of Waterbury to undertake a reuse planning process to develop future land use recommendations for the undeveloped 6.8-acre Calabrese Parcel at the northern side of the Site. Community and stakeholder input was sought and incorporated through an active outreach program which included two public meetings. The findings indicated that multiple land uses including congregate housing, a medical/senior wellness center, and passive recreational areas could be located on this parcel. Details of the planning process can be found in the *Reuse Planning Report for the Calabrese Parcel* (E^2, 2005).

Ground/Surface Water Uses:

The City of Waterbury obtains potable water from a series of reservoirs located between 15 and 30 miles northwest of the Site. An estimated 40,970 people are served by groundwater potable supplies that are located between one and four radial miles from the Site. City health and water officials stated that no potable water wells had been installed within the Site or surrounding area.

According to the CT DEEP Groundwater Use and Value Determination, the Site overlies a GB aquifer and the groundwater within the GB classification (which includes the groundwater beneath the Site) was assigned a value of "Low." The GB aquifer extends south to Interstate 84 and east of the Mad River. Areas west of the Mad River, or south of Interstate 84 are assigned a GA aquifer status was given a value of "Medium." Since public water is available to all properties, the State has assigned a Low rating for the Likelihood and Identification of Future Drinking Water factor. According to the Report, "It is extremely unlikely any private drinking water wells will be installed within the Review Area [including the Site] in the future because the Connecticut Public Health Code prohibits a well permit from being issued for any property which is located within 200 feet of a community water supply system."

Based on the State's groundwater classification and its Groundwater Use and Value Determination, EPA does not consider the potential beneficial reuse of the groundwater at the Site and in the surrounding area to be drinking water.

The State has assigned a Medium/Low rating to the area ecological resources including Carrington Brook and wetlands located in Risk Area J. Carrington Brook is culverted through the Site. A small pond in Hamilton Park is the only viable swimming and fishing area in the vicinity of the Site. Observations of fishing at the pond have been made by EPA contractors and CT DEEP personnel. However, no evidence of swimming in this pond was ever observed. Additionally, Hamilton Park appears to be the only recreation area near the Site. No other playgrounds, parks, or other areas are located in the immediate area.

Public input has been solicited throughout the State's process of determining the use and value of groundwater use at the Site. Several public meetings have been held during the RI process and input from the public about the use and value of site groundwater was not received. Public hearings were also held in 1981 and in 1997 when the State established and revised groundwater goals for the area surrounding the Site. Opportunity for public comment was made available during public hearings and workshops.

G. SUMMARY OF SITE RISKS

A Site-specific baseline risk assessment was performed to evaluate the likelihood and degree of potential adverse human health and environmental effects from exposure to contaminants associated with the Site assuming no remedial action was taken. It is used to determine the need for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The human health risk assessment (HHRA) followed a four step process: 1) hazard identification was conducted using site-specific data on the nature and extent of contamination to identify contaminants of potential concern and to estimate exposure point concentrations for each medium (e.g., soil or water); 2) exposure assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and estimated the frequency and duration 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 cancer and non-cancer health hazards. The cancer risks and non-cancer health hazards of the HHRA that exceed EPA's goals for protection, and the uncertainties in the risk assessment are discussed below followed by a summary of the environmental risk assessment.

1. Human Health Risk Assessment

Potential human health effects associated with exposure to the chemicals of potential concern were estimated quantitatively or qualitatively through the development of several assumed 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. A summary of the estimated risk by risk area is presented in Figure D-1 (Appendix B).

Exposure Assessment

For purposes of the HHRA exposure assessment, the Site was divided into parcels and risk areas. The 16-acre developed parcel, consisting of two- and three-story residential structures (apartment buildings) and small commercial buildings that include a landscaping firm, child daycare facility, elderly housing, social club, department store, cab service, medical office, car repair shop, and a shopping mall (East Gate Shopping Plaza), is referred to as Parcel A. The 4-acre undeveloped parcel, including the fenced cap area and unfenced undeveloped open space within the limits of the landfilling activity is referred to as Parcel B (and also known as Area J). For consideration of soil exposures, the Site was further divided into 10 risk areas based on current land use and potential exposures. Risk areas are shown on Figure 1.

Parcel A (Areas D1, D3, E1, E2, E3, F, G, H, and I) is developed for a mixture of uses including apartment buildings, elderly housing, day care, and commercial properties. Specifically, Areas D1, E1, E3, and F are currently used as residential properties (E1 is occupied by primarily elderly housing); Areas D3, G, H, and I are currently used as commercial properties; Area E2 is currently used as a daycare facility. It is reasonable to expect that each of these developed areas will continue its current use in the future. Based on the Site's history, there is also a possibility that properties that are currently zoned commercial could have residential uses in the future. For purposes of the HHRA, the future uses were assumed to be the same as current uses (the more likely scenario). However, in developing the risk management approach for this ROD, the possibility that commercial properties may be used for residential purposes in the future was taken into account. Future residential exposures at current commercial properties were not evaluated in the HHRA, but were later evaluated in the FS using the same data, exposure assumptions, and toxicity values used in the HHRA.

Under current conditions, Parcel B (Area J) is undeveloped, with no regular activities occurring at the Site. The capped portion of Parcel B is fenced (Figure 1, Appendix B). Access

to Parcel B is generally controlled by the fencing; however, there is no gate security. Beyond the fencing, Parcel B consists of undeveloped open space, including wetlands. Parcel B (Area J) is expected to be used for commercial purposes in the future; however, there are no restrictions currently in place prohibiting future residential use. Groundwater located beneath the Site is not currently used as a source of potable water. Receptors are not expected to contact groundwater. However, contaminants in shallow groundwater may volatilize into current or future indoor air spaces at Parcel A or into future buildings at Parcel B. Current or future human receptors may potentially be exposed to volatiles in indoor air.

Hazard Identification

Forty-five of the more than 136 chemicals detected in soils at the site were selected for evaluation in the HHRA as chemicals of potential concern. Twenty-one of the more than 126 chemicals detected in groundwater at the site were selected for evaluation in the HHRA 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 Appendix A, Tables A-2.2 and A-2.5 of the final HHRA (Nobis, 2011). From this, a subset of the chemicals was identified in the FS as presenting a significant current or future risk. These are referred to as the chemicals of concern (COCs) in this ROD and summarized in Tables G-1 through G-4 (Appendix D). These tables contain the exposure point concentrations (EPCs). EPCs are the contaminant concentrations for a given environmental medium at the point of human contact and are used in the qualitative risk evaluation of the reasonable maximum exposure scenario (RME) in the baseline risk assessment for the COCs. The RME is defined as the highest exposure that is reasonably expected to occur at the Site.

Exposure Pathways

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., 1E-06 or 1 x 10^{-6} for 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater that 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-5 (Appendix D).

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 reference concentration (RfC). A summary of the noncarcinogenic toxicity data relevant to the chemicals of concern is presented in Table G-6 (Appendix D). An HQ < 1 indicates that an exposed individual's dose of a single contaminant is less than the RfD or RfC and that a toxic effect is 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. An HI < 1 indicates that adverse non-carcinogenic effects are unlikely for chronic exposure.

The following is a brief summary of the exposure pathways that were found to present a significant risk. Only those exposure pathways deemed relevant to the remedy being proposed are presented in this ROD. Risk characterization for these exposure pathways are summarized Tables G-7 through G-16. For purposes of the HHRA (and discussion below), surface soil refers to 0 to 2 ft bgs and aggregate soil is 0 to 10 ft bgs. A summary of estimated risk by risk area is presented on Figure D-1 in Appendix B. Readers are referred to Section 6.0 of the HHRA and Section 1.5.1 of the FS 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.

<u>Current and Future Residents, Exposure to Soil</u>

Unacceptable risks were found for:

1) Current age-adjusted lifetime residents, potentially exposed to surface soil at Areas D1, E3, and F;
2) Future age-adjusted lifetime residents, potentially exposed to surface soil at Areas D3, E1, G, H, I, and J;
3) Future age-adjusted lifetime residents, potentially exposed to aggregate soils at Areas D1, D3, E1, E2, E3, F, G, H, I, and J;
4) Future child residents, potentially exposed to surface or aggregate soils at Areas G and J; and
5) Future adult residents, potentially exposed to surface or aggregate soils at Area J.

Current and potential future residential receptors were evaluated for potential exposure to soil via incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors. Non-cancer risks for residents are evaluated separately for adults and children. Cancer risks are evaluated for an age-adjusted lifetime resident combining child and adult exposures. The following assumptions used in the evaluations of residential soil exposures apply to both surface soil and aggregate soil exposures.

Adult residents were assumed to be exposed to soil 350 days per year 24 years, ingesting 100 milligrams (mg) of soil per day and contacting soil with hands, forearms, lower legs, and head (5,700 square centimeters [cm^2]). Child residents (ages 0-6 years) were assumed to be exposed to soil 350 days per year for 6 years ingesting 200 mg of soil per day and contacting soil with hands, forearms, lower legs, feet, and head (2,800 cm^2). Values of 0.07 milligrams per square centimeter per event (mg/cm^2-event) and 0.2 mg/cm^2-event were used as soil-to-skin adherence factors (SSAF) for adult and child exposures, respectively. For all residents, inhalation of dust and soil vapor exposures assumed exposure occurs 24 hours per day.

Tables G-7 and G-8 depict the carcinogenic risk summary for the COCs in surface soil evaluated to reflect present and potential future residential exposures to soil via ingestion, dermal contact and inhalation of dust and vapors corresponding to the RME scenario. Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-7A through G-7C and Tables G-8A through G-8F.

Table G-9 depicts the carcinogenic risk summary for the chemicals of concern in aggregate soil evaluated to reflect potential future residential exposures to soil corresponding to the RME scenario. Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-9A through G-9J.

Tables G-10 and G-11 depict the non-carcinogenic risk summary for the chemicals of concern in surface soil and aggregate soil evaluated to reflect potential future residential child exposures to soil corresponding to the RME scenario. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-10A and G-10B and Tables G-11A and G-11B.

Tables G-12 and G-13 depict the non-carcinogenic risk summary for the chemicals of concern in surface soil and aggregate soil evaluated to reflect potential future residential adult exposures to soil corresponding to the RME scenario. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-12A and Table G-13A.

Table G-7
Risk Characterization Summary – Carcinogens- Current Resident Exposures to Surface Soil

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Age-Adjusted Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk
				Exposure Routes Total
Soil	Surface Soil	Soil On-site Area D1	Benzo(a) anthracene	5.4×10^{-6}

			Benzo(a) pyrene	6.2×10^{-5}	
			Benzo(b) fluoranthene	8.3×10^{-6}	
			Dibenz(a,h) anthracene	2.2×10^{-5}	
			Indeno (1,2,3-cd) pyrene	6.1×10^{-6}	
			Arsenic	1.1×10^{-5}	
				D1 Surface Soil risk total=	1.2×10^{-4}
		Soil On-site Area E3	Benzo(a) anthracene	1.2×10^{-5}	
			Benzo(a) pyrene	9.5×10^{-5}	
			Benzo(b)fluoranthene	1.1×10^{-5}	
			Dibenz(a,h) anthracene	1.7×10^{-5}	
			Indeno (1,2,3-cd) pyrene	6.6×10^{-6}	
			Arsenic	1.1×10^{-5}	
			Total Chromium	1.1×10^{-6}	
				E3 Surface Soil risk total=	1.6×10^{-4}
		Soil On-site Area F	Benzo(a) anthracene	1.3×10^{-5}	
			Benzo(a) pyrene	7.1×10^{-5}	
			Benzo(b) fluoranthene	1.4×10^{-5}	
			Benzo(k) fluoranthene	1.4×10^{-6}	
			Dibenz(a,h) anthracene	2.4×10^{-5}	
			Indeno(1,2,3-cd) pyrene	5.2×10^{-6}	
			Arsenic	2.0×10^{-5}	
				F Surface Soil risk total=	1.5×10^{-4}

Risk Characterization

This table provides risk estimates for the significant current residential surface soil exposure pathways. 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 current lifetime resident's exposure to surface soil, as well as the toxicity of the COCs. The total risk from direct exposure to contaminated soil at each area of this site to a current lifetime resident is shown above. Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-7A through G-7C. The estimated chromium cancer risks shown on the Appendix D tables are based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the chromium cancer risks shown on the Appendix D tables for chromium overestimate risks from exposure to chromium. Total chromium risks and total area risks on the above table have been adjusted to reflect the chromium speciation data. The COCs contributing most to these risk levels are the PAHs and arsenic in soil (Nobis, 2013b). These risk levels indicate that if no clean-up action is taken, an individual would have an increased probability of 1.2 to 1.6 in 10,000 of developing cancer as a result of site-related exposure to the COCs.

Table G-8

Risk Characterization Summary – Carcinogens - Future Resident Exposures to Surface Soil

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk	
				Exposure Routes Total	
Soil	Surface Soil	Soil On-site Area	Benzo(a) anthracene	2.6×10^{-5}	
			Benzo(a) pyrene	2.6×10^{-4}	
			Benzo(b) fluoranthene	3.8×10^{-5}	
			Benzo(k) fluoranthene	2.4×10^{-6}	
			Dibenz(a,h) anthracene	2.1×10^{-5}	
			Indeno (1,2,3-cd) pyrene	5.8×10^{-6}	
			Arsenic	3.0×10^{-5}	
			Total Chromium	1.6×10^{-6}	
				D3 Surface Soil risk total=	3.8×10^{-4}
		Soil On-site Area E1	Benzo(a) anthracene	1.2×10^{-5}	
			Benzo(a) pyrene	1.0×10^{-4}	
			Benzo(b) fluoranthene	7.0×10^{-6}	

			Dibenz(a,h) anthracene	1.2×10^{-5}	
			Indeno (1,2,3-cd) pyrene	5.8×10^{-6}	
			Arsenic	9.0×10^{-6}	
				E1 Surface Soil risk total=	1.5×10^{-4}
		Soil On-site Area G	Benzo(a) anthracene	5.5×10^{-6}	
			Benzo(a) pyrene	6.2×10^{-5}	
			Benzo(b) fluoranthene	6.3×10^{-6}	
			Dibenz(a,h) anthracene	1.7×10^{-5}	
			Indeno (1,2,3-cd) pyrene	3.9×10^{-6}	
			Arsenic	5.3×10^{-5}	
			Total Chromium	3.5×10^{-6}	
				G Surface Soil risk total=	1.5×10^{-4}
		Soil On-site Area H	Benzo(a) anthracene	1.9×10^{-5}	
			Benzo(a) pyrene	2.0×10^{-4}	
			Benzo(b) fluoranthene	2.3×10^{-5}	
			Benzo(k) fluoranthene	2.4×10^{-6}	
			Dibenz(a,h) anthracene	6.6×10^{-5}	
			Indeno (1,2,3-cd) pyrene	1.6×10^{-5}	
			Arsenic	9.8×10^{-6}	
				H Surface Soil risk total=	3.4×10^{-4}
		Soil On-site Area I	Benzo(a) anthracene	3.0×10^{-5}	
			Benzo(a) pyrene	2.9×10^{-4}	

			Benzo(b) fluoranthene	4.9×10^{-5}	
			Benzo(k) fluoranthene	1.6×10^{-6}	
			Dibenz(a,h) anthracene	3.8×10^{-5}	
			Indeno (1,2,3-cd) pyrene	7.5×10^{-6}	
			Arsenic	1.4×10^{-5}	
				I Surface Soil risk total=	4.3×10^{-4}
		Soil On-site Area J	Benzo(a) anthracene	1.5×10^{-5}	
			Benzo(a) pyrene	1.1×10^{-4}	
			Benzo(b) fluoranthene	1.2×10^{-5}	
			Dibenz(a,h) anthracene	3.4×10^{-5}	
			Indeno (1,2,3-cd) pyrene	7.5×10^{-6}	
			Aroclor 1254	5.2×10^{-5}	
			Aroclor 1260	2.7×10^{-6}	
			Arsenic	1.2×10^{-5}	
			Total Chromium	7.3×10^{-4}	
			Vanadium	1.1×10^{-6}	
				J Surface Soil risk total=	9.8×10^{-4}

Risk Characterization

This table provides risk estimates for the significant future residential surface soil exposure pathways. 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 future lifetime resident's exposure to surface soil, as well as the toxicity of the COCs. The total risk from direct exposure to contaminated surface soil at each area of this site to a future lifetime resident is shown above. Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-8A through G-8F. The estimated chromium cancer risks shown on the Appendix D tables are based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the chromium cancer risks shown on the Appendix D tables for chromium overestimate risks from exposure to chromium. Total chromium risks and total area risks on the above table have been adjusted to reflect the chromium speciation data. The COCs contributing most to these risk levels are PAHs and arsenic in surface soil at each area and total chromium in surface soil at Area J. These risk levels indicate that if no clean-up action is taken, an individual would have an increased probability of 1.5 to 9.8 in 10,000 of developing cancer as a result of site-related exposure to the COCs.

Table G-9
Risk Characterization Summary – Carcinogens - Future Resident Exposures to Aggregate Soil

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk	
				Exposure Routes Total	
Soil	Aggregate Soil	Soil On-site Area D1	Benzo(a) anthracene	3.8×10^{-6}	
			Benzo(a) pyrene	5.9×10^{-5}	
			Benzo(b) fluoranthene	7.7×10^{-6}	
			Dibenz(a,h) anthracene	1.2×10^{-5}	
			Indeno (1,2,3-cd) pyrene	4.8×10^{-6}	
			Arsenic	9.7×10^{-6}	
			Vanadium	1.2×10^{-6}	
				D1 Aggregate Soil risk total=	1.0×10^{-4}
		Soil On-site Area D3	Benzo(a) anthracene	2.1×10^{-5}	
			Benzo(a) pyrene	2.3×10^{-4}	
			Benzo(b) fluoranthene	3.4×10^{-5}	
			Benzo(k) fluoranthene	1.5×10^{-6}	
			Dibenz(a,h) anthracene	7.8×10^{-5}	
			Indeno (1,2,3-cd) pyrene	1.6×10^{-5}	
			Arsenic	1.9×10^{-5}	
				D3 Aggregate Soil risk total=	4.0×10^{-4}
		Soil On-site	Dioxins (2,3,7,8-TCDD TEQ)	2.5×10^{-6}	

		Area E1	Benzo(a) anthracene	3.7×10^{-5}	
			Benzo(a) pyrene	3.3×10^{-4}	
			Benzo(b) fluoranthene	4.8×10^{-5}	
			Benzo(k) fluoranthene	1.9×10^{-6}	
			Dibenz(a,h) anthracene	1.4×10^{-5}	
			Indeno (1,2,3-cd) pyrene	7.2×10^{-6}	
			Arsenic	8.6×10^{-6}	
				E1 Aggregate Soil risk total=	4.6×10^{-4}
		Soil On-site Area E2	Dioxins (2,3,7,8-TCDD TEQ)	1.3×10^{-6}	
			Benzo(a) anthracene	1.2×10^{-5}	
			Benzo(a) pyrene	1.3×10^{-4}	
			Benzo(b) fluoranthene	1.7×10^{-5}	
			Dibenz(a,h) anthracene	1.1×10^{-5}	
			Indeno (1,2,3-cd) pyrene	6.4×10^{-6}	
			Arsenic	1.1×10^{-5}	
				E2 Aggregate Soil risk total=	1.9×10^{-4}
		Soil On-site Area E3	Benzo(a) anthracene	9.5×10^{-6}	
			Benzo(a) pyrene	7.4×10^{-5}	
			Benzo(b) fluoranthene	8.7×10^{-6}	
			Dibenz(a,h) anthracene	1.3×10^{-5}	
			Indeno (1,2,3-cd) pyrene	5.0×10^{-6}	
			Arsenic	1.3×10^{-5}	

			Total Chromium	2.6×10^{-6}	
				E3 Aggregate Soil risk total=	1.3×10^{-4}
		Soil On-site Area F	Benzo(a) anthracene	1.1×10^{-5}	
			Benzo(a) pyrene	9.1×10^{-5}	
			Benzo(b) fluoranthene	1.2×10^{-5}	
			Benzo(k) fluoranthene	1.2×10^{-6}	
			Dibenz(a,h) anthracene	2.2×10^{-5}	
			Indeno (1,2,3-cd) pyrene	4.9×10^{-6}	
			Arsenic	1.9×10^{-5}	
			Total Chromium	5.5×10^{-6}	
				F Aggregate Soil risk total=	1.7×10^{-4}
		Soil On-site Area G	Benzo(a) anthracene	4.4×10^{-6}	
			Benzo(a) pyrene	4.7×10^{-5}	
			Benzo(b) fluoranthene	6.6×10^{-6}	
			Dibenz(a,h) anthracene	1.3×10^{-5}	
			Indeno (1,2,3-cd) pyrene	2.6×10^{-6}	
			Arsenic	3.4×10^{-5}	
			Total Chromium	2.1×10^{-6}	
				G Aggregate Soil risk total=	1.1×10^{-4}
		Soil On-site Area H	Benzo(a) anthracene	3.5×10^{-5}	
			Benzo(a) pyrene	3.7×10^{-4}	
			Benzo(b) fluoranthene	4.2×10^{-5}	

			Benzo(k) fluoranthene	4.4×10^{-6}
			Dibenz(a,h) anthracene	9.9×10^{-5}
			Indeno (1,2,3-cd) pyrene	1.8×10^{-5}
			Arsenic	3.6×10^{-5}
			H Surface Soil risk total=	6.0×10^{-4}
		Soil On-site Area I	Benzo(a) anthracene	3.6×10^{-4}
			Benzo(a) pyrene	3.1×10^{-3}
			Benzo(b) fluoranthene	1.3×10^{-4}
			Benzo(k) fluoranthene	8.3×10^{-6}
			Chrysene	4.0×10^{-6}
			Dibenz(a,h) anthracene	7.6×10^{-4}
			Indeno (1,2,3-cd) pyrene	2.6×10^{-4}
			Arsenic	2.6×10^{-5}
			I Aggregate Soil risk total=	4.6×10^{-3}
		Soil On-site Area J	Dioxins (2,3,7,8-TCDD TEQ)	7.2×10^{-6}
			Benzo(a) anthracene	1.0×10^{-5}
			Benzo(a) pyrene	8.3×10^{-5}
			Benzo(b) fluoranthene	9.7×10^{-6}
			Dibenz(a,h) anthracene	1.9×10^{-5}
			Indeno (1,2,3-cd) pyrene	6.8×10^{-6}
			Aroclor 1254	1.0×10^{-5}
			Aroclor 1260	1.2×10^{-6}
			Arsenic	1.2×10^{-5}

			Total Chromium	2.0×10^{-4}
			J Aggregate Soil risk total=	3.6×10^{-4}

Risk Characterization

This table provides risk estimates for the significant future residential surface soil exposure pathways. 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 future lifetime resident's exposure to aggregate soil, as well as the toxicity of the COCs. The total risk from exposure to contaminated aggregate soil at each area of this site to a future lifetime resident is shown above. Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-9A through G-9J. The estimated chromium cancer risks shown on the Appendix D tables are based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the chromium cancer risks shown on the Appendix D tables for chromium overestimate risks from exposure to chromium. Total chromium risks and total area risks on the above table have been adjusted to reflect the chromium speciation data. The COCs contributing most to these risk levels are PAHs and arsenic in aggregate soil. These risk levels indicate that if no clean-up action is taken, an individual would have an increased probability of 1 in 10,000 to 4.6 in 1,000 of developing cancer as a result of site-related exposure to the COCs.

Table G-10

Risk Characterization Summary - Non-Carcinogens - Future Child Resident Exposures to Surface Soil

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient
					Exposure Routes Total
Soil	Surface Soil	Soil Area G	Antimony	Blood	1.3
				Receptor Hazard Index =	**5.0**
				Blood Hazard Index =	**1.9**
Soil	Surface Soil	Soil Area J	Aroclor 1254	Eyes and Immune system	10
			Total Chromium (as chromium VI)	None Observed	60
			Nickel	Body Weight	1.2
				Receptor Hazard Index =	**73**
				Eyes and Immune system Hazard Index =	**10**
				None Observed Hazard Index =	**60**
				Body Weight Hazard Index =	**1.2**

Risk Characterization

This table provides the hazard index (sum of hazard quotients) for future child residential Area G and Area J surface soil exposure pathways. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a HI greater than 1 indicates the potential for adverse non-cancer effects. The estimated Area G HI of 5.0 indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing antimony. The estimated Area J HI of 73 indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing PCBs, chromium, and nickel. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-10A and G-10B. The estimated chromium HI is based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the HI for total chromium greatly overestimates concerns for exposure to chromium. This overestimated HI does not have any effect on remedy selection or cleanup goals. An unacceptable noncancer hazard exists for other COCs. Chromium remains a COC based on potential cancer risks.

Table G-11

Risk Characterization Summary - Non-Carcinogens - Future Child Resident Exposures to Aggregate Soil

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient
					Exposure Routes Total
Soil	Aggregate Soil	Soil Area G	Antimony	Blood	1.3
				Receptor Hazard Index =	**4.6**
				Blood Hazard Index =	**1.9**
Soil	Aggregate Soil	Soil Area J	Aroclor 1254	Eyes and Immune system	2.0
			Total Chromium (as chromium VI)	None Observed	16
				Receptor Hazard Index =	**21**
				Eyes and Immune system Hazard Index =	**2.0**
				None Observed Hazard Index =	**16**

Risk Characterization

This table provides HQs for each route of exposure and the HI (sum of HQs) for future child residential Area G and Area J aggregate soil exposure pathways. The RAGS for Superfund states that, generally, a HI greater than 1 indicates the potential for adverse non-cancer effects. The estimated Area G HI of 4.6 indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing antimony. The estimated HI of 21at Area J indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing PCBs and chromium. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-11A and G-11B. The estimated chromium HI is based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the HI for total chromium greatly overestimates concerns for exposure to chromium. .

Table G-12

Risk Characterization Summary - Non-Carcinogens - Future Adult Resident Exposures to Surface Soil

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient
					Exposure Routes Total
Soil	Surface Soil	Soil Area J	Aroclor 1254	Eyes and Immune system	1.2
			Total Chromium (as chromium VI)	None Observed	6.5
				Receptor Hazard Index =	**8.1**
				Eyes and Immune system Hazard Index =	**1.2**
				None Observed Hazard Index =	**6.5**

Risk Characterization

This table provides HQs for each route of exposure and the HI (sum of HQs) for future adult residential Area J surface soil exposure pathways. The RAGS for Superfund states that, generally, a HI greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of 8.1 indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing PCBs and chromium. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Table G-12A. The estimated chromium HI is based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the HI for total chromium greatly overestimates concerns for exposure to chromium. .

Table G-13

Risk Characterization Summary - Non-Carcinogens - Future Adult Resident Exposures to Aggregate Soil

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient
					Exposure Routes Total
Soil	Aggregate Soil	Soil Area J	Total Chromium (as chromium VI)	None Observed	1.8
				Receptor Hazard Index =	**2.3**
				None Observed Hazard Index =	**1.8**

Risk Characterization

This table provides HQs for each route of exposure and the HI (sum of HQs) for future adult residential Area J aggregate soil exposure pathways. The RAGS for Superfund states that, generally, a HI greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of 2.3 indicates that the potential for adverse noncancer effects could occur from exposure to contaminated soil chromium. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Table G-13A. The estimated chromium HI is based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the HI for total chromium greatly overestimates concerns for exposure to chromium.

Current and Future Industrial/Commercial Workers, Exposure to Soil

Unacceptable risks were found for:

1) Future industrial/commercial workers, potentially exposed to surface soil at Area J; and
2) Future industrial/commercial workers, potentially exposed to aggregate soil at Area I.

Current or future industrial/commercial workers were evaluated for potential exposure to soil via incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors. The following assumptions used in the evaluations of industrial/commercial worker soil exposures apply to both surface soil and aggregate soil exposures.

Industrial/commercial workers were assumed to be exposed to Site soil for 250 days per year for 25 years, ingesting an average of 100 mg of soil per day and contacting soil with head, hands, and forearms (3,300 cm^2). A value of 0.2 mg/cm^2-event was used as the SSAF for adult industrial/commercial workers. For all industrial/commercial workers, inhalation of dust and soil vapor exposures assumed exposure to dust occurs 8 hours per day.

Table G-14 depicts the carcinogenic risk summary for the chemicals of concern in aggregate soil evaluated to reflect potential future industrial/commercial worker exposures to soil corresponding to the RME scenario. Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Table G-14A.

Tables G-15 and G-16 depict the non-carcinogenic risk summary for the chemicals of concern in surface soil and aggregate soil evaluated to reflect potential future industrial/commercial worker exposures to soil corresponding to the reasonable maximum exposure (RME) scenario. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Tables G-15A and Table G-16A.

Table G-14

Risk Characterization Summary – Carcinogens - Future Industrial/Commercial Worker Exposures to Aggregate Soil

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk	
				Exposure Routes Total	
Soil	Aggregate Soil	Soil On-site Area I	Benzo(a) anthracene	2.5×10^{-5}	
			Benzo(a) pyrene	2.1×10^{-4}	
			Benzo(b) fluoranthene	8.8×10^{-6}	
			Dibenz(a,h) anthracene	5.3×10^{-5}	
			Indeno (1,2,3-cd) pyrene	1.8×10^{-5}	
			Arsenic	6.2×10^{-6}	
				I Aggregate Soil risk total=	3.3×10^{-4}

Risk Characterization

This table provides risk estimates for the significant future industrial/commercial worker aggregate soil exposure pathways. 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 future industrial/commercial worker's exposure to aggregate soil at Area I, as well as the toxicity of the COCs. The total risk from exposure to contaminated aggregate soil at this area of this site to a future industrial/commercial worker's is estimated to be 3.3×10^{-4} . . Details of route-specific risks for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Table G-14A. The estimated chromium cancer risks shown on the Appendix D tables are based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the chromium cancer risks shown on the Appendix D tables for chromium overestimate risks from exposure to chromium. Total area risks on the above table have been adjusted to reflect the chromium speciation data. The COCs contributing most to this risk level are PAHs in soil. This risk level indicates that if no clean-up action is taken, an individual would have an increased probability of 3 in 10,000 of developing cancer as a result of site-related exposure to the COCs.

Table G-15

Risk Characterization Summary - Non-Carcinogens - Future Industrial/Commercial Worker Exposures to Surface Soil

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient
					Exposure Routes Total
Soil	Surface Soil	Soil Area J	Aroclor 1254	Eyes and Immune system	1.1

			Total Chromium (as chromium VI)	None Observed	4.6
					Receptor Hazard Index = **5.9**
					Eyes and Immune system Hazard Index = **1.1**
					None Observed Hazard Index = **4.6**

Risk Characterization

This table provides the HI (sum of HQs) for future industrial/commercial worker Area J surface soil exposure pathways. The RAGS for Superfund states that, generally, a HI greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of 5.9 indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing PCBs and chromium. Details of route-specific hazard quotients for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Table G-15A. The estimated chromium HI is based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the HI for total chromium greatly overestimates concerns for exposure to chromium. .

Table G-16
Risk Characterization Summary - Non-Carcinogens - Future Industrial/Commercial Worker Exposures to Aggregate Soil

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient
					Exposure Routes Total
Soil	Aggregate Soil	Soil Area J	Total Chromium (as chromium VI)	None Observed	1.3
					Receptor Hazard Index = **1.7**
					None Observed Hazard Index = **1.3**

Risk Characterization

This table provides the HI (sum of HQs) for future industrial/commercial worker Area J aggregate soil exposure pathways. The RAGS for Superfund states that, generally, a HI greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of 1.7 indicates that the potential for adverse non-cancer effects could occur from exposure to contaminated soil containing chromium. Details of route-specific HQs for ingestion, dermal contact, and inhalation of dust or soil vapors for each COC are provided in Appendix D, Table G-16A. The estimated chromium HI is based on the assumption that total chromium is 100% hexavalent chromium. Chromium speciation sampling at the Site indicates total chromium consists of just 1.54% hexavalent chromium. Therefore, the HI for total chromium greatly overestimates concerns for exposure to chromium.

Cancer Risk Summary

Cancer risks due to exposure to soils and vapor intrusion are summarized below.

Exposure to Soils

As shown on Tables G-7 through G-9 and G-14, the cancer risk estimates exceed the EPA acceptable cancer risk range (10^{-4} to 10^{-6}) for: 1) current residents exposed to surface soils at three areas (Areas D1, E3, and F); 2) future residents potentially exposed to surface soils at four current commercial areas (Areas D3, G, H, and I), at one residential property for elderly residents assuming the elderly housing is converted to become housing for families with children (Area E1), at one commercial property being used as a daycare facility assuming it is converted to residential (Area E2), and at the currently undeveloped parcel (Area J); 3) potential future residents at each of the ten areas assuming future exposure to aggregate soils (0-10 feet); and 4) future industrial/commercial workers at Area I assuming future exposure to aggregate soils (0-10 feet). The dominant risk drivers are carcinogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene), arsenic, chromium, and PCBs (at Area J only). Dioxins are also risk drivers at Areas E2 and J. While dioxin TEQ was identified as a contributor to cancer risk, the detected concentrations are below the selected cleanup levels (CULs) (see L.4.a for more detail on CUL selection.)

Vapor Intrusion

Although no quantitative risks were estimated for potential exposures to groundwater contaminants via vapor intrusion, this pathway was evaluated for Parcel A (Areas D1, D3, E1, E2, E3, F, G, H, and I) and Parcel B (Area J) through comparison of inhalation risk-based screening criteria to shallow groundwater sampling results. The qualitative vapor intrusion screening evaluation indicated potential risks from vapor intrusion. Chloroform, TCE, vinyl chloride, and mercury concentrations in shallow groundwater exceed the screening levels in Parcel A. The subsequent Tier II analysis found the maximum mercury concentration corresponded to an acceptable risk level for residential indoor air exposure (HQ less than 1) so mercury was not considered to be a contaminant of concern. Of particular concern is Area E1, where elevated concentrations (maximum of 12 ug/L in March 2010 from MW-12S) of vinyl chloride are sporadically detected and correspond to a risk level of slightly over 1.0×10^{-4} for residential indoor air exposures (see the HHRA, Section 4.2.3). These risks may combine with risks from future residential exposures to soil, yielding higher risks of 2.5×10^{-4} (in combination with risks from surface soil) or 5.6×10^{-4} (in combination with risks from aggregate soil).

In addition, shallow groundwater concentrations of vinyl chloride in Area J (currently undeveloped) exceeded screening levels (CT RSRs). Therefore, potential risks from vapor intrusion may be present in future scenarios if the property was developed.

Although elevated concentrations of vinyl chloride were detected in Area D1, these concentrations were limited to the deep overburden monitoring well (MW-9D, Figure E-10 in Appendix B). VOCs were generally not present in the overlying shallow overburden groundwater at this location (MW-9S). In Area F, sporadic VOCs were detected at trace concentrations at a location over 100 feet from the nearest structure.

Non-Cancer Health Hazards Summary

In addition to the cancer risks, non-cancer hazard indices exceeding 1.0 indicated potential adverse non-cancer effects for future adult and child residents from exposures to soil at several areas. If the value of the HI exceeds 1.0, there is a potential for non-carcinogenic health effects associated with that particular chemical mixture, and therefore it is necessary to segregate the HQs by target organ effects. Target organ-specific HIs below 1 are unlikely to result in adverse effects. Target organ-specific hazard indices are less than 1.0 in all areas, except two – Areas G and J. As shown on Tables G-13 and G-15 through G-18, these target organ-specific HIs exceed 1 for child residents (Areas G and J), adult residents (Area J), and industrial/commercial workers (Area J). At Area G, estimated HIs indicated potential adverse non-cancer effects on blood predominantly resulting from exposures to antimony in either surface soils or aggregate soil. At Area J, estimated HIs indicated potential adverse non-cancer effects on the eyes and immune system for future child and adult residents and industrial/commercial workers predominantly resulting from exposures to PCBs (Aroclor 1254) in surface soils and for future child residents from exposures to PCBs in aggregate soil, and for future child residents on body weight predominantly resulting from exposures to nickel in either surface soils or aggregate soil. No target organ is specified for non-carcinogenic effects of chromium; however, at Area J, the estimated chromium individual contaminant HIs for future resident or industrial/commercial worker exposures to chromium in either surface soil or aggregate soil indicated potential adverse non-cancer effects.

The Integrated Exposure and Uptake Biokinetic (IEUBK) model was used to evaluate the hazard potential posed by future residential exposure of young children less than 7 years of age as the most sensitive receptor group to surface soil or aggregate soil at Area G and aggregate soil at Area H should these current commercial properties be redeveloped for residential use. Population geometric standard deviation set to 1.6. The outcome of the model revealed that 48% of future residential children exposed to surface soil at Area G, 39% of future residential children exposed to aggregate soil at Area G; and 9% of future residential children exposed to aggregate soil at Area H are predicted to have blood lead levels greater than 10 micrograms per deciliter (µg/dL). It is EPA policy to protect 95% of the sensitive population against blood lead levels in excess of 10 µg/dL blood.

Uncertainties of the HHRA

The process of evaluating human health cancer risks and non-cancer HIs involves multiple steps. Inherent in each step of the process are uncertainties that ultimately affect the

final cancer risks and non-cancer HIs. Uncertainties may exist in numerous areas. Sources of uncertainty in the HHRA include exposure and toxicity assessments. These are further discussed below.

Exposure Assessment

The parameter values used to describe the extent, frequency, and duration of exposure were selected to produce an upper-bound estimate of exposure in accordance with USEPA guidance to be protective of the RME individual. Exposures and estimated potential risks may be overestimated.

Toxicity Assessment

There is uncertainty associated with all toxicity values. However, the CSFs were developed to represent plausible upper bound estimates, which means that EPA is reasonably confident that the actual cancer risk will not exceed the estimated risk calculated using the CSF. The toxicity of hexavalent chromium with respect to cancer effects is under review by EPA's Integrated Risk Information System (IRIS) program.

For dermal exposure pathways, the absence of dermal toxicity criteria necessitated the use of oral toxicity data. A default absorption of 100% was assumed except when oral bioavailability factors were available to modify the oral toxicity criteria. The risk estimates for the dermal pathways may be over-or underestimated.

2. Ecological Risk Assessment

The preponderance of the evidence indicated a low potential for impact on the long-term health and stability of the benthic invertebrate community in Wetland 1 (except perhaps in a few focused areas with high levels of COCs) and of the local water column invertebrate and larval amphibian communities in Wetland 2. A high potential for risk to benthic invertebrates was found in one area of Wetland 2 abutting Newbury Street (Figure 1), potentially due to concentrations of copper and/or the oily sheen observed during sediment sampling and toxicity testing. There is also the potential for localized and short-lived, but significant risk to water column invertebrates and larval amphibians in the vicinity of the metal “cage” at the southern tip of Wetland 1.

Wetland 2 receives surface runoff from surrounding areas including several streets and at least one parking lot. Anthropogenic sources of copper include brake dusts and the wear of engine bearings and parts. Oil leaks from the engine blocks convey contamination (including metals) into the environment. Because there has been observable sheen in Wetland 2, one may conclude that oil leaks from vehicles and road dusts (including brake dusts) are conveyed as storm runoff from the streets into Wetland 2, resulting in the accumulation of the oil and possibly heavy metals that may pose risk to the benthic invertebrates.

The two on-site wetlands are degraded and are of low functional value. Both receive surface water runoff that conveys oils, heavy metals, and other contaminants from nearby parcels and roadways. Based on the quality of the habitats provided by the wetlands and minimal Site-related impacts, no further action will be considered.

3. Basis for Response Action

Because the baseline human health risk assessment revealed that current or future residential and future industrial/commercial workers' exposure to compounds of concern in surface and aggregate soils via incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors may present an unacceptable human health risk (cancer risk greater than 10^{-4} and noncancer HI of greater than 1), 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.

4. Chemical of Concern Selection

Contaminants of Concern (COCs) were identified based on the human health risk assessment (Section G.1) and ecological risk assessment (Section G.2) results for chemicals in environmental media identified during the RI. The COC selection process is detailed in Section 2.4 of the Final FS, and results are summarized in Table L-1 and L-2 of Appendix C.

Summaries of PRGs and PMCs exceedances for Site COCs are presented in Figures E-11 through E-15 (Appendix B). For soil COCs, data is presented in various depth intervals, including 0-2 ft bgs, 2-4 ft bgs, and 4-10 ft bgs.

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 from soil and vapor intrusion; and to attain applicable or relevant and appropriate requirements (ARARs). The RAOs for the selected remedy for Site are:

Soil RAOs

- Protection of Human Health RAO – The soil RAO for the protection of human health is to prevent potential direct exposure (inhalation, dermal contact, or ingestion) to soil with contaminant concentrations exceeding the risk-based goals, ARARs, or site-specific background concentrations.

- Protection of the Environment RAO – The soil RAO for the protection of the environment is to prevent the potential transport of soil contaminants to groundwater.

Vapor Intrusion RAOs

- Protection of Human Health RAO – The vapor intrusion RAO for the protection of human health is to prevent potential exposure to soil vapor contaminants resulting from localized groundwater VOCs contamination that would result in cancer risk greater than 1.0E-04 to 1.0E-06, or a non-carcinogenic risk greater than a HI of 1.

In order to achieve the soil and vapor intrusion RAOs, soil cleanup and vapor intrusion screening levels were established. The cleanup and screening levels are discussed in Section L.4.

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 NCP set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a range of alternatives were developed for the site.

With respect to source control, the RI/FS developed a range of alternatives that mitigate potential health risks. Because the Site has no principal threat wastes, treatment was not a principal element to reduce the toxicity, mobility, or volume of the hazardous substances. This range also included alternatives that involve little or no treatment but provide protection through engineering or institutional controls; and a no action alternative.

As discussed in Section 3.0 of the FS, soil and vapor intrusion treatment technology options were identified, assessed and screened based on implementability, effectiveness, and cost. These technologies were combined into source control (SC) alternatives. Section 4.0 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. From this initial screening, remedial options were combined and eight soil and four vapor intrusion remedial alternatives were selected for detailed analysis. Each alternative was then evaluated in detail in Sections 5.0, 6.0, and 7.0 of the FS.

J. DESCRIPTION OF ALTERNATIVES

This Section provides a narrative summary of each source control alternative evaluated, including both soil and vapor intrusion alternatives.

1. Soil Alternatives Analyzed

The soil alternatives analyzed for the Site include**:**

- SO1 – No Action [all Areas];
- SO2 – Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H];
- SO3 – Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F];
- SO4 – Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F];
- SO5 – Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J];
- SO6 – Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews PRG and PMC Exceedances within Area J];

- SO7 – Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]; and

- SO8 – Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I].

Each of the eight soil alternatives is summarized below and in Figures J-1 through J-8 (Appendix B). Detailed evaluations of each alternative are found in Section 5.1 of the FS and are included as Tables J-1 through J-8 (Appendix E).

Alternative SO1 – No Action [all Areas]

Although this alternative does not achieve the RAOs, it is retained as a baseline alternative for comparison in accordance with the NCP and the RI/FS Guidance. Under this alternative, there will be no reduction of risk in the near term. Reduction of risks in the long term may occur gradually; however, the likelihood is low for natural degradation of Site contaminants.

This alternative is not protective and does not meet ARARs. There are no capital costs associated with this alternative. A detailed evaluation of this alternative is included in Table J-1 (Appendix E). In addition, Tables J-13, J-14, and J-15 (Appendix E) provides an evaluation of compliance with ARARs for Alternative SO1.

Alternative SO2 – Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]

This alternative involves no active treatment, but provides protection of human health by preventing or controlling potential exposures to contaminated soil through institutional controls. This alternative is applicable to Areas where the HHRA concluded that risk is less than 1.0E-04, but where there could be unacceptable risk if the Areas were used for residential purposes in the future (Areas D3, E2, G, and H). This alternative also applies to Area E3, where the risk is equal to or greater than 1.0E-04, but no exceedances of Preliminary Remediation Goals (PRGs) were observed in soils that are considered to be accessible. Components of this alternative include:

- Institutional Controls – Use restrictions to limit, govern, or prevent excavations in contaminated fill, and to prevent unacceptable exposures to contaminants. Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law, other enforceable mechanisms, zoning ordinances, or a combination thereof. The following institutional controls will be implemented:

    - IC-1 – Prevent future excavation of on-site soils for use or disposal beyond the property boundary without state regulatory approval;

  - IC-2 – Prevent future residential use, unless the area is already currently being used as residential use without federal/state regulatory approval.; and
  - IC-3 – Prevent excavation and re-use of soil from 4 feet below ground surface (ft bgs) or deeper without state regulatory approval.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1, IC-2, and IC-3) are implemented to protect human health and the environment in accordance with the requirements of the selected remedy. Site conditions and protectiveness of remedy will be reviewed at that time.

- Five-Year Reviews – Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. Use restrictions, consistent with state law, will prevent potential exposure to soil contaminants in these Areas if the institutional controls are periodically assessed and enforced. In the short term, protection would be achieved when institutional controls have been put in place. Reductions of Site contaminant concentrations in the long term may occur gradually; however, the likelihood is low for natural degradation of Site contaminants. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of this alternative is $233,000. A detailed evaluation of this alternative is presented in Table J-2 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

Alternative SO3 – Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]

This alternative uses targeted excavations coupled with off-site disposal and institutional controls to prevent exposure to contaminated soil at the Site. The excavations will be at locations with PRG and PMC exceedances in Areas D1, E1, and F, where estimated risk is equal to or greater than 1.0E-04. Components of this alternative include:

- Pre-Design Investigation – Conduct a soil investigation at the neighboring residential properties (110, 118, 126, and 134 Monroe Avenue) in the vicinity of Area E1 to further delineate the extent Site COCs.

- Targeted Excavation and Off-site Disposal – Excavate and dispose of identified PRG and PMC exceedances within Risk Areas D1, E1, and F. Targeted excavation and disposal (approximately 144 cubic yards [cy]) includes the following:

  - For PRG exceedances, remove pavement or surface vegetation, excavate to 4 ft below ground surface (bgs), backfill with 3.5 feet clean fill and 6 inches topsoil, and revegetate or backfill and restore pavement;

- For PMC exceedances, remove pavement or surface vegetation, excavate to the top of groundwater, backfill with clean fill, topsoil, vegetation, and/or pavement, if applicable;
- Dust control during excavation;
- Confirmation sampling; and
- Off-site disposal of excavated materials.

- Institutional Controls – The institutional controls described in Alternative SO2 will be implemented, except IC-2 because Areas D1, E1, and F are already used for residential purposes.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls are implemented to protect human health and the environment in accordance with the requirements of the selected remedy.

- Five-Year Reviews – Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs in shallow soil because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 4 feet and disposed of off-site. In addition, use restrictions, consistent with state law, will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants. In the short term, protection would be achieved through the targeted removal of soil. Remaining risk would be managed by implementing, monitoring, and enforcing institutional controls. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of this alternative is $382,000. A detailed evaluation of this alternative is provided in Table J-3 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

Alternative SO4 – Targeted In-situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]

This alternative uses targeted in-situ solidification/stabilization of PRG and PMC exceedances to prevent potential exposure to contaminated soil and leaching to groundwater in Areas D1, E1, and F. At targeted locations, soil and soil COCs would be encapsulated in-situ to form a solid material. Components of this alternative include:

- Pre-Design Investigation – Conduct soil investigations in the vicinities of PRG and PMC exceedances in Areas D1, E1, and F to further delineate the extent of the exceedance and at the neighboring residential properties in the vicinity of Area E1 to further delineate the extent of Site COCs.

- In-situ Physical Treatment – Target PRG and PMC exceedances within Areas D1, E1, and F using solidification/stabilization to treat and immobilize COCs.

    - Perform bench and field pilot testing;
    - Use mechanical mixing and low-permeability materials to encapsulate contaminated materials at targeted depths (4 ft bgs for PRG and top of groundwater for PMC exceedances, a volume of approximately 9.3 cy); and
    - Confirmation sampling.

- Institutional Controls – The institutional controls described in Alternative SO2 will be implemented except IC-2 because Areas D1, E1, and F are already used for residential purposes.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1 and IC-3) are implemented to protect human health and the environment in accordance with the requirements of the selected remedy.

- Five-Year Reviews – Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs in shallow soil because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be encapsulated in-situ. In addition, use restrictions, consistent with state law, will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants. This alternative effectively reduces risks through targeted solidification/ stabilization. Remaining risk would be managed by implementing, monitoring, and enforcing institutional controls. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of this alternative is $400,000. A detailed evaluation of this alternative is provided in Table J-4 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

Alternative SO5 – Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]

This alternative uses a pre-design investigation (PDI) to further characterize Area J. The PDI will delineate PRG and PMC exceedances. This alternative will use excavation coupled with off-site disposal, backfilling, and institutional controls to prevent exposure to contaminated soil in Area J. Alternative SO5 assumes that based on the PDI, a portion of Area J rather than discrete “hot spots” will need to be addressed because of PRG exceedances. Components of this alternative include:

- Pre-Design Investigations – Perform PDI to delineate PRG and PMC exceedances and further characterize Area J for PCBs presence. Evaluate the management of stormwater during and after construction activities.

- Excavation and Off-site Disposal – Excavate and dispose of PRG and PMC exceedances within Risk Area J. The excavation and disposal may include the following:

    - For PRG exceedances, remove all surface vegetation and excavate to 4 ft bgs;
    - For PMC exceedances, remove all surface vegetation and excavate to the top of groundwater;
    - Backfill with clean fill at excavation areas;
    - Disposal volumes are dependent on the PDI results. Dispose of PMC exceedances (approximately 420 cy) as non-hazardous and remaining PRG exceedances (approximately 12,800 cy) includes the following range of possible volumes, considered for cost sensitivity:
        - SO5A - all 12,800 cy non-hazardous (PCBs < 50 mg/Kg, passes toxicity characteristic leaching procedure [TCLP] metals),
        - SO5B – 2,200 cy hazardous (PCBs ≥ 50 mg/Kg, fails TCLP metals), 10,600 CY non-hazardous,
        - SO5B – 4,400 cy hazardous (PCBs ≥ 50 mg/Kg, fails TCLP metals), 8,400 CY non-hazardous, and
        - SO5D - all 12,800 cy hazardous (PCBs ≥ 50 mg/Kg, fails TCLP metals);
    - Dust control during excavation; and
    - Confirmation sampling.

- Institutional Controls – The institutional controls described in Alternative SO2 will be implemented, including the restriction on residential use. In addition, access restrictions, such as a fence and warning signs, may also be implemented.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1, IC-2, and IC-3) are implemented to protect human health and the environment in accordance with the requirements of the selected remedy.

- Five-Year Reviews – Assessments will be performed no less than every 5 years at every Five-Year Review. Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs in shallow soil because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 4 feet and disposed of off-site. In addition, use restrictions, consistent with state law, will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants. In the short term, protection would be achieved through the removal of soil with PRG exceedances in Area J. Remaining risk would be managed by implementing, monitoring, and enforcing institutional controls. Periodic assessments would be

performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of alternatives SO5A, SO5B, SO5C, and SO5D is $4,551,000, $5,662,000, $6,772,000, and $11,013,000, respectively. A detailed evaluation of this alternative is provided in Table J-5 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

Alternative SO6 – Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [Area J]

This alternative uses a PDI to further characterize Area J. The PDI will delineate PRG and PMC exceedances. The installation of a soil cap coupled with institutional controls will be used to prevent exposure to contaminated soil in Area J. Components of this alternative include:

- Pre-Design Investigations – Perform PDI to delineate PRG and PMC exceedances and further characterize Area J. Evaluate the management of stormwater during and after construction activities.

- Excavation and Consolidation – Excavate 6 discrete PMC exceedances and PRG exceedances outside of the planned cap area. The excavation and disposal may include the following:

    - For PRG exceedances, remove all surface vegetation and excavate to 4 ft bgs;
    - For PMC exceedances, remove all surface vegetation and excavate to the top of groundwater;
    - Consolidate PRG exceedances within planned cap area;
    - Dust control during excavation; and
    - Confirmation sampling.

- Soil Cap – Install a soil cap to prevent direct contact with contaminated soil within Area J. The soil cap will be approximately 86,200 SF and raise the ground surface by approximately 2 feet. The soil cap will consist of a geotextile, barrier layer (cobbles, 1 foot), soil cover (1 foot), and surface vegetation.

- Off-Site Disposal – Excavated soil that exceeds the PMC (approximately 420 cy was assumed) will be sent for off-site disposal.

- Institutional Controls – The institutional controls described in Alternative SO2 will be implemented, including the restriction on residential use. In addition, a deed restriction, easement, covenant or other enforceable mechanism will be required to ensure long-term care of cap components, including repairs, and to establish limitations on and requirements for future construction in Area J to maintain the integrity of the cap. Access restrictions, such as a fence and warning signs, may also be implemented.

- Operation and Maintenance – Long-term operation and maintenance of the soil cap will be required to ensure the area is not disturbed. The cap inspections will take place annually.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1, IC-2, and IC-3) are implemented to protect human health and the environment in accordance with the requirements of the selected remedy.

- Five-Year Reviews – Assessments will be performed no less than every 5 years at every Five-Year Review. Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be covered with a soil cap. The cap will comply with standards for addressing bulk PCB remediation wastes with concentrations of < 25 ppm PCBs found at 40 C.F.R. § 761.61. The soil cap will meet the standards for high occupancy areas, including minimum thickness requirements, the permeability, sieve, liquid limit and plasticity index parameters in 40 C.F.R. § 761.75(b)(1)(ii) through (v), and RCRA landfill closure requirements at 40 C.F.R. § 264.310(a). In addition, use restrictions, consistent with state law and 40 C.F.R. §761.61(a)(8), will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants. In the short term, protection would be achieved through the containment of contaminated soil in Area J. Remaining risk would be managed by implementing, monitoring, and enforcing institutional controls. Long-term operation and maintenance of the soil cap will be required to ensure the area is not disturbed. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of the alternative is $1,416,000. A detailed evaluation of this alternative is provided in Table J-6 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

Alternative SO7 – Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]

This alternative uses a PDI to further characterize Area J to delineate PRG and PMC exceedances. This alternative assumes 48 discrete PRG and 6 PMC exceedance locations will be identified during the PDI. Targeted excavations (similar to Alternative SO3 in Areas D1, E1, and F) coupled with off-site disposal, capping/containment (as appropriate), and institutional controls to prevent exposure to contaminated soil in Area J. Components of this alternative include:

- Pre-Design Investigations – Perform PDI to delineate PRG and PMC exceedances and further characterize Area J. Evaluate the management of stormwater during and after construction activities.

- Targeted Excavations and Off-site Disposal – Excavate and dispose of PRG and PMC exceedances within Risk Area J. Targeted excavations and disposal includes the following:

    - For PRG exceedances, remove all surface vegetation, excavate to 4 ft bgs, backfill with 3.5 feet clean fill and 6 inches topsoil, and revegetate;
    - For PMC exceedances, remove surface vegetation, excavate to the top of groundwater, backfill, and revegetate;
    - Dispose of contaminated soil off-site (approximately 516 cy);
    - Dust control during excavation; and
    - Confirmation sampling.

- Institutional Controls – The institutional controls described in Alternative SO2 will be implemented, including the restriction on residential use. In addition, access restrictions, such as a fence and warning signs, may also be implemented.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1, IC-2, and IC-3) are implemented to protect human health and the environment in accordance with the requirements of the selected remedy.

- Five-Year Reviews – Assessments will be performed no less than every 5 years at every Five-Year Review. Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 4 feet and disposed of off-site. In addition, use restrictions, consistent with state law, will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants. In the short term, protection would be achieved through the targeted removal of soil with PRG exceedances in Area J. Remaining risk would be managed by implementing, monitoring, and enforcing institutional controls. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of the alternative is $1,293,000. A detailed evaluation of this alternative is provided in Table J-7 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

Alternative SO8 – Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]

This alternative uses a PDI to further characterize Area I. The PDI will delineate PRG and PMC exceedances. An excavation coupled with off-site disposal and institutional controls to prevent exposure to contaminated soil in Area I. Components of this alternative include:

- Pre-Design Investigations – Perform PDI to delineate PRG and PMC exceedances and further characterize Area I.

- Excavation and Off-site Disposal – Excavate and dispose of PRG and PMC exceedances within Risk Area I. Excavation and disposal may include the following:

    - Remove all surface vegetation, excavate to 2 or 4 ft bgs (PRG exceedance) and top of groundwater (PMC exceedance);
    - Install backfill (clean fill and asphalt) in excavation areas;
    - Dispose of contaminated soil off-site;
    - Dust control during excavation; and
    - Confirmation sampling.

    Several excavation scenarios were considered for cost sensitivity. The excavation scenarios are dependent on the PDI results and include the following:

    - SO8A – Targeted excavation and off-site disposal of 30 discrete PRG (4 ft bgs) and 1 PMC (top of groundwater) exceedances, approximately 130 cy.
    - SO8B – Excavation and off-site disposal of a 24,600 square foot (sf) area. PRG exceedances will be excavated to 4 ft bgs and PMC exceedances to the top of groundwater, approximately 3,714 cy.
    - SO8C – Excavation and off-site disposal of a 24,600 sf area. PRG exceedances will be excavated to 2 ft bgs and PMC exceedances to the top of groundwater, approximately 1,892 cy.

- Operation and Maintenance (SO8C only) – Long-term operation and maintenance of the pavement will be required to ensure the area is not disturbed.

- Institutional Controls – The institutional controls described in Alternative SO2 will be implemented, including the restriction on residential use.

- Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1, IC-2, and IC-3) are implemented to protect human health and the environment in accordance with the requirements of the selected remedy.

- Five-Year Reviews – Assessments will be performed no less than every 5 years at every Five-Year Review. Review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 2 or 4 feet and disposed of off-site. In addition, use restrictions, consistent with state law, will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants. In the short term, protection would be achieved through the removal of soil with

PRG exceedances in Area I. Remaining risk would be managed by implementing, monitoring, and enforcing institutional controls. Long-term operation and maintenance of the pavement (SO8C only) will be required to ensure the area is not disturbed. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of alternatives SO8A, SO8B, and SO8C is $434,000, $1,518,000, and $1,062,000, respectively. A detailed evaluation of this alternative is provided in Table J-8 (Appendix E). In addition, an evaluation of compliance with ARARs is presented in Tables J-13, J-14, and J-15 (Appendix E).

2. Vapor Intrusion Alternatives Analyzed

The vapor intrusion alternatives analyzed for the Site include:

- VI1 – No Action [Areas E1 and J];
- VI2 – Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1 and J];
- VI3 – Active Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]; and
- VI4 – Passive Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1].

Each of the four vapor intrusion alternatives is summarized below and in Figures J-9 through J-13 (Appendix B). Detailed presentations of each alternative are found in Section 5.2 of the FS and are provided in Tables J-9 through J-12 (Appendix E).

Alternative VI1 – No Action [Areas E1 and J]

This alternative was developed as a baseline case, as required by the NCP, to which all other vapor intrusion alternatives may be compared. Under this alternative, there will be no reduction of risk in the near term. Reduction of risk in the long term will occur gradually as natural attenuation of groundwater through abiotic and biotic degradation and advection takes place.

This alternative is not protective and does not meet ARARs. There are no capital costs associated with this alternative. A detailed evaluation of this alternative is provided in Table J-9 (Appendix E); and an evaluation of compliance with ARARs is presented in Tables J-16, J-17, and J-18 (Appendix E).

Alternative VI2 – Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1 and J]

This alternative involves no passive or active vapor collection, removal, or treatment of Area E1 and J but provides limited protection of human health by preventing or controlling potential exposures to contaminated soil vapor through institutional controls. Components of this alternative include:

- Institutional Controls – Use restrictions will be implemented to limit, govern, or prevent new construction without the installation of a soil vapor barrier and/or vapor mitigation system and prohibit residential occupation of 1st floor apartments within existing building (Area E1). Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law or other enforceable mechanisms. The following institutional controls will be implemented:
    - VIIC-1 – Prohibit the use of first floor residential units without the use of vapor mitigation systems, unless information that demonstrates the systems are not needed is provided to the regulatory agencies for review and approval; and
    - VIIC-2 – Any new constructions will require the use of vapor mitigation systems, unless information that demonstrates the systems are not needed is provided to the regulatory agencies for review and approval.

- Periodic Assessments – Periodic assessments will be performed to verify that there are no prohibited uses, consistent with institutional controls.

- Five-Year Reviews – Review Site conditions and protectiveness of remedy every 5 years.

This alternative does not include mitigation measures to prevent vapor intrusion; and therefore, is not protective. It does not meet ARARs (RSRs) in Area E1, which is currently in residential use. However, this alternative complies with the ARARs (RSRs) in Area J, because institutional controls will be used to prevent residential use and new construction unless appropriate vapor mitigation systems are installed. This alternative can reduce risk in the short term if institutional controls are implemented, monitored, and enforced. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of this alternative is $134,000. A detailed evaluation of this alternative is provided in Table J-10 (Appendix E); and an evaluation of compliance with ARARs is presented in Tables J-16, J-17, and J-18 (Appendix E).

Alternative VI3 – Active Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]

This alternative uses active vapor mitigation to create a pressure differential across the residential building slab to promote migration of subsurface soil gases into a collection system

that prevents the entry of volatilized groundwater VOCs into occupied residential apartment units on the building's first floor in Area E1 (119 Store Avenue). Potential exposure to contaminated soil vapors would be mitigated in Area E1. Components of this alternative include:

- Pre-Design Investigation – Perform PDI to assess contaminant concentrations in indoor air and sub-slab soil gas, existing building foundation, and potential vapor intrusion routes. The results of the PDI will be used to design the vapor mitigation system.

- Active Vapor Mitigation System – Install an active vapor mitigation system at each of the existing first floor residential units, A1 through A4. Seal vapor migration pathways (underground utility penetrations, cracks, and/or sumps). Install a vapor barrier to minimize vapor migration pathways. Construct an active vapor mitigation system using vapor extraction trenches, piped to fans, and exhausted through discharge stacks to atmosphere.

- Institutional Controls – Use restrictions will be implemented to prevent the residential use of the first floor in existing structures without the use of a vapor mitigation system, and to limit, govern, or prevent new construction without the installation of a soil vapor barrier and/or vapor mitigation system. Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law or other enforceable mechanisms, as well as signage. The following institutional controls will be implemented:

    - VIIC-1 – Residential use of the existing first floor apartments will be prohibited unless vapor mitigation systems are in use, or information demonstrating that vapor intrusion no longer presents an unacceptable health risk is reviewed and approved by the appropriate regulatory agencies; and
    - VIIC-2 – Any new constructions will require the use of vapor mitigation systems, unless information that demonstrates the systems are not needed is provided to the regulatory agencies for review and approval.

- Operation and Maintenance – O&M will be performed to ensure proper functioning of the vapor mitigation system.

- Five-Year Reviews – review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs through the installation and O&M of active vapor mitigation systems in the existing building's residential units on the ground floor. This alternative can reduce risk in the short term through active mitigation of soil vapor into the residential units on the ground floor at 119 Store Avenue in Area E1. In addition, institutional controls will prevent the use of the residential units without the use of a mitigation system. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of

this alternative is $616,000. A detailed evaluation of this alternative is provided in Table J-11 (Appendix E); and an evaluation of compliance with ARARs is presented in Tables J-16, J-17, and J-18 (Appendix E).

Alternative VI4 – Passive Soil Vapor Barrier and Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]

This alternative uses a combination of a passive vapor barrier and passive vapor mitigation to minimize vapor migration pathways and create a slight pressure differential across the foundation slab to promote migration of subsurface soil gases into a collection system that prevents the entry of volatilized groundwater VOCs into occupied residential apartment units. Potential exposure to contaminated soil vapors would be mitigated in Area E1. Components of this alternative include:

- Pre-Design Investigation – Perform PDI to assess contaminant concentrations in indoor air and sub-slab soil gas, existing building foundation, and potential vapor intrusion routes. The results of the PDI will be used to design the vapor mitigation system.

- Passive Vapor Mitigation System – Install a passive vapor mitigation system at each of the existing first floor residential units, A1 through A4. Install a passive vapor barrier, minimizing vapor migration pathways. Construct a passive sub-slab venting system using vapor collection trenches, solar chimneys, barometric check valves and discharge stacks to atmosphere.

- Institutional Controls – Use restrictions will be implemented to prevent the residential use of the first floor in existing structures without the use of a vapor mitigation system, and to limit, govern, or prevent new construction without the installation of a soil vapor barrier and/or vapor mitigation system. Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law or other enforceable mechanisms, as well as signage. The following institutional controls will be implemented:
    - VIIC-1 – Residential use of the existing first floor apartments will be prohibited unless vapor mitigation systems are in use, or information demonstrating that vapor intrusion no longer presents an unacceptable health risk is reviewed and approved by the appropriate regulatory agencies; and
    - VIIC-2 – Any new constructions will require the use of vapor mitigation systems, unless information that demonstrates the systems are not needed is provided to the regulatory agencies for review and approval.

- Operation and Maintenance – O&M will be performed to ensure proper functioning of the vapor mitigation system.

- Five-Year Reviews – review Site conditions and protectiveness of remedy every 5 years.

This alternative is protective and meets all ARARs. This alternative will meet RSRs through the installation and O&M of passive vapor mitigation systems in the existing building's residential units on the ground floor. This alternative can reduce risk in the short term through passive mitigation of soil vapor into the residential units on the ground floor at 119 Store Avenue in Area E1. In addition, institutional controls will prevent the use of the residential units without the use of a mitigation system. Periodic assessments would be performed to ensure institutional controls are implemented; and five-year reviews would be conducted. The estimated present worth of this alternative is $571,000. A detailed evaluation of this alternative is provided in Table J-12 (Appendix E); and an evaluation of compliance with ARARs is presented in Tables J-16, J-17, and J-18 (Appendix E).

K. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Section l2l(b)(1) 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 (Section 6.0 of the FS). 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:

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** 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 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 K-1 and K-2 (Appendix C). A detailed description of the comparative analysis can be found in Section 7.0 of the FS.

The following sections present the nine criteria and a brief narrative summary of the soil and vapor intrusion 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.

1. Soil Alternatives Analyzed

The soil alternatives were evaluated using the nine criteria and are summarized in the sections below.

Overall Protection of Human Health and the Environment

Alternative SO1 provides the least amount of protection of human health and the environment because no actions will be taken to reduce the risk presented by contamination in soil. Alternative SO2 relies on institutional controls to: 1) prevent human exposure to contaminated soil in Areas where risk is less than 1.0E-04 (Areas D3, E2, G, and H) and equal to or greater than 1.0E-04, but no PRG exceedances were observed in soils that are considered accessible (Area E3); 2) prevent current commercial use properties from converting to residential use without agency approval; and 3) prevent the excavation and off-Site transport of soil without agency approval.

Alternatives SO3, SO5, SO7, and SO8 provide overall protection of human health and the environment by excavation and off-site disposal of soils with PRG and PMC exceedances across the majority of the Site. SO3 will address Areas D1, E1, and F, and SO7 will address Area J using targeted excavations. SO5 will use larger excavations to address exceedances in Area J. Various excavation scenarios (targeted and larger excavations) are proposed in Alternative SO8 to address exceedances in Area I. In the near- and long-term, Alternatives SO3, SO5, SO7, and SO8 will be protective of human health and the environment.

Alternative SO4 provides overall protection of human health and the environment using targeted in-situ physical treatment to solidify and stabilize soils with PRG and PMC exceedances in Areas D1, E1, and F. In the near- and-long term, this Alternative will be protective of human health and the environment. However, there is uncertainty about the effectiveness of treatment. This alternative requires bench and pilot testing to evaluate the immobilization of contaminants and leachability of the solidified material.

Alternative SO6 provides overall protection of human health and the environment using a soil cap to contain soils with PRG exceedances in Area J. In addition, PMC exceedances will be excavated and transported off-site for disposal. In the near- and long-term, Alternative SO6 will be protective of human health and the environment.

Overall, Alternatives SO3, SO5, SO7, and SO8 are the most protective of human health and the environment, followed by SO6, SO4, SO2, and SO1. For Areas D3, E3, E2, G, and H, SO2 (limited action) is the only remedial option available, other than SO1 (no action). For Areas D1, E1, F, SO3 (targeted excavation and off-site disposal) will be more protective than SO4 (in-situ solidification/stabilization). For Area J, SO5 (large-scale excavation) will be more protective than SO6 (soil cap) or SO7 (targeted excavations). For Area I, SO8B (large-scale

excavation to 4 ft bgs) will be more protective than either SO8A (targeted excavations) or SO8C (large-scale excavation to 2 ft bgs).

Compliance with Applicable or Relevant and Appropriate Requirements

Compliance with chemical-specific, location-specific, and action-specific ARARs are summarized in Tables 6-13, 6-14, and 6-15 of the FS, respectively. Alternative SO1 will not meet the chemical-specific ARARs including the PMC, DEC, or reduce potential health risks to acceptable levels in a reasonable time frame. Alternative SO2 will meet ARARs by using institutional controls to prevent exposure to Site COCs that exceed the Preliminary Remediation Goals (PRGs) in Areas D3, E2, E3, G, and H.

Alternatives SO3, SO4, SO5, SO6, SO7, and SO8 will meet the chemical-specific ARARs in the portions of the Site where CERCLA response actions are being taken. Alternatives SO3 (Areas D1, E1, and F), SO5 (Area J), SO7 (Area J), and SO8 (Area I) will meet RSRs using targeted and larger excavations and off-site disposal of soils contaminated above applicable PRGs (DECs, PMCs, or the background levels). SO5 will address applicable PRG exceedances using solidification/stabilization in Areas D1, E1, and F. SO6 will address PRG exceedances using a soil cap in Area J meeting the requirements of the TSCA regulations at 40 C.F.R. §761.61.

Alternatives SO3, SO4, SO5, SO6, SO7, and SO8 will be designed to meet the location-specific ARARs. Alternatives SO5, SO6, and SO7 may require construction activities adjacent to Area J wetlands; a PDI will evaluate stormwater drainage and potential wetland impacts. The alternative will comply with the location-specific ARARs and avoid and minimize potential damage to wetlands. If damage cannot be avoided, then wetland mitigation will be performed to comply with the ARARs. Alternative SO6 complies with the regulations implementing Section 404 of the Clean Water Act at 40 C.F.R. Part 230 et seq., as it is the least environmentally damaging practicable alternative that attains remedial action objectives.

Alternatives SO3, SO4, SO5, SO6, SO7, and SO8 will be designed to meet the action-specific ARARs. Alternatives SO3, SO5, SO6, SO7, and SO8 include backfilling and capping (SO6 only). The backfill and soil cap will be designed to comply with the RSRs and action-specific ARARs. In addition, Alternatives SO5 and SO7 include the excavation, temporary storage, and off-site disposal of PCB contaminated soil. These alternatives will be designed and implemented to include handling, storage, and disposal procedures that comply with ARARs, including TSCA regulations governing capping of bulk PCB remediation wastes at 40 C.F.R. §761.61 and Connecticut regulations.

Overall, all active alternatives (SO3 through SO8) are generally comparable in their ability to comply with the chemical-, location-, and action-specific ARARs. Particular care will be taken during construction activities adjacent to wetlands and storage and off-site disposal of PCB contaminated soil to comply with ARARs for the Area J alternatives (SO5, SO6, and SO7).

Long-Term Effectiveness and Permanence

Alternative SO1 provides the least long-term effectiveness and permanence because no actions will be taken to control exposure over time or to permanently reduce the level of contaminants in soil in the long term. While natural degradation processes may reduce the concentrations of contaminants, the process kinetics may not be appreciable and the residual risk will remain for a very long time. Similar to SO1, Alternative SO2 will not satisfy CERCLA's statutory preference for treatment. However, this alternative is applicable to Areas where risk is less than 1.0E-04 (Areas D3, E2, G, and H) and Areas where risk is equal to or greater than 1.0E-04, but no PRG exceedances were observed that are considered to be accessible (Area E3). Therefore, protection of human health can be controlled using institutional controls. The long-term effectiveness is only as good as the measures taken to ensure the reliability of controls (proper implementation, monitoring, and enforcement of institutional controls).

Alternatives SO3, SO5, SO7, and SO8 will provide permanent reduction in the contaminant mass with the excavation and off-site disposal of soils with PRG exceedances (DECs, PMCs, or background levels). SO3 and SO7 will use targeted excavations focusing on relatively small areas (1 square yard [sy] each) to remove PRG exceedances in Areas D1, E1, and F and Area J, respectively. SO5 will use larger excavations, 38,300 sy in Area J, for the removal of PRG exceedances. SO8 will use various excavation scenarios (ranging from several small excavations at 1 sy each to one large excavation at 2,730 sy) in Area I for the removal of PRG exceedances. The targeted and larger excavations and the backfilling will effectively redefine the remaining contaminated soil at these locations as "inaccessible" per the RSRs. As a result, these alternatives will decrease risks to acceptable levels in the near- and long-term. However, PRG exceedances will remain in soil at deeper depths. These alternatives would rely on institutional controls to prevent the excavation of soil.

Similar to Alternatives SO3, SO5, SO7, and SO8, Alternative SO4 provides a permanent reduction of risk through solidification/stabilization of PRG exceedances in Areas D1, E1, and F. This treatment alternative will prevent potential exposure to contaminated soil and the potential migration of contaminants to groundwater. The long-term effectiveness of this Alternative will be confirmed during the treatability and pilot studies. Testing will evaluate the immobilization of contaminants and leachability of the solidified material. This alternative would rely on institutional controls to prevent the excavation of soil and the encapsulated materials.

Alternative SO6 also provides a permanent reduction of risk through the capping of PRG exceedances and the excavation and off-site disposal of PMC exceedances in Area J, as long as the soil cap is maintained in the long-term. This alternative will prevent potential exposure to contaminated soil and the potential migration of contaminants to groundwater. The soil cap will effectively render the remaining contaminated soil in Area J as unavailable to contact through an engineering control. As a result, the alternative will decrease risks to acceptable levels in the near- and long-term. However, PRG exceedances will remain in the soil below the soil cap.

These alternatives would rely on institutional controls to prevent the excavation of soil and long-term maintenance of the soil cap.

Overall, Alternatives SO3, SO5, SO7, and SO8 provide the most long-term effectiveness and permanence, followed by SO6, SO4, SO2, and SO1. For Areas D3, E3, E2, G, and H, SO2 (limited action) is the only remedial option available, other than SO1 (no action) and is therefore more effective. For Areas D1, E1, F, SO3 (targeted excavation and off-site disposal) will be more effective and permanent than SO4 (in-situ solidification/stabilization). For Area J, SO5 (large-scale excavation) will be more effective and permanent than SO6 (soil cap) or SO7 (targeted excavations). For Area I, SO8B (large-scale excavation to 4 ft bgs) will be more effective and permanent than either SO8A (targeted excavations) or SO8C (large-scale excavation to 2 ft bgs).

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative SO4 will reduce toxicity through treatment. Alternative SO6 will isolate contaminants and possibly reduce mobility through treatment. The other alternatives analyzed do not reduce toxicity, mobility, or volume through treatment. However, alternatives SO3, SO5, SO7, and SO8 employ excavation and off-Site disposal of contaminated soil, which will reduce the volume of contaminated media at the Site.

Based on the RI results, it was determined that there are no Principal Threat Wastes at the Site. Therefore, this evaluation criterion, which is principally applicable to sites with Principal Threat Wastes, is not a significant criterion for the Site.

Short-Term Effectiveness

No active remedial actions are associated with Alternative SO1; therefore, no risks to the community, workers, or the environment during implementation. Alternative SO2 will not impact the community, workers, or the environment as no actions other than the implementation of institutional controls and periodic assessments are required. This alternative is effective in the near-term because it prevents the potential exposure to contaminated soil in Areas D3, E2, E3, G, and H.

Alternatives SO3, SO5, SO7, and SO8 include active excavation and handling of contaminated soil and are effective in the short-term. Alternatives SO4 and SO6 include solidification/ stabilization and a soil cap, respectively, and are also effective in the near-term. Active remedial alternatives, SO3, SO4, SO5, SO6, SO7, and SO8, would be implemented in a year or less time. The potential risks to the community, on-site workers, and the environment are expected to be minimal with proper design and controls.

Environmental impacts on the Site during Alternatives SO3, SO4, SO5, SO6, SO7, and SO8 are anticipated to be minimal. Construction activities will avoid potential damage to

wetland areas or will include wetland mitigation if damage cannot be avoided. Alternative SO4 will include control measures to prevent adverse impacts to local groundwater during injection and soil mixing activities.

Overall, Alternative SO6 provides the most short-term effectiveness, followed by SO3, SO5, SO7, SO8, SO4, SO2, and SO1. For Areas D3, E3, E2, G, and H, SO2 (limited action) is the only remedial option available, other than SO1 (no action) and is therefore more effective in the near-term. For Areas D1, E1, F, SO3 (targeted excavation and off-site disposal) will be more effective in the short-term than SO4 (in-situ solidification/stabilization). For Area J, SO6 (soil cap) is more effective in the near-term than SO5 (large-scale excavation) or SO7 (targeted excavations). For Area I, SO8B (large-scale excavation to 4 ft bgs) will be more effective and permanent than either SO8A (targeted excavations) or SO8C (large-scale excavation to 2 ft bgs).

Implementability

Alternative SO1 is the easiest to implement when compared with the other alternatives because no actions are required. Alternative SO2 includes institutional controls and periodic assessments, which are readily implementable.

Alternatives SO3, SO5, SO7, and SO8 will require construction and waste transportation firms with heavy equipment to implement the targeted and larger excavations and off-site disposal. Equipment and materials are readily available. SO5 is more difficult to implement than the other Alternatives due to the larger excavation areas.

Alternative SO4 will require a specialized engineering firm (which are limited) with testing capabilities, reagents, and equipment to implement the in-situ physical treatment. Alternative SO6 will require a construction firm with heavy equipment to construct the soil cap.

Of the active remediation alternatives (SO3, SO4, SO5, SO6, SO7, and SO8), SO4 and SO6 are regarded as the green alternative with in-situ targeted physical treatment and a soil cap, respectively. The heavy construction and transportation equipment associated with SO3, SO5, SO7, and SO8 will result in the emissions of combustion byproducts, including particulates, carbon dioxide, nitrogen oxides, sulfur dioxide, heavy metals, and VOCs.

Overall, Alternative SO1 is the easiest to implement, followed by SO2, SO3, SO4, SO6, SO7, SO5, and SO8.

Cost

The estimated present worth costs for the alternatives, not including Alternative SO1 (no action), range from $233,000 for Alternative SO2 (limited action in Areas D3, E3, E2, G, and H) to $11,013,000 for Alternative SO5D (excavation and disposal in Area J). Alternative SO5 is the most expensive alternative, followed by SO8, SO6, SO7, SO4, SO3, SO2, and SO1.

For Areas D3, E3, E2, G, and H, SO2 is the only remedial option available, for which there is only one costs analysis. For Areas D1, E1, F, SO3 (targeted excavation and off-site disposal) will cost less than SO4 (in-situ solidification/stabilization). For Area J, SO6 (soil cap) costs less than SO5 (excavation and off-site disposal) for large areas of contaminated soil. If there are discrete areas of contamination, then SO7 would cost less than either SO5 or SO6. For Area I, costs under SO8 will be dependent of the volume and areal extent of contaminated soil that warrant action.

State Acceptance

CT DEEP has expressed its support for the selection of SO2 for Areas D3, E3, E2, G, and H; SO3 for Areas D1, E1, and F; SO6 for Area J; and SO8B for Area I.

Community Acceptance

The community has not expressed support or disapproval of any components of the remedial action, but has raised some questions which EPA has responded to in the Responsiveness Summary.

2. Vapor Intrusion Alternatives Analyzed

The vapor intrusion alternatives were evaluated using the nine criteria and are summarized in the sections below.

Overall Protection of Human Health and the Environment

Alternative VI1 provides the least amount of protection of human health and the environment because no actions will be taken to reduce the risk presented by vapor intrusion from contaminated groundwater. Alternative VI2 relies on institutional controls to prevent potential human exposure to vapor intrusion by contaminated groundwater.

Alternatives VI3 and VI4 provide overall protection of human health by extracting soil gases from below Area E1 building's slab and preventing the migration of contaminated vapor into occupied residential apartments. In the near- and long-term, Alternatives VI3 and VI4 will be protective of human health and the environment.

Overall, VI3 (active mitigation) will be most protective of human health and the environment, followed by VI4 (passive mitigation), VI2 (limited action), and VI1 (no action).

Compliance with Applicable or Relevant and Appropriate Requirements

Alternatives VI1 will not meet the chemical-specific ARARs. For Area J, Alternative VI2 will use institutional controls preventing residential use and requiring installation of vapor mitigation systems for future commercial buildings which would comply with the requirements of the ARARs. VI3 and VI4 will meet the chemical-, location-, and action-specific ARARs through active and passive vapor mitigation systems, respectively.

Overall, the active alternatives (VI3 and VI4) are comparable in their ability to comply with the chemical-, location-, and action-specific ARARs.

Long-Term Effectiveness and Permanence

Alternative VI1 provides the least long-term effectiveness and permanence because no actions will be taken to control exposure to soil vapor over time or to permanently reduce the groundwater contamination in the long term. Alternative VI2 relies on institutional controls in the long-term to prevent potential exposures to vapor intrusion from contaminated groundwater. The long-term effectiveness of Alternative VI2 is only as good as the measures taken to ensure the reliability of controls.

Alternatives VI3 and VI4 will provide a reduction of vapor intrusion using active and passive mitigation systems, respectively. Alternatives VI3 and VI4 are dependent on the proper implementation, operation and maintenance, monitoring, and enforcement of institutional controls to remain effective.

Overall, of the active alternatives, VI3 (active mitigation) will be more effective and permanent than VI4 (passive mitigation).

Reduction of Toxicity, Mobility, or Volume Through Treatment

The alternatives analyzed do not directly reduce toxicity, mobility or volume through treatment. However, based on the RI results, it was determined that there are no Principal Threat Wastes on the Site. Therefore, this evaluation criterion, which is principally applicable to sites with Principal Threat Wastes is not a significant criterion for the Site.

Short-Term Effectiveness

No active remedial actions are associated with Alternatives VI1 and VI2; therefore, no risks to the community, workers, or the environment during implementation. Alternatives VI3 and VI4 include active and passive soil vapor mitigation, respectively. Residents will be temporarily evacuated while these alternatives are under construction. Site workers will use proper personal protection equipment and appropriate health and safety protocols will be

followed when implementing the alternatives. No risk to the environment is anticipated with Alternatives VI3 and VI4.

Overall, the active alternatives (VI3 and VI4) are comparable in their effectiveness in the near-term.

Implementability

Alternative VI1 is the easiest to implement when compared with the other alternatives because no actions are required. Alternative VI2 includes institutional controls and long-term monitoring, which are readily implementable.

VI3 and VI4 will require an environmental remediation firm with experience in soil vapor mitigation to construct and operate the active and passive mitigation systems, respectively. Equipment and materials are readily available. Fluctuations in naturally occurring atmospheric conditions can limit the reliability of VI4. VI4 is slightly more difficult to implement than VI3; and both are more difficult than VI1 and VI2.

Of the active remediation alternatives (VI3 and VI4), VI4 is regarded as the green alternative with passive soil vapor mitigation. Alternative VI4 requires the least amount of energy because mitigation relies on naturally occurring atmospheric conditions to passively vent soil vapor to the atmosphere.

Overall, Alternative VI1 is the easiest to implement, followed by VI2, VI4, and VI3.

Cost

The estimated present worth costs for the alternatives, not including Alternative VI1 (no action), range from $134,000 for Alternative VI2 (limited action) to $616,000 for Alternative VI3 (active vapor mitigation). Alternative VI3 is the most expensive alternative, but is only slightly more expensive than VI4 (passive vapor mitigation), followed by VI2 and VI1.

State Acceptance

CT DEEP has expressed its support for the selection of VI2 for Area J and VI3 for Area E1.

Community Acceptance

The community has not expressed support or disapproval of any components of the remedial action, but has raised some questions which EPA has responded to in the Responsiveness Summary.

L. THE SELECTED REMEDY

1. Summary of the Rationale for the Selected Remedy

The selected remedy is a comprehensive set of measures that utilizes source control components to address the principal Site risks. Because action at this Site is being taken pursuant to CERCLA and the NCP, federal standards (rather than state standards) are applied when considering whether risks at the Site warrant a response action. Based on the evaluation of risks which consider current and future uses of the Site, COCs exceeding background concentrations pose excess risks greater than 1.0 E-04 cancer risk, the upper end of EPA's acceptable risk range, or a non-cancer HI of 1.0. These health risks exceed EPA's threshold for response actions under CERCLA.

Source control measures are required to prevent potential exposure to contaminated soil at the Site. In addition, vapor intrusion control measures will be used to prevent potential exposure to VOCs in soil vapor that may off-gas from contaminated groundwater. Of all the alternatives evaluated, the selected remedy best satisfies the statutory criteria for remedy selection.

The selected remedy combines several soil and vapor intrusion alternatives. Contaminated soil at the Site will be addressed using SO2 (institutional controls) for Areas D3, E3, E2, G, and H; SO3 (targeted excavations and off-site disposal) for Areas D1, E1, F; SO6 (soil cap) for Area J; and SO8B (excavation and off-site disposal) for Area I. In addition, vapor intrusion threats will be address using VI2 (institutional controls) for Area J (unoccupied) and VI3 (active vapor mitigation) for Area E1 (occupied existing structure).

The selected remedy set forth in this ROD addresses the following unacceptable risks:

- Potential direct exposure (inhalation, dermal contact, or ingestion) to soil contaminants; and
- Potential exposure to soil vapor contaminants resulting from localized groundwater VOC contamination.

The selected remedy also addresses potential transport of soil contaminants (vanadium) above the PMC to groundwater.

2. Description of Remedial Components

The following alternatives comprise the selected remedy.

Soil Alternatives:

- Areas D3, E3, E2, G, and H – SO2 Institutional Controls;

- Areas D1, E1, and F – SO3 Targeted Excavations and Off-Site Disposal and Institutional Controls;
- Area J – SO6 Pre-Design Investigation, Soil Cap, Operation and Maintenance, and Institutional Controls; and
- Area I – SO8B Pre-Design Investigation, Excavations and Off-Site Disposal, and Institutional Controls.

Vapor Intrusion Alternatives:

- Area E1 – VI3 conduct PDI and if exposure pathway exists install an Active Vapor Mitigation, Operation and Maintenance, and Institutional Controls; and
- Area J – VI2 Institutional Controls.

A detailed description of each component of the selected remedy is presented below. This comprehensive description incorporates each of the remedial alternatives that comprise the remedy, describes the sequencing of remedial activities to be performed at the Site, and describes the remedial activities that will be performed concurrently and over the long-term.

Because hazardous substances, pollutants or contaminants will remain at the Site EPA will review the Site to the extent required by law at least once every 5 years after the initiation of remedial action at the Site to assure that the remedial action continues to protect human health and the environment.

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

a. Soil Remedy

Several remedial options were selected for the various Risk Areas at the Site. The soil remedy for specific areas is described in the sections below to meet cleanup levels (CULs). CULs are discussed under Section L.4.a.- Soil Cleanup Levels.

Areas D3, E3, E2, G, and H

The soil remedy for Areas D3, E3, E2, G, and H includes institutional controls, periodic assessments, and Five-Year Reviews.

Institutional Controls – Institutional controls are non-engineered actions, such as administrative and legal controls, that help to minimize the potential exposure to contaminants or protect the effectiveness of response actions. Institutional controls are used to limit land and/or resource use, or provide information that help guide or modify human activities at sites [EPA, 2012].

Institutional controls will be implemented to limit, govern, or prevent excavations in contaminated fill, and to prevent unacceptable exposures to contaminants. Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law, other enforceable mechanisms, zoning ordinances, or a combination thereof. The following institutional controls will be implemented:

- IC-1: Prevent future excavation of on-site soils for use or disposal beyond the property boundary without state regulatory approval;
- IC-2: Prevent future residential use unless the areas are already currently used as residential without federal/state regulatory approval. and
- IC-3: Prevent any excavation and re-use of soil from 4 ft bgs or deeper without state regulatory approval.

Periodic Assessments – Periodic assessments will be performed to ensure that Institutional Controls (i.e., IC-1, IC-2, and IC-3) are being implemented and are protective of human health and the environment in accordance with the requirements of the selected remedy. The frequency of periodic assessments will be determined at every Five-Year Review.

Five-Year Reviews – Reviews will be performed once every 5 years to assess Site conditions and to ensure that the remedy remains effective and protective. Assessments will be performed to review onsite conditions, land use, zoning, and new regulations or ordinances to identify changes that may affect the protectiveness of the remedial alternative/selected remedy.

The institutional actions, periodic assessments, and five-year reviews are included as integral components of the other soil remedies in other Areas to ensure the long-term effectiveness of alternatives where soils exceeding CULs remain on the Site.

Areas D1, E1, and F

The soil remedy for Areas D1, E1, and F includes PDI, utility clearance, targeted soil excavations, confirmation sampling, backfilling, soil disposal, dust control, decontamination, institutional controls, periodic assessments, and Five-Year Reviews.

Pre-Design Investigation – Four soil boring locations will be installed on neighboring residential properties at Area E1 (110, 118, 126, and 134 Monroe Avenue). Samples will be collected from 2 ft bgs, 4 ft bgs, and from top of groundwater and analyzed for Site COCs (metals and PAHs). Soil sampling results will be used to further delineate Site COCs at this Site boundary.

Utility Clearance – Prior to the targeted excavations, a utility clearance survey will be performed to delineate potential utilities and avoid interference. The survey would be performed using a combination of electromagnetic induction, magnetometry, utility locator and ground penetrating

radar techniques to locate and map the locations of potential utilities within each of the excavation areas.

Targeted Soil Excavation – Alternative SO3 addresses potential human exposure to contaminated soils exceeding CULs and addresses contaminant concentrations that exceed PMC in Areas D1, E1, and F using small, targeted excavations, with an area of 1 square yard. CUL exceedances will be excavated to a depth of 4 feet below ground surface (ft bgs). Clean fill and pavement will effectively redefine the remaining contaminated soil at these locations as "inaccessible" per the RSRs (further discussed in Backfilling section below). In addition, soil will be excavated to the top of groundwater at PMC exceedances.

The deeper excavations at PMC exceedances (estimated to be approximately 10 ft bgs) in Areas D1 and E1 will require sloping for construction worker safety and excavation stability. A slope of 2 to 1 has been assumed at these locations. A total excavation volume of approximately 144 cy is estimated for the CUL and PMC exceedances in Areas D1, E1, and F. The excavated soil will be replaced with clean, imported fill and finished with pavement.

Confirmation Sampling – The sidewalls (and bottoms at PMC exceedance excavations) of the excavations will be sampled for confirmation purposes. At PMC exceedances, five confirmation sampling locations (four sidewalls and one bottom) will be collected per excavation. At CUL exceedance locations, the excavation depth will be limited to a maximum of 4 ft bgs per ARARs (CT RSRs). Therefore, no confirmation bottom sample will be needed and four confirmation sampling locations at the four sidewalls will be collected per CUL exceedance excavation.

Confirmation samples will be analyzed for the specific COCs associated with the CUL or PMC exceedances(s) at the excavation. Confirmation sampling results will be compared to the associated CUL or PMC. If the COC concentration at a confirmation sampling location exceeds the respective CUL or PMC, the excavation will continue an additional 1 linear yard in the direction of the exceedance. Additional confirmation samples will be collected at the new sidewall(s) or bottom of the excavation. The excavation will continue until additional confirmation sampling results are less than the CUL or PMC values.

In addition, confirmation groundwater monitoring will be conducted to determine that the applicable ground-water protection criteria, SWPC and volatilization criteria have been met, consistent with RSRs (Sections 22a-133k-1 through 22a-133k-3). The SWPC is the only applicable criterion at the Site; therefore, samples will be analyzed for PMC analytes. Data will be used to evaluate potential SWPC exceedances following construction activities.

Backfill – Clean soil will be backfilled at each targeted excavation consistent with the conditions prior to the excavation. At CUL exceedances, backfill will be consistent with RSRs (Sections 22a-133k-1 through 22a-133k-3) to render deeper contaminated soil inaccessible through excavation and replacement of shallow soils. Backfill will consist of bituminous pavement top coat (1 inch), bituminous pavement binder (2 inch), and compacted bank-run sand and gravel to

4 ft bgs or deeper at PMC exceedances, all placed successively. At CUL exceedance locations, a warning marker consisting of a non-woven geotextile will be placed at the backfill and contaminated soil interface.

Soil Disposal – Excavated soil would be disposed of off-site. Based on RI data, the RCRA Subtitle D landfill option has been selected for the disposal of soil from Areas D1, E1, and F.

Dust Control During Construction - Critical to implementation will be the suppression of dust and monitoring of perimeter up- and down-wind air quality. An air quality management and monitoring program will be established in each of the active targeted excavation areas.

Decontamination – Temporary decontamination stations will be constructed at each targeted excavation location. Heavy equipment used during the excavations will undergo dry decontamination and will consist of physical removal of soil adhering to the equipment prior to moving to the next excavation location. The soil removed will be collected and disposed of offsite with the excavated soils.

Before the heavy equipment leaves the Site after the targeted soil excavations, it will undergo a full decontamination process involving high-pressure steam-cleaning. A decontamination pad will be constructed to contain the decontamination residuals. The pad will be constructed with a slope so that wastewater will flow towards a sump. The steam-cleaning will be supplemented with additional scrubbing to remove encrusted materials from equipment. Wastewater will be transferred from the sump into drums for characterization and offsite disposal.

Institutional Controls – Same as Areas D3, E3, E2, G, and H, except without IC-2 because Areas D1, E1, and F are already used for residential purposes.

Periodic Assessments – Same as Areas D3, E3, E2, G, and H.

Five-Year Reviews – Same as Areas D3, E3, E2, G, and H.

Area J

The soil remedy for Area J includes PDI, utility clearance, excavation and consolidation, soil disposal, confirmation sampling, backfilling, soil cap, dust control, decontamination, institutional controls, operation and maintenance, periodic assessments, and five-year reviews.

Pre-Design Investigations – The PDI will be conducted to better characterize soil and PMC and CUL exceedances in Area J. Once the PDI is complete, the data will be assessed and used in the remedial design for Area J.

The PDI will include a sampling grid of 50 feet on center, approximately 72 soils boring locations. Following subsurface utility clearance, soil borings will be advanced using direct-

push technology drill rigs. Soil samples (excluding asphalt pavement and fill material) would be collected from the 0, 2, and 4 ft bgs depth intervals and analyzed onsite using a mobile laboratory for PAHs, metals, and PCBs (for comparison to CULs). 20% of the soil samples would be sent off-site for fixed laboratory analyses. In addition, 10% of the soil borings will be completed to the top of groundwater. Samples will be collected at the final depth and will be analyzed for SPLP analyses (for comparison to PMC) at a fixed laboratory.

The PDI will include an evaluation of the Area J wetlands and stormwater management during and after construction. The PDI results will be used to design a Site drainage plan and potential wetlands mitigation plan, if wetlands are impacted by construction activities. Stormwater can be managed through discharge to the existing local drainage system.

Utility Clearance – Same as Areas D1, E1, and F.

Excavation and Consolidation – This alternative assumes 10 discrete CUL exceedances exist outside of the planned soil cap area. These CUL exceedances will be excavated and consolidated within the planned cap area. The CUL exceedance excavations will require the removal of soil to a depth of 4 ft bgs. In addition, this alterative includes the excavation of 6 discrete PMC exceedances. PMC exceedances will be excavated for off-site disposal.

Soil Disposal – Excavated soil (from PMC exceedances) would be disposed of off-site (estimated to be approximately 420 cy). Excavated soil volumes and contamination concentrations will be determined during the PDI. However, this alternative assumes soil will be disposed of at a non-hazardous waste landfill. Similar to other alternatives, waste characterization sampling results will confirm the waste profile of the material.

Decontamination – Same as Areas D1, E1, and F.

Confirmation Sampling – At CUL and PMC exceedance excavations, the confirmation sampling will be the same as Areas D1, E1, and F.

Backfill – At CUL and PMC exceedance excavations, backfill will be consistent with the RSRs (Sections 22a-133k-1 through 22a-133k-3) to render contaminated soil inaccessible through excavation and replacement of shallow soils. Backfill will consist of 3.5 feet (or deeper at PMC locations) of common fill and 6 inches of topsoil, which will be revegetated. At CUL exceedance locations, a warning marker consisting of a non-woven geotextile will be placed at the backfill and remaining contaminated soil interface.

Soil Cap – This alternative uses a soil cap to prevent direct contact with contaminated soil within Area J. Based on RI data, the soil cap will be approximately 86,200 sf and raise the ground surface by approximately 2 feet. The soil cap will consist of a geotextile warning layer, barrier layer (cobbles, 1 foot), soil cover (1 foot), and surface vegetation.

Dust Control During Construction – Water would be required for dust suppression during excavations in Area J. A temporary water service would be installed to provide water to the undeveloped Area J.

In addition, monitoring of perimeter up- and down-wind air quality is critical to ensure the safety of neighboring properties, especially where elevated PCB soil concentrations are documented. An air quality management and monitoring program will be established that includes the real-time monitoring of dust with (with a PCB-specific dust action level based on historic PCB soil concentrations) using a real-time dust meter.

Institutional Controls – Same as Areas D3, E3, E2, G, and H, including the restriction on residential use. In addition, a deed restriction, easement, covenant or other enforceable mechanism will be required to ensure long-term care of cap components, including repairs, and to establish limitations on and requirements for future construction in Area J to maintain the integrity of the cap. Access restrictions, such as a fence and warning signs, may also be implemented.

Operation and Maintenance – Long-term operation and maintenance of the soil cap will be required to ensure the area is not disturbed. The cap inspections will take place annually.

Periodic Assessments – Same as Areas D3, E3, E2, G, and H.

Five-Year Reviews – Same as Areas D3, E3, E2, G, and H.

Area I

The soil remedy for Area I includes PDI, utility clearance, excavation, confirmation sampling, backfilling, soil disposal, dust control, stockpile management, decontamination, institutional controls, periodic assessments, and five-year reviews.

Pre-Design Investigations – The PDI will be conducted to better characterize soil and PMC and CUL exceedances in Area I. Once the PDI is complete, the data will be assessed and used in the remedial design for Area I.

The PDI will include a sampling grid of 50 feet on center, approximately 40 soils boring locations. Following subsurface utility clearance, soil borings would be advanced using direct-push technology drill rigs. Soil samples (excluding asphalt pavement and fill material) would be collected from the 0, 2, and 4 ft bgs depth intervals and analyzed onsite using a mobile laboratory for PAHs and metals (for comparison to CULs). 20% of the soil samples would be sent off-site for fixed laboratory analyses. In addition, 10% of the soil borings will be completed to top of groundwater. Samples will be collected at the final depth and will be analyzed for SPLP analyses (for comparison to PMC) at a fixed laboratory.

Utility Clearance – Same as Areas D1, E1, and F.

Excavation – Alternative SO8 would reduce potential human exposure to contaminated soils by removing soil with contaminants exceeding CULs and addresses contaminant concentrations that exceed PMC. CUL exceedances will be excavated to a depth of 4 ft bgs. Clean fill and pavement will effectively redefine the remaining contaminated soil at these locations as "inaccessible" per the RSRs. In addition, soil will be excavated to the top of groundwater at PMC exceedances. The deeper excavations at PMC exceedances (estimated to be approximately 10 ft bgs) will require sloping for construction worker safety and excavation stability (a slope of 2 to 1).

This alternative assumed an excavation area of 24,600 sf and volume of 3,714 cy. However, excavated soil areas and volumes will be determined during the PDI.

Confirmation Sampling – Side walls will be sampled every 25 feet along the CUL exceedance excavations in Area I. At PMC exceedances, the sidewalls and bottoms of the excavations will be sampled for confirmation purposes. Confirmation samples will be analyzed for the specific COCs associated with the CUL or PMC exceedances(s) in the Areas (PAHs and metals). Confirmation sampling results will be compared to the associated CUL or PMC (Tables L-1 and L-2 of Appendix C). If the COC concentration at a confirmation sampling location exceeds the respective CUL or PMC, the excavation will continue an additional 1 linear yard in the direction of the exceedance. The excavation will continue until additional confirmation sampling results are less than the CUL or PMC.

Consistent with RSRs (Section 22a-133k-3(g)(2)(C)), confirmation groundwater monitoring will be conducted to determine that the "applicable ground-water protection criteria, surface-water protection criteria and volatilization criteria have been met." SWPC is the only applicable criterion at the Site; therefore, samples will be analyzed for PMC analytes. Data will be used to evaluate potential SWPC exceedances following construction activities.

Backfill – Same as Areas D1, E1, and F.

Soil Disposal – Excavated soil would be disposed of off-site as non-hazardous. The volume of soil requiring disposal was assumed to be 3,714 cy; however, excavated soil volumes and contamination concentrations will be determined during the PDI. Waste characterization sampling results will confirm the waste profile of the material. Due to the sizes of the excavations, it is anticipated the soil will require temporary storage or stockpiling while it is being characterized for disposal.

Dust Control During Construction – Same as Areas D1, E1, and F.

Stockpile Management – A temporary soil stockpile area will be necessary to stage excavated soil while it is being characterized for disposal. A soil stockpile area will consist of a bermed

area surrounded by erosion controls to prevent the migration of contaminants in the event that rainwater falls onto the stockpiled soil. The stockpile area will be lined to prevent intermingling between contaminated soil and the underlying ground surface. In addition, covers will be installed to prevent contact with rainwater and wind and eliminate runoff or wind erosion. Polyethylene plastic sheeting (6 millimeter or greater) would be used for the bottom liner and cover.

Decontamination – Same as Areas D1, E1, and F.

Institutional Controls – Same as Areas D3, E3, E2, G, and H, including the restriction on residential use
Periodic Assessments – Same as Alternative Areas D3, E3, E2, G, and H.

Five-Year Reviews – Same as Areas D3, E3, E2, G, and H.

b. Vapor Intrusion Remedy

Two remedial alternatives were selected for the two Risk Areas potentially affected by vapor intrusion issues (Areas E1 and J). The selected vapor intrusion remedial alternatives for these areas are described in the sections below.

Area E1

The presumptive remedy for Area E1 includes a PDI, an active vapor mitigation system, vapor barrier, start-up testing, O&M, institutional controls, periodic assessments, and five-year reviews.

Pre-Design Investigation – A PDI will be performed to further evaluate the vapor intrusion pathway underneath the 119 Store Ave building. The PDI may include, but not be limited to, groundwater monitoring, sub-slab soil gas sampling, an exposure pathway evaluation, indoor air sampling, and/or other investigatory means of determining whether a vapor mitigation system is necessary. Sampling results would be compared to CT RSRs. If it is deemed necessary, the PDI would obtain information on the design or as-built drawings for the existing structure (119 Store Avenue). If the as-built drawings are not available, a survey would be performed and record available building information during a facility inspection. In addition, tests may be performed to estimate air permeability of soil under the slab or foundation of the four apartment units and to estimate the radius of influence of horizontal extraction trenches. Subsurface conditions and foundation construction will also be evaluated to determine the potential for permeation of soil vapors through both the subsoil and floor slab.

If a vapor mitigation system is found to be necessary based on the exposure pathway evaluation, a sub-slab soil vapor and indoor air investigation will be conducted at the residential apartment units on the ground floor to further characterize potential vapor intrusion. The investigation data

will be used to establish a baseline for indoor air and subsurface soil gas conditions. At each residential apartment, one indoor air sample will be collected and one sub-slab vapor sampling port location will be installed and sampled. Samples will be analyzed for VOCs. The PDI results will be evaluated, and if determined to be necessary, will be used to design the active vapor mitigation system.

Active Vapor Mitigation System – Depending on the PDI results, an active vapor mitigation system would be installed at each of the residential units on the ground floor at 119 Store Avenue. Each system will consist of a vapor extraction trench, conveyance piping, vent fan, and vapor discharge stack. The ground floor apartments would need to be evacuated for at least 3 weeks while the active vapor mitigation systems are installed (including the vapor intrusion barrier). Once the apartments are evacuated, the carpeting or other flooring would be removed and preserved for re-installation.

The concrete slab foundation would be cut to accommodate the vapor extraction trench construction. The trench dimensions are anticipated to be 28 inches wide by 25 feet long by 34 inches deep and will be excavated by hand. The extraction piping installed within the trench would run from the trench through to a penetration at the exterior wall. Vapors would be collected in a 4-inch slotted PVC screen installed within the extraction trench. The PVC pipe would be surrounded by a filter sleeve and a sand pack. After the horizontal piping has been installed, the concrete slab floor would be replaced and sealed.

At the exterior of the building, the pipe would connect to a fan, which draws soil gas from the subslab area through the extraction piping. Each of the four apartment units would have individual vapor mitigation systems with dedicated fans that require an electrical power source. Each active vapor mitigation system will have a dedicated vapor discharge stack. The vapor discharge stacks would span the height of the building to the roof and would discharge the soil gases to the atmosphere away from windows and air intake locations. Ball valves installed at the fans will control vapor flow from the subsurface. In addition, a condensate bypass would trap and drain any condensed liquid.

Vapor Intrusion Barrier – Implementation of the vapor mitigation systems will require all potential pathways to be sealed using a vapor intrusion barrier, reducing the potential for subslab vapors to enter the residential units. A vapor intrusion barrier would be installed in each of the residential units. Installation of the vapor intrusion barriers will entail the installation of the vapor barrier membrane over the existing foundation and the placement of 2 inches of new concrete over the membrane for protection. All accessible penetrations through the floor will be sealed.

Diagnostic Start-Up Testing – Following the installation of the active vapor mitigation system and prior to turning the system "on", diagnostic testing will be performed at system start-up to ensure the system is working as designed. Testing will consist of applying a vacuum to the vapor extraction trench and measuring pressure responses at vapor monitoring wells. Four vapor

monitoring wells will be installed within the hallways and garage and are co-located with vapor extraction trenches in the residential apartments. These locations were selected because the vapor monitoring wells would be accessible when the apartments are occupied, if needed.

Operation and Maintenance – Monthly inspection of the vapor mitigation systems for 1 year and quarterly thereafter will ensure the system is functional and operating as intended. The frequency of inspections will be further evaluated during the Five-Year Reviews. At a minimum, pressure measurements at the vapor mitigation systems and the vapor monitoring wells will be collected during O&M visits using a portable pressure manometer.

The vapor mitigation systems will be maintained during inspections or during additional visits if needed. Replacement of parts will be performed when needed based on inspection results.

At the CT DEEP's request, two rounds of sub-slab sampling, spaced 6 months apart, will be conducted. The data will be reviewed and evaluated during the Five-Year Review to determine the future frequency for sampling and the continued need for operating the systems.

Institutional Controls – Use restrictions will be implemented to prevent the residential use of the first floor in existing structures without the use of a vapor mitigation system, and to limit, govern, or prevent new construction without the installation of a soil vapor barrier and/or vapor mitigation system. Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law or other enforceable mechanisms, as well as signage. The following institutional controls will be implemented:

- VIIC-1 – Residential use of the existing first floor apartments will be prohibited unless vapor mitigation systems are in use, or information demonstrating that vapor intrusion no longer presents an unacceptable health risk is reviewed and approved by the appropriate regulatory agencies; and
- VIIC-2: Any new construction will require the use of vapor mitigation systems, unless information that demonstrates the systems are not needed is provided to the regulatory agencies for review and approval.

Periodic Assessments – Periodic assessments will be performed to verify that there are no prohibited uses, consistent with institutional controls. The assessments will use available information to assess potential changes in vapor migration pathways and changes in regulations. The frequency of periodic assessments will be determined at every Five-Year Review.

Five-Year Reviews – Reviews will be conducted every 5 years to assess groundwater conditions, land use within Area E1, the effectiveness of the vapor intrusion barrier and mitigation system, and whether the selected remedy is protective.

Area J

The vapor intrusion remedy for Area J includes institutional controls, periodic assessments, and five-year reviews.

Institutional Controls – Use restrictions will be implemented to prevent new construction without the installation of a soil vapor barrier and/or vapor mitigation system. Use restrictions may be in the form of a deed restriction, easement or covenant consistent with state law or other enforceable mechanisms, as well as signage. The restrictions would remind parcel owners of potential vapor intrusion issues and the need to comply with the RSR requirements to protect occupants of structures from VOCs that could volatilize from underlying groundwater.

- VIIC-2: Any new construction will require the use of vapor mitigation systems, unless information that demonstrates the systems are not needed is provided to the regulatory agencies for review and approval.

Periodic Assessments – Periodic assessments will be performed to verify that there are no prohibited uses, consistent with institutional controls. The assessments will use available information to assess potential changes in vapor migration pathways and changes in regulations. The frequency of periodic assessments will be determined at every Five-Year Review.

Five-Year Reviews – Same as Area E1.

3. Summary of the Estimated Remedy Costs

The estimated costs for each component of the remedy are summarized in the table below. A more detailed breakdown of the costs can be found in Appendix D of the FS (Nobis, 2013b).

The costs for periodic assessments, five-year reviews, and O&M (if applicable), have been projected over 30 years, using the 7% discount rate per EPA guidance (*A Guide to Developing and Documenting Cost Estimates During the FS*, July 2000). The cost estimates also include contingencies to cover unknowns, unforeseen circumstances, or unanticipated conditions that were not possible to evaluate from the data on hand at the time the estimate was prepared. Contingencies are typically applied as a percentage of the total cost of construction or operation and maintenance activities cost, rather than applied to individual cost elements. Contingencies were factored into each component of the remedy, consistent with the ranges provided in EPA's aforementioned guidance.

Risk Areas	Capital Costs	Annual O&M	Contingencies	Total
Soil Remedy				
D3, E2, E3, G, and H	$70,000	$124,000	$39,000	$233,000
D1, E1, and F	$175,000	$124,000	$83,000	$382,000
J	$867,000	$202,000	$347,000	$1,416,000
I	$996,000	$124,000	$398,000	$1,518,000
Vapor Intrusion Remedy				
E1	$202,000	$347,000	$67,000	$616,000
J	$3,500	$62,000	$1,500	$67,000
Totals	*$2,313,500*	*$983,000*	*$935,500*	*$4,232,000*

There are uncertainties associated with the soil volumes that will require remediation that could affect the estimated costs for Areas J and I. These uncertainties will be addressed by the PDIs that will further characterize soil CUL and PMC exceedances in these risk areas. Based on PDI results, capital costs may change. Soil volumes and contaminant concentrations will directly affect excavation (SO6 and SO8), capping (SO6), and soil disposal costs (SO8).

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 Explanation of Significant Differences, 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.

4. Expected Outcomes of the Selected Remedy

The primary expected outcome of the selected remedy is that the Site will no longer present unacceptable risks to human health from future direct exposure (ingestion, dermal contact, inhalation of dust) to contaminated soils and will prevent potential exposure to soil vapor contaminants resulting from localized groundwater contamination. The estimated time necessary to implement the selected remedy is approximately 2 years. The selected remedy will also provide environmental and ecological benefits such as protecting groundwater by removing soil contamination that could potentially migrate to groundwater. It is anticipated that the selected remedy will also provide socio-economic and community revitalization impacts such as increased property values, environmental justice concerns addressed, and enhanced human uses of ecological resources.

After determining that risks fall outside EPA's acceptable risk range and that remedial action was therefore warranted under CERCLA and the NCP, EPA developed appropriate soil cleanup levels (CULs) and vapor intrusion screening levels for the COCs. These levels are discussed in the sections below.

a. Soil Cleanup Levels

Soil cleanup levels were based on ARARs, risk-based calculations, EPA policy, and background concentrations. The soil cleanup levels are presented in Table L-3 (Appendix C).

ARARs – The state's promulgated Direct Exposure Criteria (DEC) for residential and commercial/industrial scenarios were also used as cleanup levels for soils. The DEC are meant to protect the health of individuals who may come in contact with contaminated soil. In addition, to meet the State's GB aquifer protection criteria, the State's Pollutant Mobility Criterion (PMC) for vanadium was selected as a soil CUL.

Risk-Based Calculations – Where the State promulgated DECs are not available, risk-based soil CULs were developed for COCs in surface and subsurface soil. These CULs for carcinogenic COCs have been set at a 1 E-06 excess cancer risk level considering exposures via dermal contact, incidental ingestion, and inhalation. CULs for COCs in soils having non-carcinogenic effects were derived for the same exposure pathway(s) and correspond to a HQ = 1.

EPA Policy – The residential cleanup goal for PCBs is consistent with EPA policy *A Guide on Remedial Actions at Superfund Sites with PCB Contamination* (EPA, 1990).

Background Concentrations – Cleanup goals cannot be set below background concentrations, consistent with EPA Policy on Background Threshold Values (BTVs) (EPA, 2002). If the Site-specific concentration of a contaminant in background soil is greater than the risk-based calculation, the background concentration is set as the CUL. BTVs were identified using results of sampling from nearby areas that were outside of the Site boundary. BTVs were used as CULs for select PAHs. Elevated concentrations of PAHs in soils are common in urban areas, partially due to incidental releases from normal operation of motor vehicles and use of pavement.

Table L-3 (Appendix C) summarizes the selected CULs for carcinogenic and non-carcinogenic COCs that are protective of direct contact exposures with contaminated soils. These CULs must be met at the completion of the remedial action. These soil CULs attain EPA's risk management goal for remedial actions and have been determined by EPA to be protective.

b. Vapor Intrusion Screening Levels

The vapor intrusion screening levels are based on ARARs and are presented in Table L-3 (Appendix C). The state's promulgated soil vapor Volatilization Criteria (VC) for residential and commercial/industrial scenarios are meant to protect the health of individuals who may come in contact with potential vapor intrusion from contaminated soil vapor.

Table L-3 (Appendix C) summarizes the selected screening levels for COCs that are protective of potential vapor intrusion. These screening levels must be met at the completion of the remedial action. These vapor intrusion screening levels attain EPA's risk management goal for remedial actions and have been determined by EPA to be protective.

M. STATUTORY DETERMINATIONS

The remedial action selected for implementation at the 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 to the maximum extent practicable.

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 soil excavation and off-site disposal or capping, vapor intrusion mitigation, and institutional controls. More specifically, the remedy includes both soil response actions and vapor intrusion mitigation actions, as described in the bullets below:

Soil:

- Areas D3, E3, E2, G, and H – SO2 [Institutional Controls];
- Areas D1, E1, and F – SO3 [Targeted Excavations and Off-Site Disposal and Institutional Controls];
- Area J – SO6 [Pre-Design Investigation, Soil Cap, Operation and Maintenance, and Institutional Controls]; and
- Area I – SO8B [Pre-Design Investigation, Excavations and Off-Site Disposal, and Institutional Controls].

Vapor Intrusion:

- Area E1 – VI3 [PDI and if necessary, Active Vapor Mitigation, Operation and Maintenance, and Institutional Controls]; and
- Area J – VI2 [Institutional Controls].

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^{-6} for incremental carcinogenic risk in accessible soils (up to 4 ft bgs) and such that the non-carcinogenic hazard is below a level of concern, HI below 1. It will reduce potential human health risk levels to protective ARARs levels, i.e., the remedy will comply with ARARs. In addition, the selected remedy will reduce the potential for soil contaminants to migrate to groundwater, such that they do not exceed the PMC.

Implementation of the selected remedy will not pose any unacceptable short-term risks or cause any cross-media impacts.

At the time that the newly promulgated ARARs and modified ARARs that call into question the protectiveness of the remedy have been achieved and have not been exceeded in shallow soils, a risk assessment shall be performed on the residual soil contamination to determine whether the remedy is protective. This risk assessment of the residual soil contamination shall follow EPA procedures and will assess the cumulative carcinogenic and non-carcinogenic risks posed by PAHs and metals across the Site and PCBs in Area J only. If, after review of the risk assessment, the remedy is not determined to be protective by EPA, the remedial action shall continue until protective levels are achieved and have not been exceeded for a period of three consecutive years, or until the remedy is otherwise deemed protective. These protective residual levels shall constitute the final cleanup levels for this ROD and shall be considered performance standards for any remedial action.

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 following federal ARARs:

- Resource Conservation and Recovery Act
- Toxic Substances Control Act
- Clean Water Act (National Pollutant Discharge Elimination System and Section 404)
- Clean Air Act
- National Historic Preservation Act

The RCRA Land Ban requirements are not considered ARARs for this Site.

In addition, the selected remedy will comply with the following state ARARs:

- Remediation Standard Regulations
- Hazardous and Solid Waste Management Regulations
- Air Pollution Control
- Control of Noise
- Surface Water and Wetlands, Inland Wetlands and Watercourses Act
- Disposition of PCBs
- Environmental Protection Act

The following policies, advisories, criteria, and guidances will also be considered during the implementation of the remedial action:

- Connecticut Guidance for Soil Erosion and Sediment Control

- EPA Reference Doses and EPA Carcinogen Assessment Group Potency Factors
- EPA Health Advisories
- EPA PCB Contamination Guidance
- EPA Policy on the Role of Background in the CERCLA Cleanup Program
- Executive Order (Invasive Species)

A discussion of how these requirements will be attained may be found in Tables J-13 through J-18 in Appendix E.

3. The Selected Remedy is Cost-Effective

In the Lead Agency's judgment, the selected remedy is cost-effective because the remedy's costs are proportional to its overall effectiveness (40 CFR 300.430(f)(1)(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.

The estimated present worth cost of the various Risk Areas and associated components that comprise the selected soil remedy is $3,549,000. For Areas D3, E2, G, and H (where risks are below 1.0E-04) and Area E3 (where risk is equal to or greater than 1.0E-04, but no CUL exceedances were observed that are considered to be accessible), institutional controls (Alternative SO2) is the only remedial option available. For Areas D1, E1, F, where discrete CUL and PMC exceedances occur, targeted excavation and off-site disposal (Alternative SO3) will cost less than in-situ solidification/stabilization (Alternative SO4). For Area J, a soil cap (Alternative SO6) will cost significantly less than excavation and off-site disposal (Alternative SO5) for the large area and volume of contaminated soil. For Area I, the cost for excavation and off-site disposal to 4 ft bgs (Alternative SO8B) are more expensive than the other SO8 scenarios (A: targeted excavations, and C: excavation to 2 ft bgs). However, this alternative is likely realistic of site conditions to be determined during the PDI. In addition, excavation to 4 ft bgs (SO8B) will avoid long-term O&M of the pavement that will be required if the excavation was completed to 2 ft bgs (SO8C).

The estimated present worth cost of the selected vapor intrusion remedy is $683,000. For Area J (unoccupied parcel), institutional controls (Alternative VI2) is the only remedial option available. For Area E1 (occupied existing structure), PDI to evaluate exposure pathway and if necessary install an active vapor mitigation (VI3) is the most expensive active alternative; but is only slightly more expensive than passive mitigation (VI4) and is more protective.

The estimated present worth cost of the selected remedy (soil and vapor intrusion) for the Site is $4,232,000.

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 alternatives utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified alternatives provides the best balance of trade-offs among alternatives in terms of: 1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility or volume through treatment; 3) short-term effectiveness; 4) implementability; and 5) cost. The balancing test emphasized long-term effectiveness and permanence and the reduction of toxicity, mobility and volume through treatment; and considered the preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and community and state acceptance. The selected remedy provides the best balance of trade-offs among the alternatives.

The Site consists of low-level threat wastes that can be reliably managed in the long-term using permanent solutions consisting of the containment of contaminated soil and the use of institutional controls to prevent potential exposures. When remedial technologies and process options were evaluated, a number of active treatment options were considered. While active treatment would be effective in addressing Site contaminants and reducing risks, their much higher costs did not afford more protection than non-treatment approaches to protect human health. Therefore, most treatment options were eliminated from consideration because their costs were not commensurate with the degree of protection afforded.

The majority of the contaminated soil is currently covered by asphalt or concrete pavement, by building footprints, or by vegetated cover. State ARARs indicate that if contaminated soil were to be covered by 2 feet of clean and pavement, or 4 feet of soil, or an alternative cover, the contaminated soil would be considered inaccessible, and protective of human health. Therefore, the use of containment and targeted excavation (with appropriate backfilling) would render deeper contaminated soil inaccessible, and eliminate potential exposure pathways. The use of institutional controls (e.g., deed restrictions, local ordinances, zoning, etc.) will be effective in the long term in ensuring the deeper soil will not be disturbed without regulatory agency approval and oversight.

The primary contaminants of concern (PAHs and metals across the Site and PCBs in Area J) are non-volatile, generally sorb to soil, and are relatively immobile. The use of containment and targeted excavations is appropriate prevent or minimize the mobility of these contaminants.

5. The Selected Remedy Significantly Reduces the Mobility and Volume of the Hazardous Substances as a Principal Element

The use of containment and targeted excavation (with appropriate backfilling) and capping of contaminated soils at Area J will isolate contaminants, thus reducing mobility, and will reduce the volume of contaminated media at the Site.. The selected remedy does not, however, satisfy the preference for treatment which permanently reduces the toxicity of hazardous substances as a principal element. However, based on the RI results, it was determined that there are no Principal Threat Wastes on the Site. Therefore, this evaluation criterion, which is principally applicable to sites with Principal Threat Wastes, is not a significant factor at the Site.

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 5 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 NO SIGNIFICANT CHANGES

In compliance with statutory requirements for ensuring the public has the opportunity to comment on major remedy selection decisions, a +proposed plan was prepared presenting Alternatives SO2, SO3, SO6, SO8B, VI2, and VI3 as the preferred alternatives.

EPA presented a Proposed Plan **(**soil excavation and capping, vapor intrusion mitigation, and institutional controls) for soil and vapor intrusion remediation of the Site on July 16, 2013. More specifically:

Soil:

- Areas D3, E3, E2, G, and H – SO2 Institutional Controls;
- Areas D1, E1, and F – SO3 Targeted Excavations and Off-Site Disposal and Institutional Controls;
- Area J – SO6 Pre-Design Investigation, Soil Cap, Operation and Maintenance, and Institutional Controls; and
- Area I – SO8B Pre-Design Investigation, Excavations and Off-Site Disposal, and Institutional Controls.

Vapor Intrusion:

- Area E1 – VI3 Active Vapor Mitigation, Operation and Maintenance, and Institutional Controls; and
- Area J – VI2 Institutional Controls.

EPA reviewed all written and verbal comments submitted during the public comment period. It was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary.

O. STATE ROLE

The CT DEEP reviewed the various alternatives and has indicated its support for the selected remedy. The State also reviewed the RI, Risk Assessment, and FS reports to determine if the selected remedy is in compliance with applicable or relevant and appropriate State environmental and facility siting laws and regulations. The State of Connecticut concurs with the selected remedy for the Site. A copy of the declaration of concurrence is attached as Appendix F.

Record of Decision

Part 3: The Responsiveness Summary

THE RESPONSIVENESS SUMMARY

A. PREFACE

In July 2013, the United States Environmental Protection Agency (EPA) issued a Proposed Plan to address remediation at the Scovill Landfill Superfund Site (Site) in Waterbury, Connecticut. The Proposed Plan was based on the Human Health Risk Assessment, Remedial Investigation, and Feasibility Study. These reports, the Proposed Plan, and all supporting documents were presented in the Administrative Record and made available at the public information repositories located at the Silas Bronson Library in Waterbury, Connecticut and at EPA's office in Boston, Massachusetts.

EPA published notices of availability of the draft Proposed Plan and Administrative Record in the Waterbury Republican American on July 24, 2013 and released the final Proposed Plan to the public on July 25, 2013. EPA also held a Public Meeting to answer questions on August 6, 2013 at the WARC in Waterbury. A Public Hearing was held on August 6, 2013 also at the WARC in Waterbury. A transcript was created for the August 6, 2013 hearing and has been made part of the Administrative Record for this Record of Decision. In addition to the oral comments, several written comments were provided on the Proposed Plan. Outlined below is a summary of comments received from the public and other interested parties during the public comment period and EPA's response to those comments. Similar comments have been summarized and grouped together. The full text of all written and oral comments received during the comment period has been included in the Administrative Record.

B. SUMMARY OF CITIZENS' COMMENTS

Ten individuals submitted comments, either during the public hearing, in writing, or both. Where appropriate, EPA has grouped similar comments and prepared a single response.

Comment #1:
One commenter expressed support for EPA in cleaning up Superfund sites.

EPA Response:
EPA appreciates the commenter's support for EPA.

Comment #2:
Several commenters questioned the timeline for the remediation, how long it will take and what is the schedule going forward.

EPA Response:

Once the Record of Decision (ROD) is signed by the EPA Director of Office of Site Remediation and Restoration, the Remedial Design/Remedial Action phase can begin. The expected remedy will require a pre-design investigation to refine those areas with chemicals of concern and minimize unnecessary remediation in those areas. This will reduce costs and lessen disruptions on those properties. The pre-design investigation is expected to begin during the next federal fiscal year (starting October 2013) so the remedial design can start in 2014. The start date and duration of the remedial action phase will be dependent on the results of the pre-design investigation, access, and availability of funding.

Comment #3:
Several commenters expressed a concern because they were not advised that their rented apartments were located on a Superfund Site. They also questioned why there is no disclaimer about a Superfund Site in their lease. Apparently the daycare facility is required to disclose this to their clients so why not the landlords?

EPA Response:
EPA does not regulate notification to apartment tenants. The property owners and landlords are aware of the fact that their property on the Site is part of the Scovill Industrial Landfill Superfund Site. . EPA did hold several public meetings during the course of the Remedial Investigation to inform the residents of the progress of the Site investigation and cleanup. We note that the contaminated soils that were investigated are generally isolated below pavement, below building foundations, or below vegetated surfaces. If contaminated soil is isolated or is considered to be "inaccessible", then residents are not likely to be exposed chemicals in the soil, resulting in no unacceptable health risks. With respect to notifications made by Toddler Town Day Care, this is part of the CT Department of Public Health licensing requirements for this facility.

Comment #4:
Several tenants living in apartments on the Site questioned why they weren't informed about the public meeting and hearing. They also questioned why homeowners outside the Site were sent mailings.

EPA Response:
Notices about the public hearing and public meeting as well as a copy of the Proposed Plan were mailed to property owners both on, and adjacent to, the Site based on records in the City of Waterbury Assessor's Office. EPA sent the notices to property owners with apartment buildings and requested that they distribute them to tenants. The homes outside of the landfilled area are single family units or condominiums with individual owners. A public notice of the meeting also appeared in the Waterbury Republican American on July 24, 2013 to inform the general public about the meeting.

Comment #5:
Several commenters requested that EPA provide the resources and funding to proceed with the remediation.

EPA Response:
Assuming funding is available, EPA is planning to proceed with the development of the pre-design studies at area E1, area I, and area J starting in the winter of 2013. EPA and CT DEEP also plan to start to work with property owners as soon as possible to record institutional controls and/or land use restrictions on the Site properties. EPA will perform the remedial design and remedial action at the Site. Funding for the cleanup will come either from the Superfund or any remaining potentially responsible parties Costs funded by Superfund are allocated by EPA Headquarters to the Regions on a priority basis (i.e. from highest to lowest priority) based on degree of contamination and human health risk. EPA has already recovered funds from the successor to Scovill Manufacturing, Saltire Industrial, Inc.. which filed for bankruptcy protection in 2005. EPA filed a claim in the bankruptcy court and recovered approximately $520,000. That money has largely been spent during the Site investigation. EPA continues to investigate whether claims to recover the cost of cleanup can be brought against any other potentially responsible parties, but has not yet made any determinations whether to pursue further cost recovery from other parties.

Comment #6:
Several commenters questioned why landowners on the Site should be considered to help pay for any remediation costs because they were not the ones who created the contamination. Similarly, multiple commenters questioned why EPA was not pursuing other companies that used to be owned by the Scovill Manufacturing Company or the Department of Defense (DOD) that engaged Scovill to make war time material.

EPA Response:
In 1985, Scovill, Inc. underwent a corporate reorganization in which it transferred the assets and liabilities of its six divisions to six new and separate corporations, and transferred all other remaining assets and liabilities to a new corporation, Scovill, Inc. (incorporated in Delaware), which was renamed Saltire Industrial, Inc. in 1994. Under an EPA administrative order, Saltire completed a portion of the remedial investigation for the Site, until it filed for bankruptcy in 2005. EPA settled with Scovill during its bankruptcy for $5.3 million, but because its claim was only a general unsecured claim, EPA only received a distribution of about $520,000, which has largely been spent. EPA continues to investigate its potential claims for the costs of cleanup against other parties, including the corporations formed out of Scovill's divisions in 1985. EPA is also still investigating potential claims against the Department of Defense.
Because CERCLA imposes liability on certain categories of persons, regardless of their fault or negligence, current landowners of record are strictly liable for cleanup by statute. Depending upon the circumstances of the landowner's purchase, however, s/he may qualify for an exemption to liability as a bona fide prospective purchaser or innocent landowner. Also, under EPA policy, the Agency does not ordinarily pursue costs from current landowners of residential homes between one and four units. EPA also takes a landowner's ability to pay into consideration when evaluating cost recovery options.

Comment #7:
One resident asked if there will be another public meeting after the Record of Decision is finalized and will there be any additional notification or a web site to check for results.

EPA Response:

There is no public meeting planned for when the Record of Decision is finalized. But EPA will be placing the Record of Decision on the Site's website which is: www.epa.gov/region1/superfund/sites/scovill .

Comment #8:
Some commenters and residents asked what are the remediation plans. How can they find out about the plans?

EPA Response:
EPA evaluated several alternatives during the Feasibility Study and described the preferred remedial alternatives in the Proposed Plan. These alternatives include a combination of excavation with off-site disposal, vapor extraction, institutional controls, and/or land use restrictions. A detailed description of the selected remedy can be found in the Record of Decision as well as on the Site web page: www.epa.gov/region1/superfund/sites/scovill .

Comment #9:
One resident asked when will EPA have a solution to the problems at the Scovill Site.

EPA Response:
As detailed above, EPA has developed a remedial approach described in the Proposed Plan that is included in the Record of Decision. Following the signing of the Record of Decision, EPA will begin the pre-design studies to finalize remediation plans.

Comment #10:
Several commenters and residents were worried about cancer risks based on what they read in the newspaper and asked why, if there is no current risk to residents, why is EPA proceeding with a remedial action.

EPA Response:
EPA conservatively evaluated the current and future potential risks for the reasonable maximum exposure (RME) which is the highest exposure expected to occur at the site. Although EPA believes that people are not currently contacting chemicals at this time, EPA believes that site conditions could change in the future and thus wants to take necessary steps to ensure that exposure does not occur in the future.

Comment #11:
One commenter suggested that because housing and a daycare center have existed on Site without any apparent ill health effects, that the Site be "grandfathered" and exempt from any further remediation and environmental restrictions.

EPA Response:
EPA evaluated the potential for adverse health effects under current land use as well as future potential land use. Using EPA's risk assessment process, EPA identified potential health risks associated with exposure to site contaminants. Although EPA believes that people are not

currently contacting chemicals at this time, EPA believes that necessary steps must be taken to ensure that exposure does not occur in the future should site conditions change.

Comment #12:
One commenter objected that the residents and neighbors of the Site are not being given a permanent solution if waste is left in place and will be subject to land use restrictions as well as any future changes in state or federal hazardous waste regulations. In particular, there was a concern for the four single family homes on Monroe Street where only a small back edge of the property was included on the Site. The commenter suggested that any contaminated soil on these four properties be replaced with clean soil.

EPA Response:
EPA carefully evaluated the various remedial alternatives using nine criteria including overall protection of human health and the environment, compliance with regulations and statutes, cost, implementability, and long term effectiveness and permanence. The preferred alternative in the Proposed Plan provides the best balance of the nine criteria. Because some waste will be left in place, the properties will be subject to land use restrictions, primarily in the form of Environmental Land Use Restrictions (ELURs) required under Connecticut law. The land use restrictions will provide that certain activities will be prohibited without CT DEEP approval.

With respect to the four single family homes on Monroe Street, part of the pre-design investigation is to determine if there are soils exceeding remediation goals for the portions of the properties on the Scovill Site and, if so, their possible vertical extent. If contaminated soils do not exist below a four foot depth, then institutional controls would likely not be necessary at those properties.

Comment #13:
One commenter viewed any remediation in areas other than the Calabrese parcel as economically unrealistic because the subsoil contamination is “miniscule” compared to the other urban contamination within the City.

EPA Response:
As discussed above, cost is only one consideration in evaluating remedial alternatives. EPA must also protect human health and the environment as well as comply with state and federal regulations and statutes.

Comment #14:
One homeowner asked if her house was going to be included in the remediation based on a rotten egg smell coming from the back of the property and the trees falling down behind her house.

EPA Response:
This particular property is outside of the Scovill Site boundary where no Scovill ash was deposited on the property. The rotten egg smell is naturally occurring and is coming from decaying vegetation in the seasonally wet area behind her property and to the west of the Calabrese parcel. The trees on the slope behind the house are falling down because ongoing erosion is weakening the root structure. Those trees at the bottom of the slope are discolored because the roots are constantly saturated by the seasonally standing water.

Comment #15:
One commenter questioned whether the soil following remediation will be safe for planting a garden or growing fruits and vegetables.

EPA Response:

The Human Health Risk Assessment (HHRA) did not specifically evaluate vegetable gardening or light agriculture scenarios. However, those areas where the upper two to four feet of soil are replaced as part of the remediation probably would not present a risk for gardening. However, it is still a good idea to use raised beds for any gardening of fruits or vegetables that will be consumed. This is consistent with the CT Department of Public Health statewide guidance. For more information about safe gardening, refer to the CT DPH factsheet. . http://www.ct.gov/dph/lib/dph/environmental_health/eoha/pdf/vegetable_uptake_fact_sheet.pdf The land use restrictions for the industrial/commercial properties are presumed to limit excavation activities, including gardening.

Comment #16:
Several commenters understood that paved areas did not present exposure to contaminated materials beneath them but expressed concern on whether unpaved properties provided risk concerns. A common concern expressed was the unpaved area of the Calabrese Parcel.

EPA Response:
All of the soil samples in "unpaved" areas are collected from below the turf or the root zone. The soil from below the vegetated surface was collected and analyzed. So, although the Calabrese parcel is unpaved, the soils with chemicals that may be of concern are actually covered by vegetation. If vegetation is present, then the contaminated soil cannot easily become airborne.

CT DEEP's previous removal action excavated and took off site 2,300 tons of PCB-contaminated soil from the central portion of the Calabrese parcel. CT DEEP then placed 1 foot of clean soil over the excavation area. Thus, contaminated soil identified by the EPA investigations is either below the turf or below at least 1 foot of clean soil.

Comment #17:
Several tenants of 119 Store Avenue understood that vapor mitigation will only impact residents of the ground floor, but expressed concerns about walking through the lobby and common room located on the ground floor and the building's circulation system.

EPA Response:
Historically, a few volatile organic compounds have been sporadically detected in groundwater near 119 Store Ave. Although EPA determined that while risks are limited, pending results of the PDI, a vapor mitigation system is planned to be installed in the four residential units located on the ground floor at 119 Store Avenue as a preventative measure.

The pre-design investigation (prior to vapor mitigation system construction) will include an evaluation to better assess if there is an exposure pathway into the building. If it is determined that an exposure pathway exists, the PDI will further evaluate the existing structure and

potential vapor intrusion pathways as well as an indoor air investigation. This information will be used to further characterize potential vapor intrusion issues at the ground floor and throughout the building. The risk from vapor intrusion is based on the assumption that a person is exposed to it over long periods of time (i.e. all day every day in their homes) and so the risk to people just passing through an area would be much lower.

Comment #18:
Several commenters have expressed concern regarding air quality during the various remediation efforts.

EPA Response:
Various instruments will be used to monitor the ambient air quality during intrusive phases of remediation (i.e., excavation). If air monitoring levels exceed established health and safety limits which are set lower than levels that would pose a risk, work will be stopped and various measures will be implemented to further control air emissions. Measures will be taken to control dust during construction as well.

Comment #19:
One commenter expressed a concern regarding clean surface soil becoming contaminated over time due to natural shifting of soil moving up through vegetation and tree roots.

EPA Response:
During the soil remediation, clean fill will be used to backfill excavation areas. EPA does not anticipate the clean fill material to become contaminated with Site chemicals of concern with time. Similar remediation approaches have been taken at other Superfund sites throughout the country with notable success.

Comment #20:
Several commenters have expressed concern regarding chemicals of concern degassing from soil and moving with liquids such as groundwater.

EPA Response:
The chemicals of concern found at the Site consist of Polynuclear Aromatic Hydrocarbons (PAHs), metals, and PCBs (found only at Area J). PAHs and PCBs by nature tend to adhere to the soil and not migrate into groundwater. Metals however can migrate into the groundwater. However, at select locations (referred to as pollutant mobility criteria exceedances), metal concentrations in soil are elevated and will be removed (at depths greater than 4 feet below the ground surface) to be protective of Site groundwater.

Comment #21:
Several commenters have expressed concern regarding soil contamination beyond Site borders.

EPA Response:
The extent of Scovill fill has been well defined in historical aerial photo documentation as well as through soil testing, and field observation. The historical photos document the extent of filling operations at the Site by the Scovill Manufacturing Company from as early as 1934 through the late 1970s when Scovill Manufacturing Company sold off the last Site parcels. The Remedial Investigation report has figures that depict the limits of historical filling by Scovill at the Site.

Comment #22:
Several commenters have expressed concern regarding the odor of rotten eggs emanating from their backyard and the volume of mosquitoes.

EPA Response:
The odor of rotten eggs and a significant presence of mosquitoes are likely associated with standing water containing decaying vegetation. These issues are unrelated to the Site's chemicals of concern and potential exposure risks to Site soil. However, prior to remedial construction activities, stormwater drainage will be evaluated and designed to avoid pooling and standing water.

Comment #23:
One resident expressed concern regarding beryllium dumping at the Site.

EPA Response:
EPA has not found information regarding beryllium disposal at the Site. However, beryllium is a naturally occurring element and is typically present in oil and coal. Therefore, the ash resulting from the combustion of oil and coal will likely contain beryllium. Because ash from the Scovill Manufacturing Company was disposed of at the Site, it is reasonable to have beryllium present in the subsurface soil that had been mixed with ash. 274 soils samples were collected at the Site and beryllium was detected at relatively low levels in approximately 80% of the samples, which suggests that ash is the likely source of beryllium. The Connecticut residential soil standard for beryllium is 2 mg/Kg. The average surface and subsurface beryllium concentrations at the Site are 0.93 and 1.22 mg/Kg, respectively. Only one out of the 274 samples (at 2.5 mg/Kg) slightly exceeded the residential soil standard. As a result, beryllium is not considered a chemical of concern for the risk assessment at the Site.

Comment #24:
One resident expressed concern regarding radon contamination at the Site.

EPA Response:
Radon occurs naturally throughout New England and is generally associated with certain types of bedrock found close to or at the Earth's surface. Bedrock at the Site is approximately 50 feet below the ground surface. As a result, radon is not considered a Site chemical of concern and testing by EPA is not planned. However, the tenant or landlord can test for radon. Radon kits are relatively inexpensive and are readily available at most hardware stores. If testing shows elevated levels present inside the building, it would be prudent for the landlord to take appropriate measures such as sealing cracks in the foundation or installing a radon system to prevent radon from migrating into the building.

Comment #25:
Several residents have expressed concern regarding the quality of drinking water at the Site. Another concern was testing of the drinking water.

EPA Response:
The groundwater in this area of CT, including the Site, is classified by the State as "GB", which means it is unsuitable for drinking water purposes. All buildings at the Site are serviced by the public water supply and there are no private wells in this area. Drinking water is provided by the City of Waterbury's Water Department. The sources of drinking water for Waterbury are the Shepaug and Cairns Reservoirs, not groundwater. Water from the reservoirs is treated at the Harry P. Danaher Water Treatment Plan located in Thomaston, CT before being distributed into the water supply system. The water supply is routinely tested and the results are presented at the City's website (http://www.waterburyct.org/content/9569/9605/9642/10305/default.aspx).

EPA has performed several rounds of groundwater sampling to characterize the nature of chemicals in groundwater, but does not intend to test drinking water which is unrelated to the Site.

Comment #26:
One commenter expressed concern regarding potential groundwater contamination beyond the Scovill Site boundary.

EPA Response:
The principal chemicals of concern at Scovill are PAHs, metals, and some PCBs (found in northern Area J only) in soil. Testing during the Remedial Investigation showed that these chemicals do not easily migrate from the soil into groundwater. Groundwater in the southern part of the Site does not exceed regulatory thresholds. Additionally, the groundwater in this part of Waterbury is classified by CT DEEP as "GB", which means it is unsuitable for drinking water purposes. All residents are serviced by municipal water connections from surface water supply sources. Additional analyses during the Remedial Investigation also showed that groundwater from the Scovill Site does not exceed any regulatory criteria when it reaches surface water bodies.

Comment #27:
Several commenters expressed concern over the development of the Calabrese parcel following remediation. They wanted to know what the future development plans were and to make sure that the City of Waterbury was involved with any development plans. One commenter suggested that the degree of remediation should depend on the intended use and if the land is left undeveloped, it should revert back to being a wetland.

EPA Response:
Because the land is currently zoned commercial, any remediation will need to meet the state's industrial/commercial remedial criteria under the Remediation Standard Regulations. EPA and CT DEEP have been in communication with the Mayor's office regarding applicable regulatory criteria for future development, but EPA is not responsible for developing this land. Any development or future land use decisions belong to the property owner of record in concert with any lien holders.

Comment #28:
Several commenters were concerned with how dust would be controlled during remediation activities and if businesses will be forced to close.

EPA Response:
EPA will work closely with the community and local businesses prior to beginning remedial activities to minimize any disruptions. Dust control and suppression is an integral part of any excavation plan. Engineering control measures such as covering excavated soil, wetting down soil piles and excavations, etc., will be in place during remedial activities.

C. COMMENTS FROM THE HOUSE OF REPRESENTATIVES

These comments were submitted by House Republican Whip, Selim G. Noujaim.

Comment #29
What alarms me and the residents are that no new information nor solutions were presented at this meeting versus the previous public hearing which was conducted by yourself and moderated by me at the same location many years ago.

EPA Response:
The public meeting that was held on August 6, 2013 was for EPA to address the proposed remedy as articulated in the Proposed Plan for the Site, and to answer questions. That same night following the public meeting, EPA held a formal public hearing to allow people the opportunity to provide EPA oral comments on the Proposed Plan. The previous EPA meeting was held on February 2011. At this meeting EPA informed the community and other interested parties that the remedial investigation was completed and explained what was found during the investigation. EPA also went over what were the next steps and schedule leading to a Record of Decision scheduled to be finalized by September 2013. Between the time period of the February 2011 meeting and the August 2013 meeting, EPA has finalized the Remedial Investigation report, Report, Feasibility Study report, and the Proposed Plan.

Comment #30
I must stress that the residents are very anxious, upset, and worried about their health as well as the health of their children and grandchildren. I am, therefore, requesting an immediate and speedy solution by EPA to this issue. We must allocate the necessary resources by the appropriate agencies to decontaminate the properties and to make the residents whole. I look forward to your prompt response.

EPA Response:
The Site in its current state does not pose a health risk to the on-site residents or workers because there is no current route of exposure to the contaminants of concern. The reason for implementing the proposed remedy is to prevent future potential risk should Site conditions change. Please see response to comment #17 which addresses the concern relating to vapor intrusion. Costs funded by Superfund are allocated by EPA Headquarters to the Regions on a priority basis (i.e. from highest to lowest priority) based on degree of contamination and human health risk. Once funding is available for this site, EPA will immediately start the preliminary remedial investigation at Areas E1, I and J as well as work with CT DEEP and on-site property owners to implement land use restrictions. After the preliminary remedial investigation is completed, the remedial design and remedial construction would begin. EPA plans to inform

and work closely with City officials and on-site and nearby community regarding all future field work and respective schedules.

These comments were submitted by District Aid to Congresswoman Elizabeth Esty.

Comment #31
This is Ryan Baldassario from Congresswoman Esty's office in Connecticut. I wanted to say thank you for the presentation last night, and I wanted to commend you and your staff for dealing very professionally. I have a few minor questions for you. (1) Along the line of questioning from constituents, is there a source of funding for the remediation plans at this stage? Are there opportunities for EPA grants or is this money coming mostly from CT sources?

EPA Response:
See EPA Response to comment #30. In addition, the cost for implementing the remedy would come from EPA's Superfund account which is distributed to sites on a priority basis. CT would pick up the costs for the long term operation & maintenance following the implementation of the remedy. EPA has not yet made a determination as to whether or not it will seek some cost recovery from property owners.

APPENDIX A

Phase 01: SITE ASSESSMENT

295590 PLANNING FOR THE FUTURE: A REUSE PLANNING REPORT FOR THE CALABRESE PARCEL OF THE SCOVILL INDUSTRIAL LANDFILL SUPERFUND SITE

# of Pages: 56
Doc Date: 06/01/2005

Author: , E2 INC

Addressee: , WATERBURY (CT) CITY OF

Doc Type: REPORT
SITE INSPECTION (SI)

File Break: 01.18

Access Type(s): REL

Phase 03: REMEDIAL INVESTIGATION (RI)

540436 REMEDIAL INVESTIGATION (RI) (05/14/2013 TRANSMITTAL LETTER ATTACHED)

# of Pages: 1881
Doc Date: 05/01/2013

Author: , NOBIS ENGINEERING INC
Addressee: , US EPA REGION 1
Doc Type: REMEDIAL INVESTIGATION (F
REPORT
File Break: 03.06
Access Type(s): REL

540437 HUMAN HEALTH RISK ASSESSMENT (HHRA) (06/09/2011 TRANSMITTAL LETTER ATTACHED)

# of Pages: 1430
Doc Date: 06/01/2011

Author: , NOBIS ENGINEERING INC
Addressee: , US EPA REGION 1
Doc Type: REPORT
RISK/HEALTH ASSESSMENT
File Break: 03.10
Access Type(s): REL

540438 BASELINE ECOLOGICAL RISK ASSESSMENT (BERA)

# of Pages: 515
Doc Date: 12/01/2010

Author: , TECHLAW INC
Addressee: , US EPA REGION 1
Doc Type: REPORT
RISK/HEALTH ASSESSMENT
File Break: 03.10
Access Type(s): REL

Phase 04: FEASIBILITY STUDY (FS)

542224 PROPOSED PLAN

# of Pages: 20
Doc Date: 07/01/2013

Author: , US EPA REGION 1
Addressee:
Doc Type: PROPOSED PLAN
PUBLIC INFORMATION
REPORT
File Break: 04.09
Access Type(s): REL

542225 FEASIBILITY STUDY (FS)

# of Pages: 484
Doc Date: 07/01/2013

Author: , NOBIS ENGINEERING INC
Addressee: , US EPA REGION 1
Doc Type: FEASIBILITY STUDY (FS)
REPORT
File Break: 04.06
Access Type(s): REL

542233 REVISED ESTIMATES OF BACKGROUND THRESHOLD VALUES (BTV) COMPUTED WITHOUT OUTLIERS AND UNUSUAL SAMPLING LOCATIONS

# of Pages: 20
Doc Date: 04/10/2012

Author: ANITA SINGH, LOCKHEED MARTIN
Addressee:
Doc Type: REPORT
File Break: 04.02
Access Type(s): REL

Phase 04: FEASIBILITY STUDY (FS)

542234 GROUND WATER USE AND VALUE DETERMINATION

# of Pages: 14
Doc Date: 09/29/2010

Author:	Addressee:	Doc Type:	File Break:	Access Type(s):
AMEY W MARRELLA, CT DEPT OF ENVIRONMENTAL PROTECTION		REPORT	04.05	REL

542235 SUPPLEMENTAL EVALUATION OF SURFACE-WATER PROTECTION CRITERIA (07/10/2012 TRANSMITTAL LETTER ATTACHED)

# of Pages: 31
Doc Date: 07/01/2012

Author:	Addressee:	Doc Type:	File Break:	Access Type(s):
, NOBIS ENGINEERING INC		REPORT	04.02	REL

Phase 05: RECORD OF DECISION (ROD)

547497 LETTER REGARDING PUBLIC COMMENT ON RECORD OF DECISION (ROD) PROPOSED PLAN

# of Pages: 1
Doc Date: 08/23/2013

Author: SELIM G NOUJAIM, CT HOUSE OF REPRESENTATIVES	**Addressee:** ALMERINDA SILVA, US EPA REGION 1	**Doc Type:** CORRESPONDENCE LETTER PUBLIC (AND OTHER) COMME	**File Break:** 05.03 **Access Type(s):** REL

547498 EMAIL REGARDING PUBLIC COMMENT ON RECORD OF DECISION (ROD) PROPOSED PLAN

# of Pages: 1
Doc Date: 08/07/2013

Author: RYAN BALDASSARIO, OFFICE OF CONGRESSWOAMN ELIZABETH ESTY	**Addressee:** KATE RENAHAN, US EPA REGION 1	**Doc Type:** CORRESPONDENCE EMAIL PUBLIC (AND OTHER) COMME	**File Break:** 05.03 **Access Type(s):** REL

547499 EMAIL REGARDING PUBLIC COMMENT ON RECORD OF DECISION (ROD) PROPOSED PLAN

# of Pages: 1
Doc Date: 08/11/2013

Author: MARY M VALLILLO, WATERBURY (CT) RESIDENT	**Addressee:** ALMERINDA SILVA, US EPA REGION 1	**Doc Type:** CORRESPONDENCE EMAIL PUBLIC (AND OTHER) COMME	**File Break:** 05.03 **Access Type(s):** REL

Phase 05: RECORD OF DECISION (ROD)

548300 **EMAIL REGARDING PUBLIC COMMENT ON RECORD OF DECISION (ROD) PROPOSED PLAN**

# of Pages: 1
Doc Date: 08/22/2013

Author:	Addressee:	Doc Type:	File Break: 05.03
PEGGY CULLINAN, WATERBURY (CT) RESIDENT	ALMERINDA SILVA, US EPA REGION 1	CORRESPONDENCE EMAIL PUBLIC (AND OTHER) COMME	Access Type(s): REL

548301 **EMAIL REGARDING PUBLIC COMMENT ON RECORD OF DECISION (ROD) PROPOSED PLAN**

# of Pages: 1
Doc Date: 08/07/2013

Author:	Addressee:	Doc Type:	File Break: 05.03
MARIELYS ROMAN, WATERBURY (CT) RESIDENT	ALMERINDA SILVA, US EPA REGION 1	CORRESPONDENCE EMAIL PUBLIC (AND OTHER) COMME	Access Type(s): REL

Phase 13: COMMUNITY RELATIONS

26480 **SCOVILL INDUSTRIAL LANDFILL PUBLIC FACT SHEET**

# of Pages: 4
Doc Date: 07/01/2000

Author:	Addressee:	Doc Type:	File Break:
, US EPA REGION 1		FACT SHEET PUBLIC INFORMATION	13.05 Access Type(s): REL

26484 **SCOVILL INDUSTRIES LANDFILL PUBLIC FACT SHEET**

# of Pages: 4
Doc Date: 05/01/2001

Author:	Addressee:	Doc Type:	File Break:
, US EPA REGION 1		FACT SHEET PUBLIC INFORMATION	13.05 Access Type(s): REL

42501 **FACTSHEET: SUPERFUND SITE ACTIVITY UPDATE, WHAT IS HAPPENING AT THE SCOVILL INDUSTRIAL LANDFILL SUPERFUND SITE?**

# of Pages: 5
Doc Date: 06/01/2002

Author:	Addressee:	Doc Type:	File Break:
, US EPA REGION 1		FACT SHEET PUBLIC INFORMATION	13.05 Access Type(s): REL

Phase 13: COMMUNITY RELATIONS

42502 FACTSHEET: SUPERFUND SITE ACTIVITY UPDATE, REMEDIAL INVESTIGATION (RI) - PHASE 1 BEGINS SEPTEMBER 2002

# of Pages: 2
Doc Date: 08/01/2002

Author: , US EPA REGION 1
Addressee:
Doc Type: FACT SHEET
PUBLIC INFORMATION
File Break: 13.05
Access Type(s): REL

44813 SUPERFUND SITE ACTIVITY UPDATE - REMEDIAL INVESTIGATION (RI) PROGRESS REPORT - PHASE 1 RESULTS

# of Pages: 5
Doc Date: 06/01/2003

Author: , US EPA REGION 1
Addressee:
Doc Type: FACT SHEET
PUBLIC INFORMATION
File Break: 13.05
Access Type(s): REL

204847 SITE ACTIVITY UPDATE - REMEDIAL INVESTIGATION (RI) PROGRESS REPORT: PHASE 2 ACTIVITIES

# of Pages: 4
Doc Date: 04/01/2004

Author: , US EPA REGION 1
Addressee:
Doc Type: FACT SHEET
PUBLIC INFORMATION
File Break: 13.05
Access Type(s): REL

Phase 13: COMMUNITY RELATIONS

443248 SITE ACTIVITY UPDATE - REMEDIAL INVESTIGATION (RI) PROGRESS REPORT: PHASE 3 ACTIVITIES, OCTOBER 2008

# of Pages: 2
Doc Date: 10/01/2008

Author:	Addressee:	Doc Type:	File Break:
US EPA REGION 1		FACT SHEET PUBLIC INFORMATION	13.05 Access Type(s): REL

481004 FACT SHEET: SCOVILL INDUSTRIAL LANDFILL

# of Pages: 4
Doc Date: 02/01/2011

Author:	Addressee:	Doc Type:	File Break:
US EPA REGION 1		FACT SHEET PUBLIC INFORMATION	13.05 Access Type(s): REL

527987 NEWS RELEASE: EPA FORMALLY PROPOSES FORMER SCOVILL INDUSTRIAL LANDFILL TO SUPERFUND LIST

# of Pages: 3
Doc Date: 05/11/2000

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

Phase 13: COMMUNITY RELATIONS

527988 **NEWS RELEASE: EPA PROPOSES TOXIC WASTE SITES TO SUPERFUND**

# of Pages: 2
Doc Date: 07/27/2000

Author:	Addressee:	Doc Type:	File Break:
, US EPA REGION 1		PRESS RELEASE PUBLIC INFORMATION	13.03

Access Type(s): REL

527989 **NEWS RELEASE: EPA ORDERS CLEANUP AT WATERBURY SUPERFUND SITE**

# of Pages: 2
Doc Date: 03/20/2003

Author:	Addressee:	Doc Type:	File Break:
, US EPA REGION 1		PRESS RELEASE PUBLIC INFORMATION	13.03

Access Type(s): REL

546669 **PUBLIC HEARING TRANSCRIPT**

# of Pages: 35
Doc Date: 08/06/2013

Author:	Addressee:	Doc Type:	File Break:
JACQUELINE V MCCAULEY, NONE		MEETING RECORD PUBLIC (AND OTHER) COMME PUBLIC INFORMATION	13.04

Access Type(s): REL

Phase 16: NATURAL RESOURCE TRUSTEE

542231 **LETTER REGARDING OPEN SPACE INVENTORY AND REVIEW OF NATURAL DIVERSITY DATA BASE**

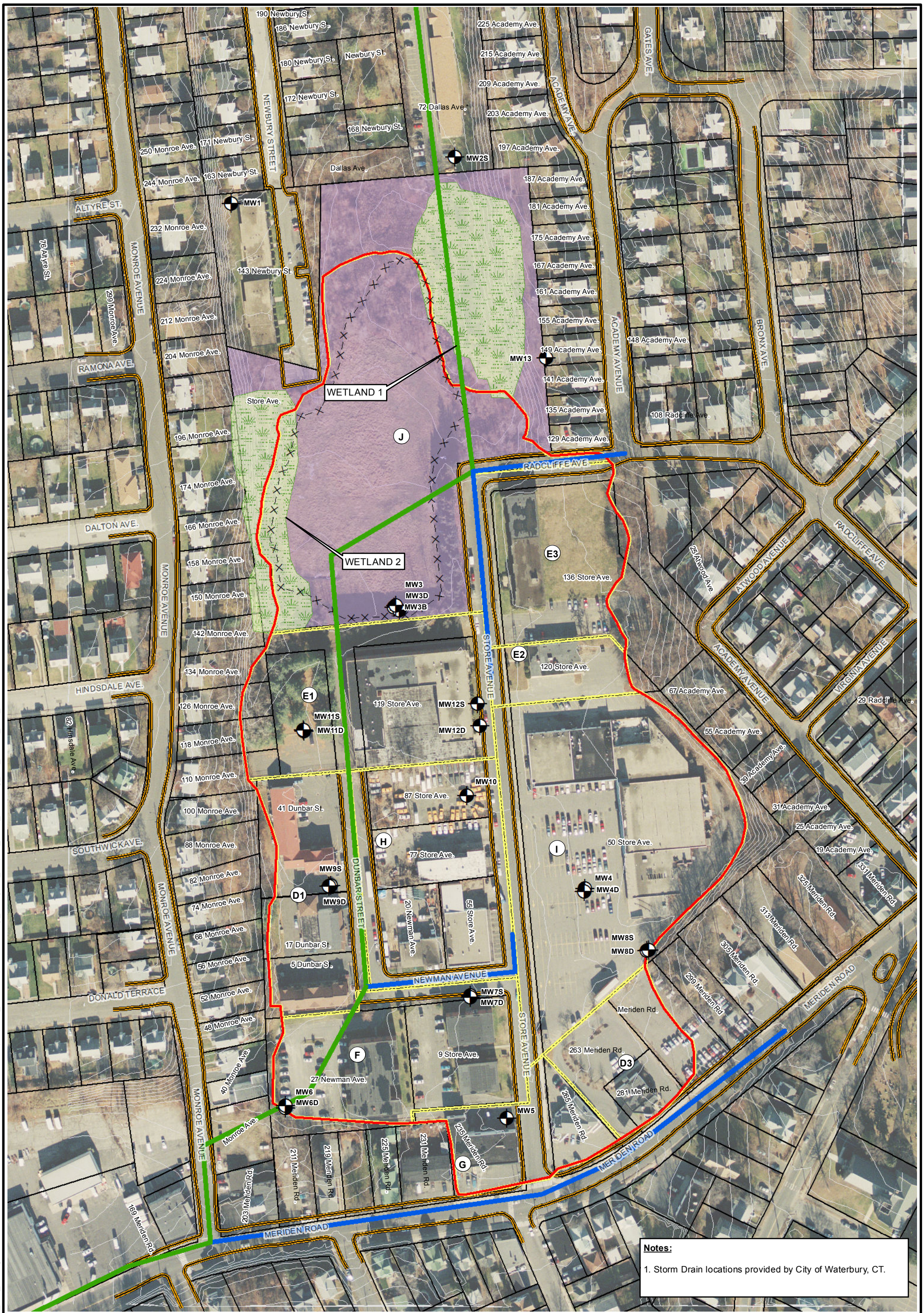
# of Pages: 1
Doc Date: 11/16/2010

Author:	**Addressee:**	**Doc Type:**	**File Break:**
NANCY MURRAY, CT DEPT OF ENVIRONMENTAL PROTECTION	ERICA CZEREPAK, TECHLAW INC	CORRESPONDENCE LETTER	16.01

Access Type(s): REL

Number of Documents in Administrative Record: 27

APPENDIX B



Notes:

1. Storm Drain locations provided by City of Waterbury, CT.

N

Drawn By: JH	Checked By: LC
September 2013	Revision No. 03

APPROXIMATE SCALE
0 75 150 300 Feet

- Estimated Limit of Scovill Derived/Placed Fill
- Risk Area Boundaries
- Modern Roads
- Assessor's Parcel Boundaries
- Calabrese Property
- Approximate Seasonal Wetland Area
- Monitoring Wells
- Fenceline
- Storm Drain
- Underground Route of Carrington Brook/ Storm Drain
- Modern Ground Surface Contour

FIGURE 1

Site Plan
Scovill Industrial Landfill
Waterbury, CT

Nobis
Engineering a Sustainable Future
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T(978) 683-0891
www.nobiseng.com
Client-Focused, Employee-Owned

Path: \\ma-netapp\Rac_File_Storage\80000 Task Orders\80018 Scovill LF\Technical Data (TD)\GIS_Data\Maps\Feasability_Study\FS_Report_June_2013\Fig_1-2_Scovill_Site_Plan.mxd Date Printed: 9/19/2013

N

Drawn By: JH | Checked By: LC

July 2013 | Revision No. 01

APPROXIMATE SCALE
0 75 150 300 Feet

- Limit of Landfilling Activities
- Ground Surface Contour
- Site Fence
- Roads
- Risk Area Boundaries
- Assessor's Parcel Boundaries
- Aerial Evidence of Scovill Derived/Placed Fill
- Aerial Evidence of Calabrese Filling and Spreading
- Aerial Evidence Attributed to Calabrese Clearing
- Filling Likely Associated With Construction

FIGURE 2

Waste Filling Summary
Scovill Industrial Landfill
Waterbury, CT

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Nobis Engineering, Inc.
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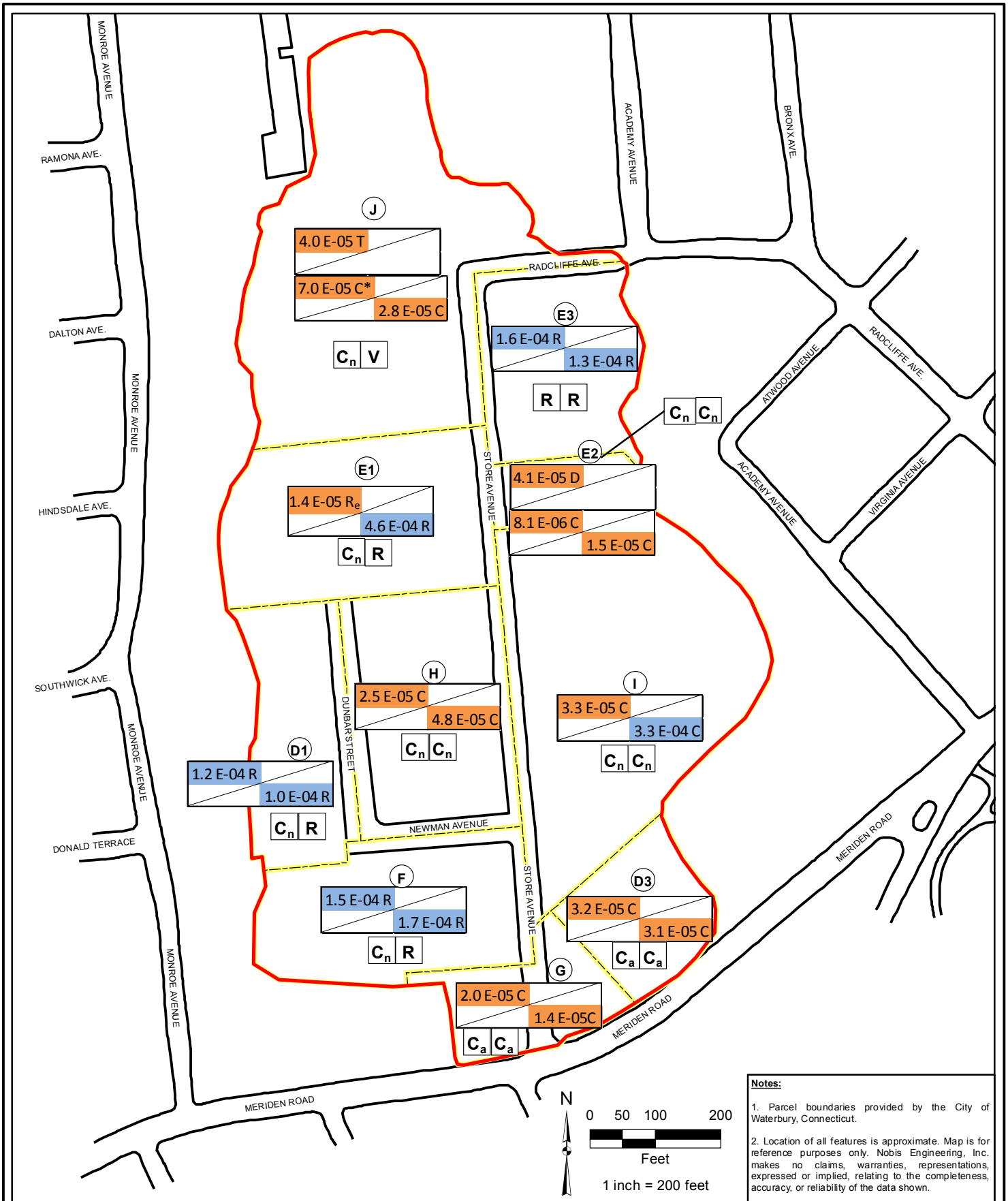
Lowell, MA 01851
T(978) 683-0891
www.nobiseng.com
Client-Focused, Employee-Owned

Path: R:\80000 Task Orders\80018 Scovill LF\Technical Data (TD)\GIS_Data\Maps\Feasability_Study\FS_Report_June_2013\Fig_1-3_Scovill Waste_Filling_Summary.mxd **Date Printed:** 9/4/2013



Notes:

1. Parcel boundaries provided by the City of Waterbury, Connecticut.
2. Location of all features is approximate. Map is for reference purposes only. Nobis Engineering, Inc. makes no claims, warranties, representations, expressed or implied, relating to the completeness, accuracy, or reliability of the data shown.

Zoning / Use Designation

X_x X_x

- Current Use
- Current Zoning

J — Risk Areas

Zoning / Use Definition

C = Commercial
C* = Future Commercial Exposed to Surface Soil
C_a = Commercial Arterial
C_n = Commercial Neighborhood Shopping
D = Daycare
R = Unrestricted Residential
R_e = Elderly Residential
T = Trespasser
V = Vacant

Present Scenario Risk (Surface) / Future Scenario Risk (Aggregate)

≥ 1.0 E-04

< 1.0 E-04

Estimated Limit of Scovill Derived/ Placed Fill

Risk Area Limits

Modern Roads

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FIGURE D1

ZONING DESIGNATION AND ESTIMATED RISK BY RISK AREA
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

PREPARED BY: JH	CHECKED BY: BA
PROJECT NO. 80018	DATE: JULY 2013

ALTYRE ST.
MONROE AVENUE
NEWBURY STREET
ADEMY AVE.
ACADEMY AVENUE
BRONX AVE.
RAMONA AVE.
DALTON AVE.
HINDSDALE AVE.
SOUTHWICK AVE.
DONALD TERRACE
RADCLIFFE AVE.
ATWOOD AVENUE
VIRGINIA AVENUE
STORE AVENUE
DUNBAR STREET
NEWMAN AVENUE
MERIDEN ROAD
J
E1
E2
E3
F
G
H
I
D1
D3

SB163 7 ft
CT 110 J

SB139 16 ft
BZ 330 J
BZ 270 J

SB45 4.5 ft
TCE 21000

SB145 9 ft
BZ 2100

SB143 12 ft
CF 660
BR 81 J

SB18 13 ft
TCE 1800
PCE 12000

SB121 13 ft
CF 400 J
CT 4000

Notes:

1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in µg/Kg.
2. "J" indicates that the result was estimated.
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Abbreviations:

BR - Bromodichloromethane
BZ - Benzene
CF - Chloroform
CT - Carbon Tetrachloride
PCE - Tetrachloroethene
TCE - Trichloroethene
VC - Vinyl Chloride

Shape Indicator

- PMC Action Level
- DEC Action Level

Color Indicator

- ≤ 1 x Action Level
- > 1 - 5 x Action Level
- > 5 - 10 x Action Level
- > 10 - 50 x Action Level
- > 50 x Action Level

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

- Modern Roads
- Estimated Limit of Scovill Derived/Placed Fill
- Risk Area Limits
- Assessor's Parcel Boundaries
- Buildings

FIGURE E1

Volatile Organic Compounds
In Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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Path: R:\80000 Task Orders\80018 Scovill LF\Technical Data (TD)\GIS_Data\Maps\RI_Report\RI Section 4 Feb 2013\Fig_4-1_Scovill_SO_All_VOCs_PMC.mxd

Key:

2,4-Dnt	2,4-Dinitrotoluene
2,6-Dnt	2,6-Dinitrotoluene
2-MN	2-Methylnaphthalene
B2E	Bis(2-Chloroethyl)Ether
B2EP	Bis(2-Ethylhexyl)Phthalate
BaA	Benzo(A)Anthracene
BaP	Benzo(A)Pyrene
BbF	Benzo(B)Fluoranthene
BkF	Benzo(K)Fluoranthene
Carb	Carbazole
Chr	Chrysene
DahA	Dibenz(A,H)Anthracene
DbF	Dibenzofuran
Flt	Fluoranthene
IndP	Indeno(1,2,3-cd)Pyrene
NDPA	N-Nitro-Di-N-Propylamine
Pha	Phenanthrene
Pyr	Pyrene

SS-25 0.5 ft
BaA 1200
BbF 2000 J
BkF 1400 J
2 ft
BaA 1200
BbF 1200

SB23 5 ft
BaA 1400
BaP 1300
BbF 1300
BkF 1100
IndP 1400

SS21 0.25 ft
BaA 1500
BaP 1600
BbF 1900
BkF 1400
IndP 1100

SS150 1 ft
BaA 2400 J
BbF 2000 J
BkF 1900 J
IndP 1500 J

SS-26 0.5 ft
BaA 1100
BaP 1100
BbF 2200 J
BkF 1600 J

SS27 0.5 ft
BaA 1700
BaP 1500
BbF 1600
BkF 1200 J
IndP 1200
2 ft
BaA 6200
BaP 3900
BbF 3700
BkF 3000 J
DahA 1200
IndP 2600

SB15 5 ft
BaA 2600
BaP 2500
BbF 2500
BkF 2100
IndP 2400

SB22 5 ft
BaA 1500 D
BaP 1400 D
BbF 1300 D
BkF 1300 D
IndP 1300 D

SB08 5 ft
BaP 1200 J
BbF 1400 J
IndP 1200 J

SB171 12 ft
BaA 7400 D
BaP 8400 D
BbF 11000 D
BkF 5700 D
IndP 1500

MW3D 8 ft
BaP 1200
BbF 2300

SB14
15 ft BaA 1400 J

SS-34 2 ft
BaA 1300
BbF 1300

SS-37 2 ft
BaA 3400
BaP 2600
BbF 2800
BkF 1900
IndP 1700

SB13 15 ft
BaA 7900
BaP 6600
BbF 6000
BkF 6200
DahA 1100 J
IndP 5700

SB07 5 ft
BaA 1400
BaP 1200
BkF 1500

SB151 17 ft
BaA 3300
BaP 3200
BbF 3300
BkF 2700

SB155 7 ft
BaA 2900
BaP 3300 D
BbF 4000 D
BkF 2200

SS-40 0.5 ft
BaA 1800
BaP 1500
BbF 2700
BkF 1300
IndP 1600

SB156 16 ft
2-MN 6800 J
BaA 55000
BaP 47000
BbF 43000
BgP 32000
BkF 38000
Carb 23000
Chry 53000
DahA 12000
Dbf 16000
Flt180000 D
IndP 37000
Pha 180000 D
Pyr 100000

SB189 10 ft
BaA 1300
BaP 1300
BbF 1400
BkF 1300
IndP 1100

SS142 0.5 ft
BbF 1400 J

SB153 7 ft
BaA 7200 D
BaP 7300 D
BbF 11000 DJ
BkF 6300 D
IndP 2100 J

SB150 7 ft
BaA 6200 DJ

SB47 6 ft
BaA 1200
BaP 1300
BbF 2600 J
18 ft
BaA 13000
BaP 10000
BbF 17000 J
Chr 14000
DahA 2000 J
IndP 3800 J

SB27 10 ft
2-MN 6200 J
BaA 58000 J
BaP 53000 J
BbF 43000 J
BgP 35000 J
BkF 51000 J
Carb 17000 J
Chr 69000 J
DahA 13000 J
Dbf 15000 J
Flt 160000
IndP 41000 J
Pha 160000
Pyr 170000
15 ft
BaA 2400
BbF 2500
BkF 2000
IndP 1600 J

SB190 9 ft
BaA 11000 D
BaP 9400 D
BbF 9000 D
BkF 10000 D
Chr 12000 D
DahA 2900
IndP 7700 D

SB152 7 ft
BaA 3600 D
BaP 3100 D
BbF 3200 D
BkF 2400

SB154 7 ft
2,4-Dnt 530
2,6-Dnt 1200
BbF 1300 J
B2E 1800
NDPA 1000

SS10 0.25 ft
BaA 1200
BaP 1500
BbF 1700
BkF 1400

SS15 0.25 ft
BaA 3200
BaP 4300
BbF 5000
BkF 4900
DahA 1200 J
IndP 3800

SB202 9 ft
BaA 7700
BaP 6300
BbF 6100
BkF 7200
DahA 1200 J
IndP 4600

SB193 9 ft
BaA 2000
BaP 2300
BbF 2800
BkF 2400
IndP 1800

SB149 17 ft
BaA 1300
BaP 1500
BbF 2200
BkF 2300

SB04 5 ft
B2EP 16000 J

SB26 15 ft
BaA 1200

MW4D 2 ft
BaA 4400
BaP 4300
BbF 7300
8.5 ft
BbF 1300 J
15 ft
BaA 8000
BaP 9200 J
BbF 13000 J
DahA 2100 J
IndP 5000 J

S191 9 ft
BaA 2900
Bbf 2000
BaP 1900
BkF 1900

SB195 9 ft
BaA 1300
BaP 1300
BbF 1100
BkF 1400

SS29 0.25 ft
BaA 1100
BbF 1900
BkF 2300

SS02 0.25 ft
BaA 1100
BaP 1100
BbF 1300
BkF 1300

SB194 9 ft
BkF 1300

SS142 17 ft
BaA 6700 D
BaP 5600 D
BbF 6600 D
BkF 6300 D

SB31 5 ft
BaA 1100
BbF 1100
BkF 1200

SB46 7.5 ft
BaA 2000 J
BaP 1900 J
BbF 2400 J
BkF 1700 J

SS38 0.5 ft
BaP 1200 J
BbF 3000

SB38 4 ft
BaA 4400
BaP 4700
BbF 7600
DahA 1600
IndP 3200

SS09 0.25 ft
BaA 1800
BaP 2100
BbF 2700
BkF 1900

SB14 2 ft
BaA 4000
BaP 3300
BbF 3800
BkF 2300

SS-07 0.5 ft
BaA 1100
BbF 1400 J
BkF 1900 J
2 ft
BaA 2000
BaP 1200
BbF 2000 J
BkF 2500 J

SB139 16 ft
BaA 1900
BaP 1500
BbF 2700
BkF 2000

SB200 9 ft
BaA 2800
BaP 3100
BbF 3100
BkF 3500

SB45 4 ft
BaA 8800
BaP 9400
BbF 11000
BkF 11000
Chr 12000
DahA 1400 J
5.5 ft
BaA 11000
BaP 11000
BbF 12000
BkF 9100
Chr 12000
DahA 2700 J
IndP 5700

SS128 7 ft
BaA 3200 D
BaP 3400 D
BbF 4700 D
BkF 3000 D

SB207 9 ft
BaA 1100
BaP 1100
BbF 1100
BkF 1100

SS-06 0.5 ft
BaA 1200 D
2 ft
BaA 1400
BbF 1400

SS114 2 ft
BaA 2500
BaP 3400 D
BbF 3200 D
BkF 2500

SS118 2 ft
BaA 3800 D
BaP 3800 D
BbF 5600 D
BkF 3600 D

SS-08 2 ft
BaA 1100
BbF 1200 J

SB144 12 ft
BaA 14000 D
BaP 18000 J
BbF 19000 D
BkF 15000 D
Chr 15000 D
IndP 3200

SS-14 2 ft
BaA 4000
BaP 3300
BbF 3800
BkF 2300

SS-05 2 ft
BaA 3100
BaP 2200
BbF 3400 J
BkF 4400 J

SB197 9 ft
BaA 1300
BbF 1500
BkF 1100

SB143 12 ft
BaA 4300 D
BaP 4700 D
BbF 7100 D
BkF 4500 D

SB120 7 ft
BbF 1100 J

SB18 20 ft
BaA 17000 D
BaP 14000
BbF 11000
BkF 11000
Chr 16000 D
DahA 2100 J
IndP 6900
Pyr 41000 D

J, E3, E1, E2, H, I, D1, D3, F, G

Notes:
1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in µg/Kg.
2. "J" indicates that the result was estimated. "D" indicates that the result was obtained from a dilution of the sample.
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Shape Indicator	Color Indicator
PMC Action Level	≤ 1 x Action Level
DEC Action Level	> 1 - 5 x Action Level
	> 5 - 10 x Action Level
	> 10 - 50 x Action Level
	> 50 x Action Level

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

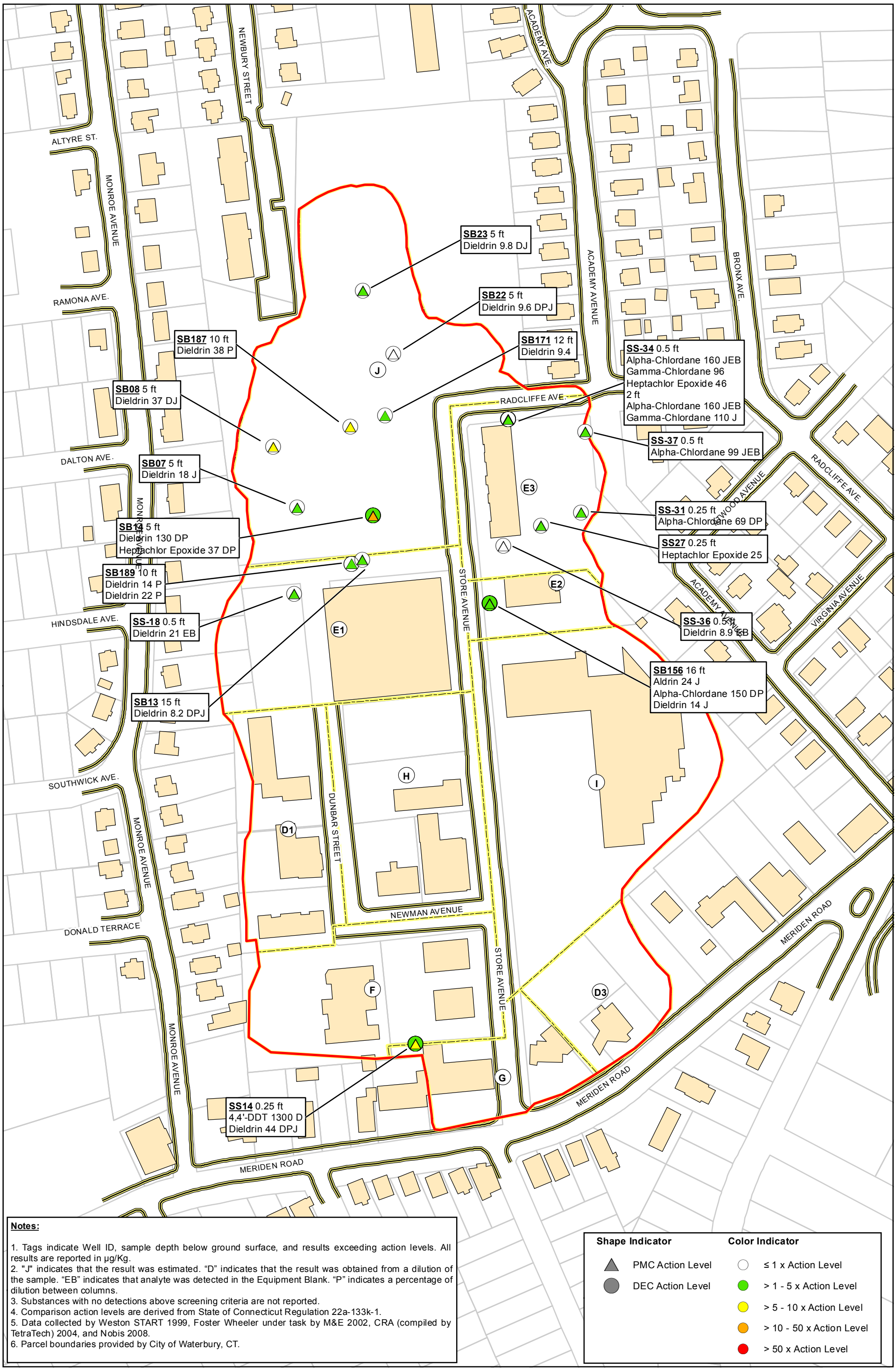
APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E2

SVOCs In Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

Nobis
Engineering a Sustainable Future
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T(978) 683-0891
www.nobiseng.com
Client-Focused, Employee-Owned



Notes:

1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in µg/Kg.
2. "J" indicates that the result was estimated. "D" indicates that the result was obtained from a dilution of the sample. "EB" indicates that analyte was detected in the Equipment Blank. "P" indicates a percentage of dilution between columns.
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Shape Indicator	Color Indicator
PMC Action Level	≤ 1 x Action Level
DEC Action Level	> 1 - 5 x Action Level
	> 5 - 10 x Action Level
	> 10 - 50 x Action Level
	> 50 x Action Level

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E3

Pesticides In Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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CAP16 7 ft
A-1260 1500 DJ
A-1254 300 J
PCB 1846

CAP16 12 ft
A-1242 1900 D
A-1254 350
A-1260 250 J
PCB 2500

CAP18 12 ft
A-1260 2100 D
PCB 2100

CAP13 3 ft
A-1254 770 DJ
A-1260 1800 DJ
PCB 2570

SS-27 2 ft
A-1260 1400 J
PCB 1400

SB187 10 ft
A-1254 1200 D
A-1260 1300 D
PCB 2500

CAP09 12 ft
A-1254 1700 D
A-1260 220 DJ
PCB 3900

CAP08 16 ft
A-1254 5700 DJ
A-1260 3700 DJ
PCB 9400

CAP04 12 ft
A-1254 2000 D
A-1260 2500 DJ
PCB 4500

SS-23 2 ft
A-1254 19000 J
PCB 19000

SB14 5 ft
A-1254 3200 DP
PCB 3200

J, E3, E2, E1, I, H, D1, F, D3, G

Notes:
1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in µg/Kg.
2. PAH Toxic equivalent was calulated using ESTIMATED ORDERS OF POTENTIAL POTENCY FOR CARCINOGENIC PAHs from EPA, 1993; EPA Region I, 1994a.
3. "J" indicates that the result was estimated. "D" indicates that the result was obtained from a dilution of the sample. "P" indicates a percentage of dilution between columns.
4. Substances with no detections above screening criteria are not reported.
5. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
6. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
7. Parcel boundaries provided by City of Waterbury, CT.

Abbreviations:

A-#### = Aroclor
PCB = Polychlorinated Biphenyls

Shape Indicator

DEC Action Level

Color Indicator

≤ 1 x Action Level
> 1 - 5 x Action Level
> 5 - 10 x Action Level
> 10 - 50 x Action Level
> 50 x Action Level

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E4

PCBs In Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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SS-26
0.5 ft - As 1.7 J
2 ft - As 10.3 J

J

E3

E2

E1

I

H

D1

SS-07
2 ft - As 12.7 J

SS-06
2 ft - As 15.5 J

SS38
0.5 ft - As 11.8

F

D3

G

SS-09
2 ft - As 10.7 J

SB40
2 ft - As 20.7

Notes:

1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in mg/Kg.
2. "J" indicates that the result was estimated.
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Shape Indicator	Color Indicator
DEC Action Level	≤ 1 x Action Level
	> 1 - 5 x Action Level
	> 5 - 10 x Action Level
	> 10 - 50 x Action Level
	> 50 x Action Level

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E5

Arsenic in Surface Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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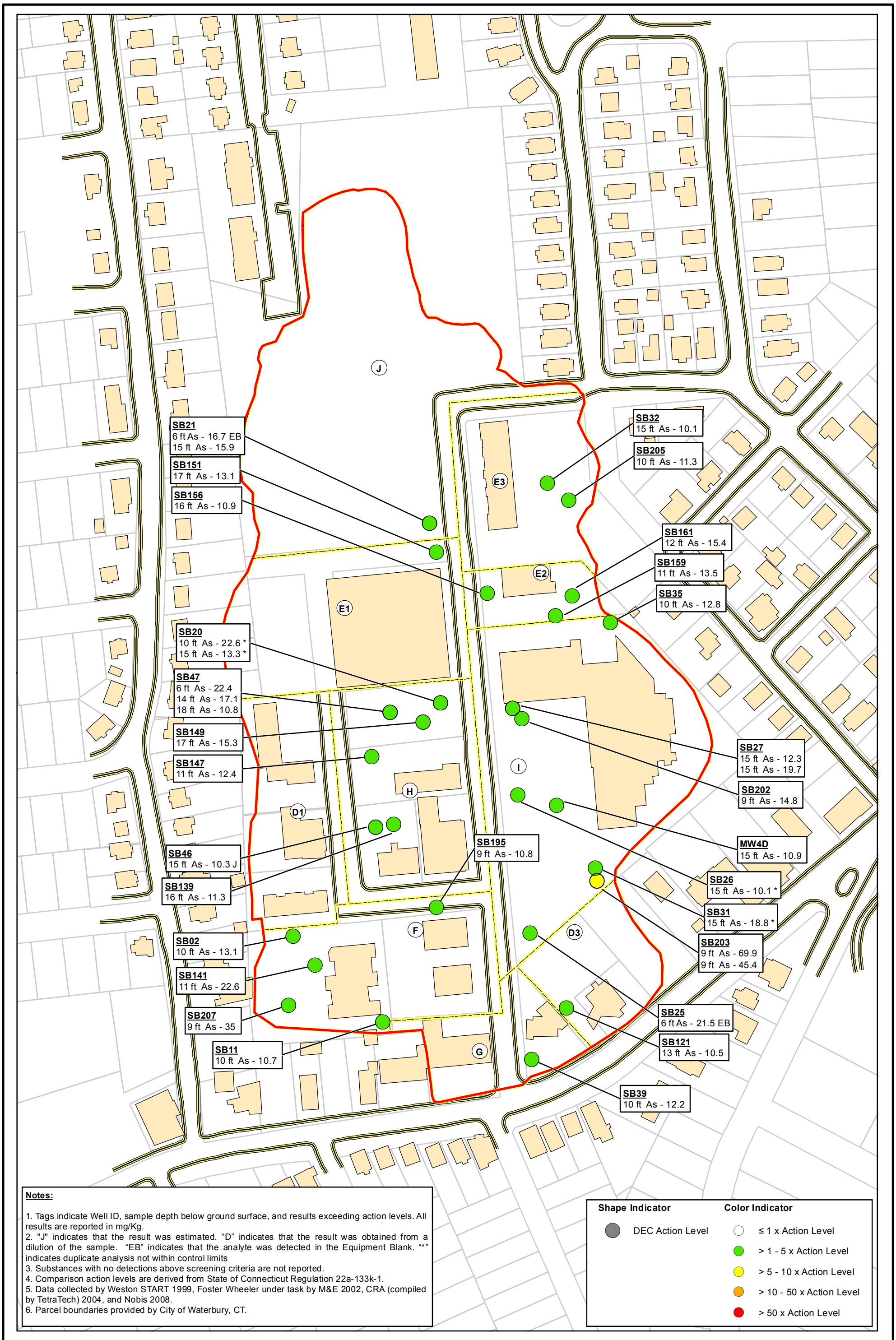

Notes:

1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in mg/Kg.
2. "J" indicates that the result was estimated. "D" indicates that the result was obtained from a dilution of the sample. "EB" indicates that the analyte was detected in the Equipment Blank. "*" indicates duplicate analysis not within control limits
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Shape Indicator	Color Indicator
DEC Action Level	≤ 1 x Action Level
	> 1 - 5 x Action Level
	> 5 - 10 x Action Level
	> 10 - 50 x Action Level
	> 50 x Action Level

N

Drawn By: JH	Checked By: BA
Date: May 2013	Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E6

Arsenic in Subsurface Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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SS-25
0.5 ft - Chromium 12900 J
0.5 ft - Copper 28800 J
0.5 ft - Nickel 1780 J
2 ft - Chromium 19200 J
2 ft - Copper 35300 J
2 ft - Nickel 2460 J

SS-27
2 ft - Copper 6810 J

SB188
10 ft - Copper 9820

SB07
5 ft - Copper 3960 *

SB21
6 ft - Beryllium 2.5

SB150
7 ft - Copper 2530 J

MW3D
8 ft - Copper 3980

SB195
9 ft - Copper 42300

SB143
12 ft - Cadmium 42.5 J
12 ft - Copper 9510

SB12
20 ft - Cadmium 35.4
20 ft - Copper 4260 *

SB196
9 ft - Cadmium 40.4
9 ft - Copper 7990

SB11
10 ft - Copper 14500 *

SS14
0.25 ft - Copper 13700 *

J, E3, E2, E1, I, H, D1, D3, F, G

Notes:
1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in mg/Kg.
2. "J" indicates that the result was estimated. "D" indicates that the result was obtained from a dilution of the sample. "*" indicates duplicate analysis not within control limits.
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Shape Indicator	Color Indicator
DEC Action Level	≤ 1 x Action Level
	> 1 - 5 x Action Level
	> 5 - 10 x Action Level
	> 10 - 50 x Action Level
	> 50 x Action Level

N

Drawn By: JH | Checked By: BA

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APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E7

Beryllium, Cadmium, Chromium, Copper and Nickel in Soil Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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SS-25
0.5 ft - 746 J
2 ft - 562 J

SB102
6 ft - 652

SS-27
0.5 ft - 506 J
2 ft - 583 J

J

SB32
10 ft - 1410 N*

E3

SB188
10 ft - 755

MW3D
8 ft - 652 J

SB155
7 ft - 749 J

E2

E1

SB27
15 ft - 1200

SB193
9 ft - 1130

SB202
9 ft - 572

SB148
17 ft - 644

I

SB26
15 ft - 1240

H

SB45
5.5 ft - 4970

MW4D
8.5 ft - 1020

D1

SB194
9 ft - 1400

SS38
0.5 ft - 536

SB143
12 ft - 588 J

F

SB196
9 ft - 724

SB198
9 ft - 702

D3

SS14
0.25 ft - 758 DJ

SB11
10 ft - 787 *
15 ft - 754 D

G

SB119
7 ft - 1680 J

SB40
2 ft - 2960

Notes:
1. Tags indicate Well ID, sample depth below ground surface, and results exceeding action levels. All results are reported in mg/Kg.
2. "J" indicates that the result was estimated. "N" indicates spiked sample recovery not within control limits. "*" indicates duplicate analysis not within control limits.
3. Substances with no detections above screening criteria are not reported.
4. Comparison action levels are derived from State of Connecticut Regulation 22a-133k-1.
5. Data collected by Weston START 1999, Foster Wheeler under task by M&E 2002, CRA (compiled by TetraTech) 2004, and Nobis 2008.
6. Parcel boundaries provided by City of Waterbury, CT.

Shape Indicator	Color Indicator
DEC Action Level	≤ 1 x Action Level
	> 1 - 5 x Action Level
	> 5 - 10 x Action Level
	> 10 - 50 x Action Level
	> 50 x Action Level

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings

FIGURE E8

Lead in Soil Samples
Scovill Industrial Landfill
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SB30

SS-26
Vanadium 474

SB23

SB15

J
C/I

SB187

SB08

E3
RES

SB206

SB205

SB188

SB14

SB150
Vanadium 774 J

SB190
Vanadium 1110

SB189

SB208

E2
DAY

SB204

E1
RES

SB06

SB202
Vanadium 2410

SB193

SB20

H
C/I

I
C/I

SB04
Vanadium 937 *

D1
RES

SB191

SB201

SB194

SB192
Vanadium 846

SB31

SB203

SB200

SB195

SB02

D3
C/I

SB199

F
RES

SB196

SB207

SB198

SB197

G
C/I

Notes:

1. Sample locations by Nobis, 2008.

2. PMC results are based on SPLP analysis for Vanadium, units are micrograms per liter (µg/L). DEC Results are based on Direct Exposure (Residential) for Vanadium, units are milligrams per Kilogram (mg/Kg).

3. 'J' indicates that the result was estimated.
'*' indicates duplicate analysis not within control limits.

4. Land Use:
C/I = Commercial/Industrial
DAY = Daycare
RES = Residential

N

Drawn By: JH | Checked By: LC

Sept 2013 | Revision No. 02

APPROXIMATE SCALE
0 50 100 200 Feet

Legend

- Area Limits
- Roads
- Sample Location with no PMC Exceedances
- Sample Location with PMC Exceedances
- Sample Location with DEC Exceedances

FIGURE E9

Summary of DEC/PMC Exceedances in Soil
Scovill Industrial Landfill
Waterbury, CT

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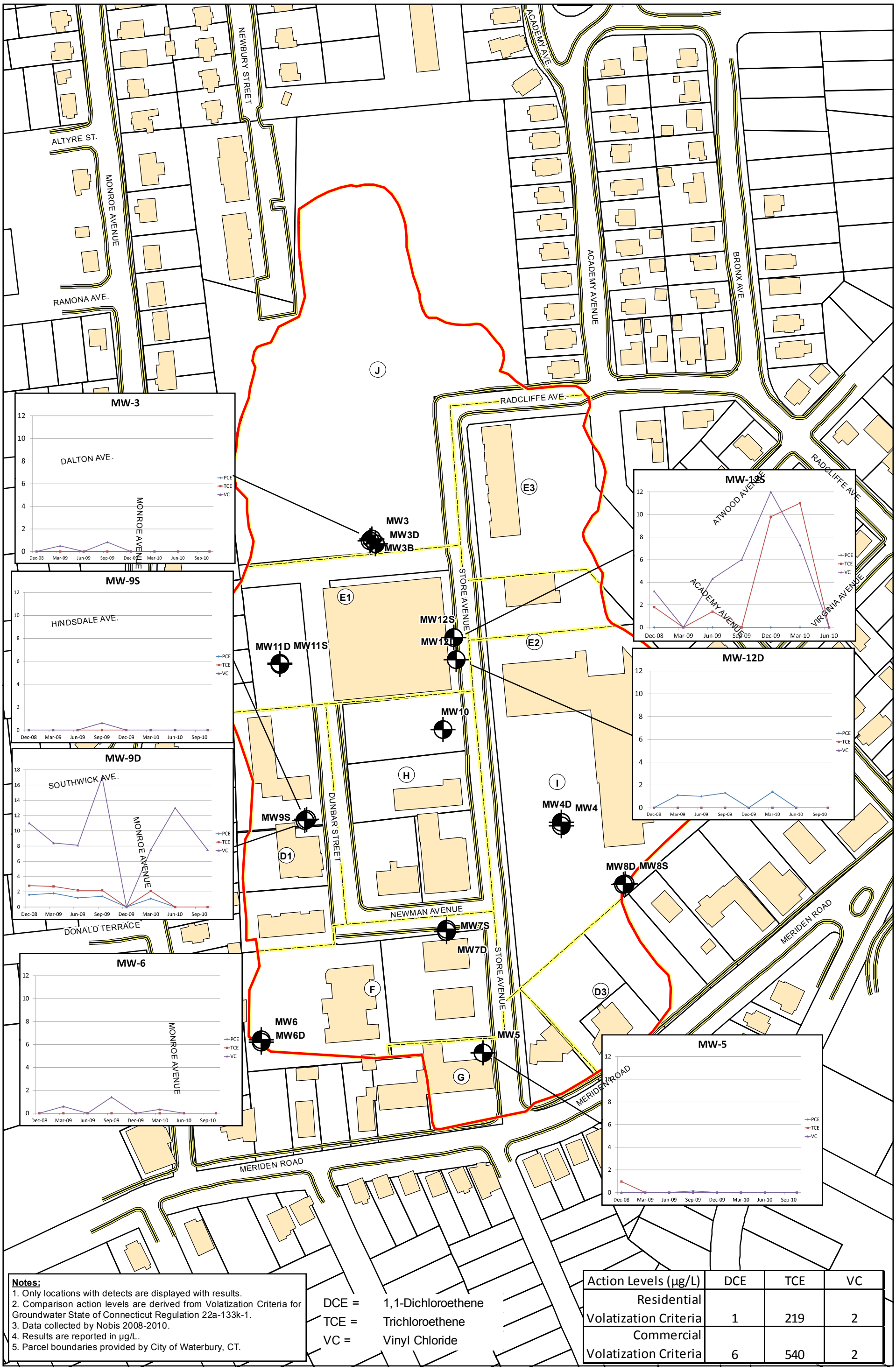

Notes:
1. Only locations with detects are displayed with results.
2. Comparison action levels are derived from Volatization Criteria for Groundwater State of Connecticut Regulation 22a-133k-1.
3. Data collected by Nobis 2008-2010.
4. Results are reported in µg/L.
5. Parcel boundaries provided by City of Waterbury, CT.

DCE = 1,1-Dichloroethene
TCE = Trichloroethene
VC = Vinyl Chloride

Action Levels (µg/L)	DCE	TCE	VC
Residential Volatization Criteria	1	219	2
Commercial Volatization Criteria	6	540	2

N

Drawn By: JH | Checked By: BA

Date: May 2013 | Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Risk Area Limits
Assessor's Parcel Boundaries
Buildings
Monitoring Well Locations

FIGURE E10

DCE, TCE, and Vinyl Chloride Detections in Groundwater Samples
Scovill Industrial Landfill
Waterbury, Connecticut

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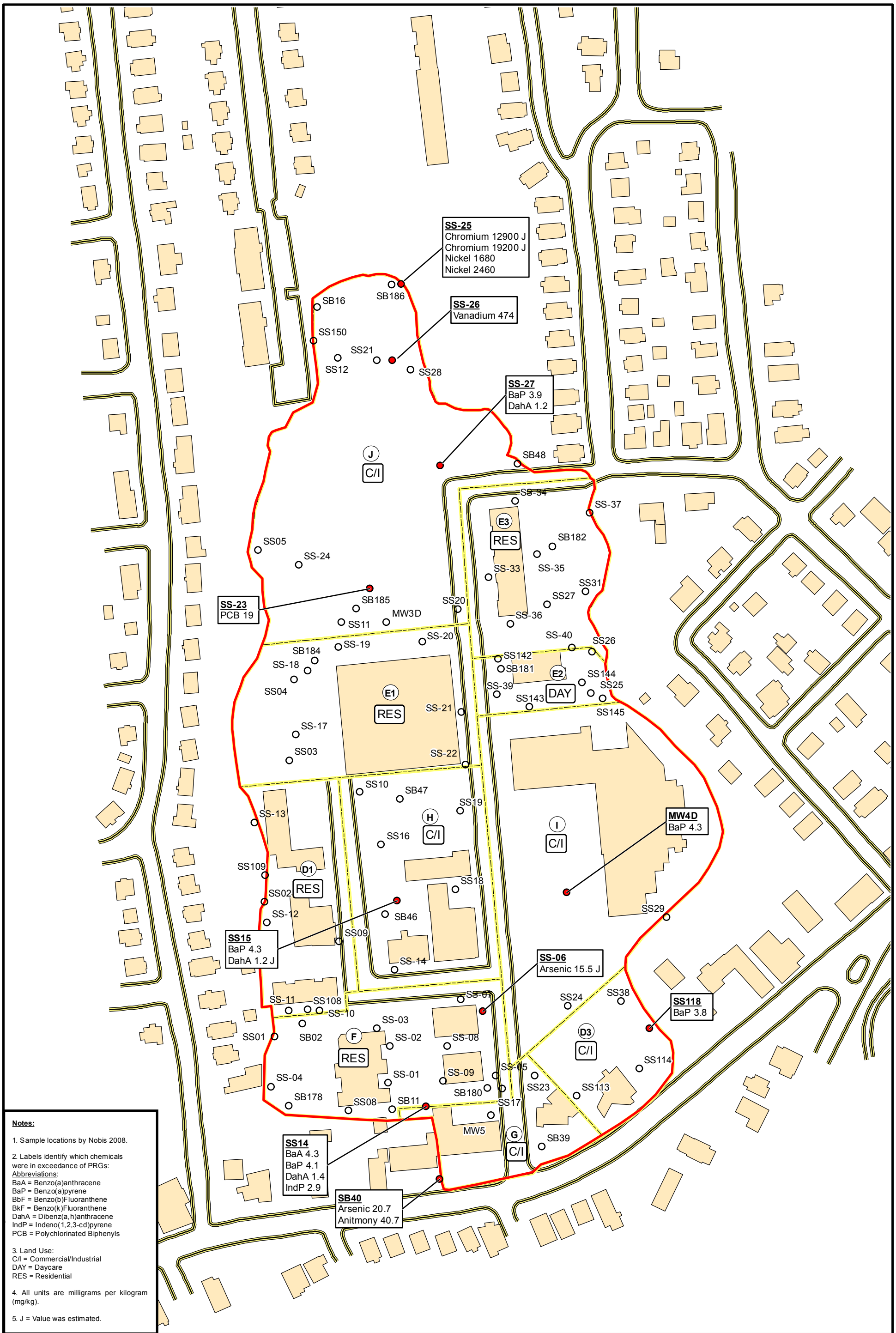

Notes:

1. Sample locations by Nobis 2008.

2. Labels identify which chemicals were in exceedance of PRGs:
Abbreviations:
BaA = Benzo(a)anthracene
BaP = Benzo(a)pyrene
BbF = Benzo(b)Fluoranthene
BkF = Benzo(k)Fluoranthene
DahA = Dibenz(a,h)anthracene
IndP = Indeno(1,2,3-cd)pyrene
PCB = Polychlorinated Biphenyls

3. Land Use:
C/I = Commercial/Industrial
DAY = Daycare
RES = Residential

4. All units are milligrams per kilogram (mg/kg).

5. J = Value was estimated.

N

Drawn By: JH | Checked By: LC

June 2013 | Revision No. 01

APPROXIMATE SCALE
0 50 100 200 Feet

Legend

- Estimated Limit of Scovill Derived/Placed Fill
- Area Limits
- Roads
- Sample Location with no PRG Exceedances
- Sample Locations with PRG Exceedances

FIGURE E11
Summary of PRG Exceedances in Soil for 0-2 ft bgs
Scovill Industrial Landfill
Waterbury, CT

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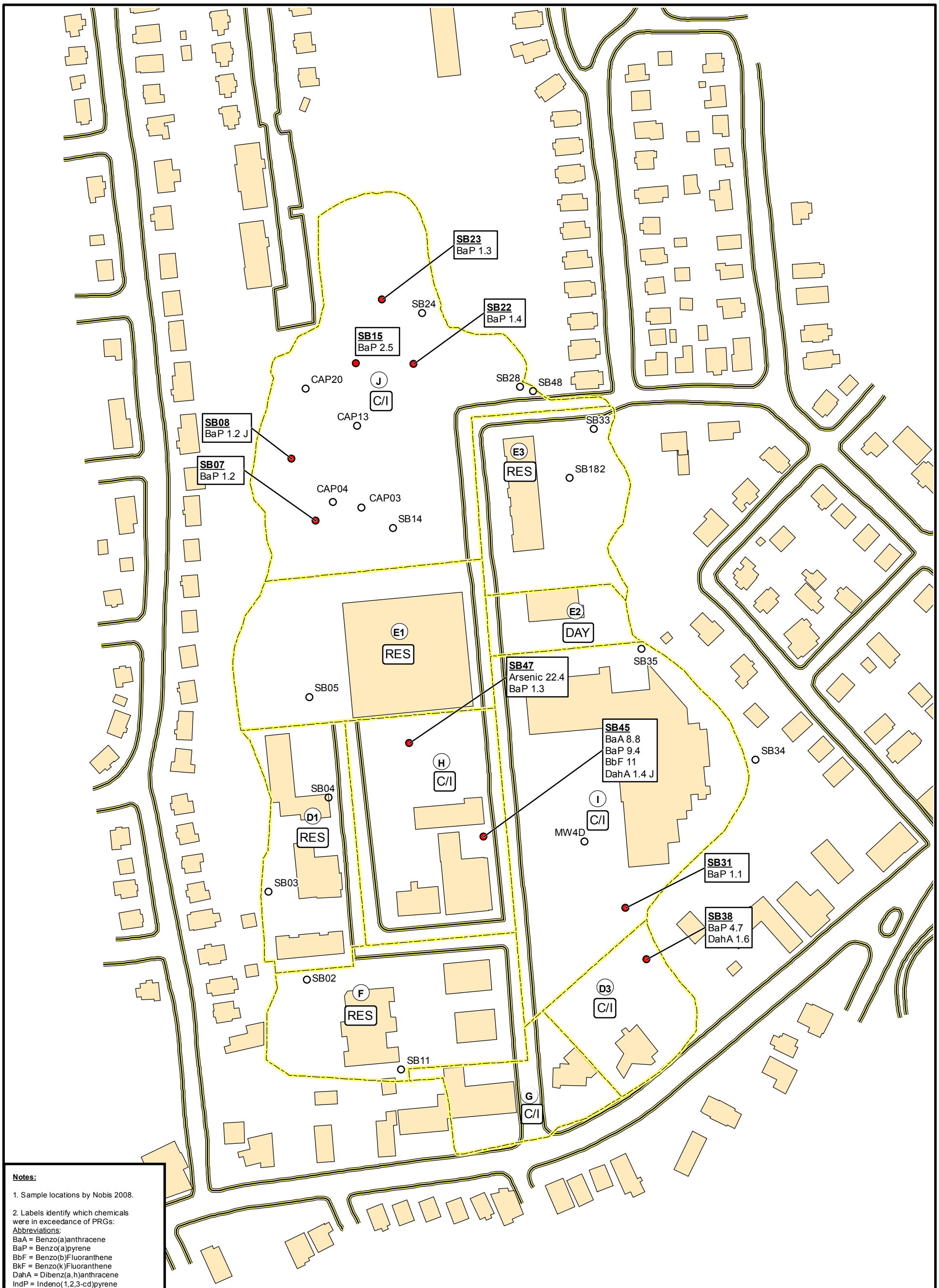

Notes:

1. Sample locations by Nobis 2008.

2. Labels identify which chemicals were in exceedance of PRGs:
Abbreviations:
BaA = Benzo(a)anthracene
BaP = Benzo(a)pyrene
BbF = Benzo(b)Fluoranthene
BkF = Benzo(k)Fluoranthene
DahA = Dibenz(a,h)anthracene
IndP = Indeno(1,2,3-cd)pyrene
PCB = Polychlorinated Biphenyls

3. Land Use:
C/I = Commercial/Industrial
DAY = Daycare
RES = Residential

4. All units are milligrams per kilogram (mg/kg).

5. J = Value was estimated.

N

Drawn By: JH | Checked By: LC

June 2013 | Revision No. 01

APPROXIMATE SCALE
0 50 100 200 Feet

Legend

- Area Limits
- Roads
- Sample Location with no PRG Exceedances
- Sample Locations with PRG Exceedances

FIGURE E12
Summary of PRG Exceedances in Soil for 2-4 ft bgs
Scovill Industrial Landfill
Waterbury, CT

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J
C/I

SB169

SB24

SB23
BaP 1.3

CAP23

SB22
BaP 1.4 D

SB15
BaP 2.5

CAP19
CAP18
CAP17
CAP16
SB48

CAP11

SB08
BaP 1.2 J

SB187

SB163
SB33

SB21
Arsenic 16.7

CAP08
CAP06

SB07
BaP 1.2

SB164
E3
RES

SB205
Arsenic 11.3

SB189
BaA 1.3
BaP 1.3
BbF 1.4
IndP 1.1

MW3D
BaP 1.2

CAP04
CAP03
CAP02

SB32

SB188

SB150
BaA 6.2 J
BaP 5.2
BbF 7.4 J
Vanadium 774

SB14

SB166

SB165

SB206

SB155
BaA 2.9
BaP 3.3
BbF 4

SB13

SB208

SB153
BaA 7.2
BaP 7.3
BbF 11
IndP 2.1

SB162

E2
DAY

SB204

SB35
Arsenic 12.8

E1
RES

SB190
BaA 11
BaP 9.4
BbF 9
BkF 10
DahA 2.9

SB06

SB152
BaA 3.6
BaP 3.1
BbF 3.2

SB27
BaA 58 J
BaP 53 J
BbF 43 J
DahA 13 J
IndP 41 J

SB05

SB154
BbF 1.3 J

SB20
Arsenic 22.6

SB193
BaP 2.3

SB34

H
C/I

I
C/I

SB47
Arsenic 22.4
BaP 1.3

SB202
Arsenic 14.8
BaP 6.3
DahA 1.2 J

SB04
Vanadium 937

D1
RES

SB26

SB201

MW4D

SB192

SB46
BaP 1.9 J

SB194

SB45
BaA 11
BaP 11
BbF 12
DahA 2.7 J

SB191
BaA 2.9
BaP 1.9
BbF 2
IndP 1.1

SB110

SB03

SB109

SB108

SB145

SB31
BaP 1.1

SB195
Arsenic 10.8
BaA 1.3
BaP 1.3

SB203
Arsenic 69.9

SB107

SB38

D3
C/I

SB200
BaP 3.1

SB199

SB122

SB128
BaP 3.4

SB02
Arsenic 13.1

F
RES

SB196

SB198

SB01

SB18

SB25
Arsenic 21.5

MW6D

SB197

G
C/I

SB207
Arsenic 35.0
BaA 1.1
BaP 1.1

SB11
Arsenic 10.7
Chromium 507

SB120

SB119

SB39
Arsenic 12.2

Notes:

1. Sample locations by Nobis 2008.

2. Labels identify which chemicals were in exceedance of PRGs:
Abbreviations:
BaA = Benzo(a)anthracene
BaP = Benzo(a)pyrene
BbF = Benzo(b)Fluoranthene
BkF = Benzo(k)Fluoranthene
DahA = Dibenz(a,h)anthracene
IndP = Indeno(1,2,3-cd)pyrene
PCB = Polychlorinated Biphenyls

3. Land Use:
C/I = Commercial/Industrial
DAY = Daycare
RES = Residential

4. All units are milligrams per kilogram (mg/kg).

5. J = Value was estimated.

N

Drawn By: JH | Checked By: LC

June 2013 | Revision No. 01

APPROXIMATE SCALE
0 50 100 200
Feet

Legend

- Estimated Limit of Scovill Derived/Placed Fill
- Area Limits
- Roads
- Sample Location with no PRG Exceedances
- Sample Locations with PRG Exceedances

FIGURE E13
Summary of PRG Exceedances in Soil for 4-10 ft bgs
Scovill Industrial Landfill
Waterbury, CT

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SB30
SB23
SB15
J
C/I
SB187
SB08
E3
RES
SB188
SB14
SB206
SB205
SB190
Vanadium 1110
SB189
SB208
E2
DAY
SB204
E1
RES
SB06
SB202
Vanadium 2410
SB193
SB20
H
C/I
I
C/I
SB201
D1
RES
SB191
SB194
SB192
Vanadium 846
SB31
SB203
SB200
SB195
SB02
F
RES
D3
C/I
SB199
SB196
SB207
SB198
SB197
G
C/I

Notes:

1. Sample locations by Nobis 2008.

2. SPLP analysis for Vanadium.

3. Land Use:
C/I = Commercial/Industrial
DAY = Daycare
RES = Residential

4. All units are micrograms per liter

N

Drawn By: JH | Checked By: LC

June 2013 | Revision No. 01

APPROXIMATE SCALE
0 50 100 200 Feet

Legend

Area Limits
Roads
Sample Location with no PMC Exceedances
Sample Location with PMC Exceedances

FIGURE E14

Summary of PMC Exceedances in Soil
Scovill Industrial Landfill
Waterbury, CT

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MW2S
MW1
MW13
P36
J
C/I
E3
RES
P18
11/9/2010 VC 3.1 J
P27
P20
P19
P21
P39
P15
P40
11/12/2010 VC 3.1 J
MW3
MW3D
MW3B
P12
11/8/2010 VC 3.2 J
P3
P1
P6
P7
E2
DAY
OP1
8/10/2010 VC 3.7
E1
RES
P4
8/10/2010 VC 18 D
OP9
8/12/2010 VC 5.7
MW12S
12/17/2008 VC 3.2 J
6/16/2009 VC 4.3 J
9/1/2009 VC 6 J
3/8/2010 VC 12
6/22/2010 VC 7.3
P2
8/10/2010 VC 6
MW11S
MW11D
MW12D
OP3
OP2
MW10
OP4
H
C/I
I
C/I
MW9D
12/15/2008 VC 11
3/5/2009 VC 8.4
6/17/2009 VC 8.1
9/2/2009 VC 17
3/10/2010 VC 7.5
6/23/2010 VC 13 J
10/5/2010 VC 7.5
D1
RES
OP6
MW4
MW4D
MW9S
No PRG Exceedances in 8 quarters of groundwater sampling
MW8S
MW8D
MW7S
MW7D
D3
C/I
F
RES
MW6
6/9/2004 VC 3 J
P9
P10
MW6D
MW5
G
C/I

Notes:

1. Sample locations by Nobis 2008.

2. Labels identify which chemicals were in exceedance of PRGs.
Abbreviations:
VC = Vinyl Chloride

3. Land Use:
C/I = Commercial/Industrial
DAY = Daycare
RES = Residential

4. All units are micrograms per liter (µg/L).

N

Drawn By: JH | Checked By: LC

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APPROXIMATE SCALE
0 50 100 200 Feet

Legend

- Area Limits
- Roads
- Sample Location with no PRG Exceedances
- Sample Locations with PRG Exceedances

FIGURE E15

Summary of VI Screening Level Exceedances in Groundwater
Scovill Industrial Landfill
Waterbury, CT

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Parcels Subject to Institutional Controls	
Address	Map-Lot
134 Monroe Ave.	299-121
126 Monroe Ave.	299-122
118 Monroe Ave.	299-123
119 Store Ave.	300-1
Store Ave.	300-2
136 Store Ave.	300-14
120 Store Ave.	300-15
110 Monroe Ave.	324-94
41 Dunbar St.	324-109
17 Dunbar St.	324-111
5 Dunbar St.	324-112
27 Newman Ave.	324-1083
87 Store St.	325-1
20 Newman Ave.	325-2
55 Store Ave.	325-3
9 Store Ave.	325-4
50 Store Ave.	325-7
Meriden Rd.	325-15
281 Meriden Rd.	325-16
263 Meriden Rd.	325-17
265 Meriden Rd.	325-18
335 Meriden Rd.	325-41
77 Store Ave.	325-111

N

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APPROXIMATE SCALE
0 75 150 300 Feet

Limit of Scovill Derived/Placed Fill
Risk Area Boundaries
Assessor's Parcel Boundaries
Area Affected by Alternative SO2

FIGURE J1

Layout of Soil Alternative SO2
Scovill Industrial Landfill
Waterbury, CT

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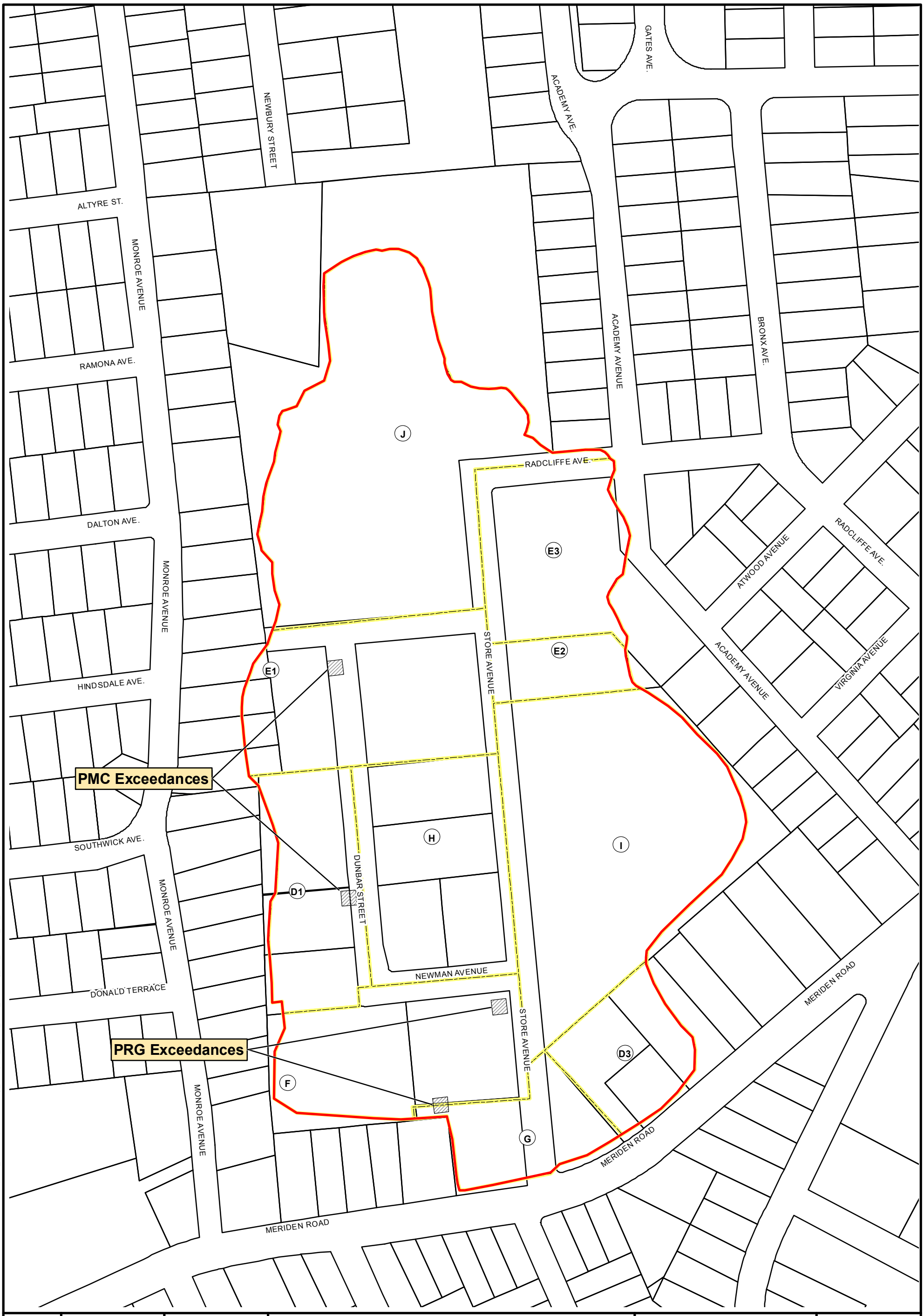

N

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APPROXIMATE SCALE
0 75 150
Feet

Limit of Scovill Derived/Placed Fill

Risk Area Boundaries

Assessor's Parcel Boundaries

Areas Affected by Alternatives SO3 and SO5

FIGURE J2
Layout of Soil
Alternatives SO3 and SO4
Scovill Industrial Landfill
Waterbury, CT

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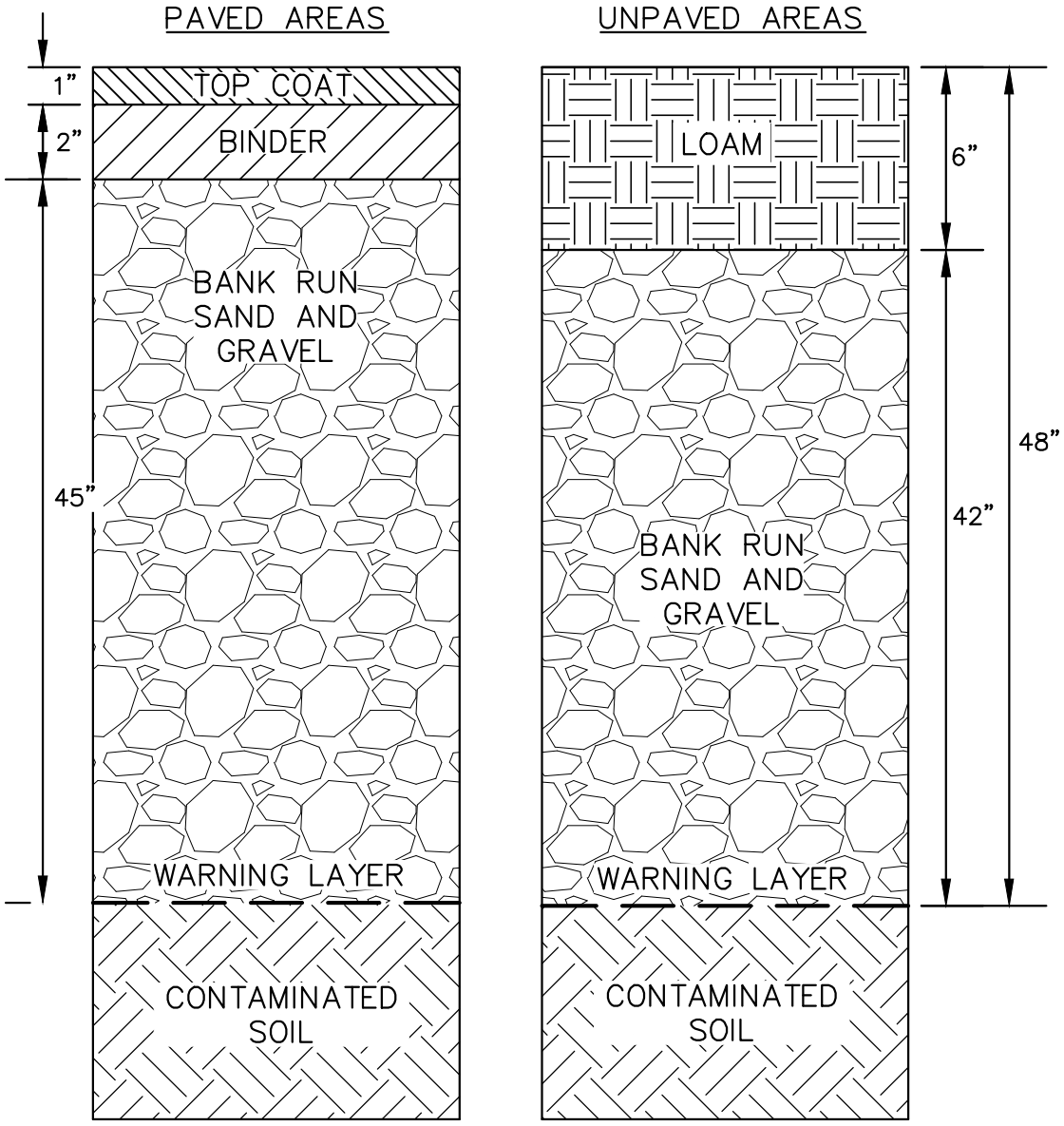

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FIGURE J3

ALTERNATIVES S03, S05, AND S07
PRG EXCEEDANCES BACKFILL SECTIONS
SCOVILL INDUSTRIAL LANDFILL
SUPERFUND SITE
WATERBURY, CONNECTICUT

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PROJECT: 80018	JULY 2013

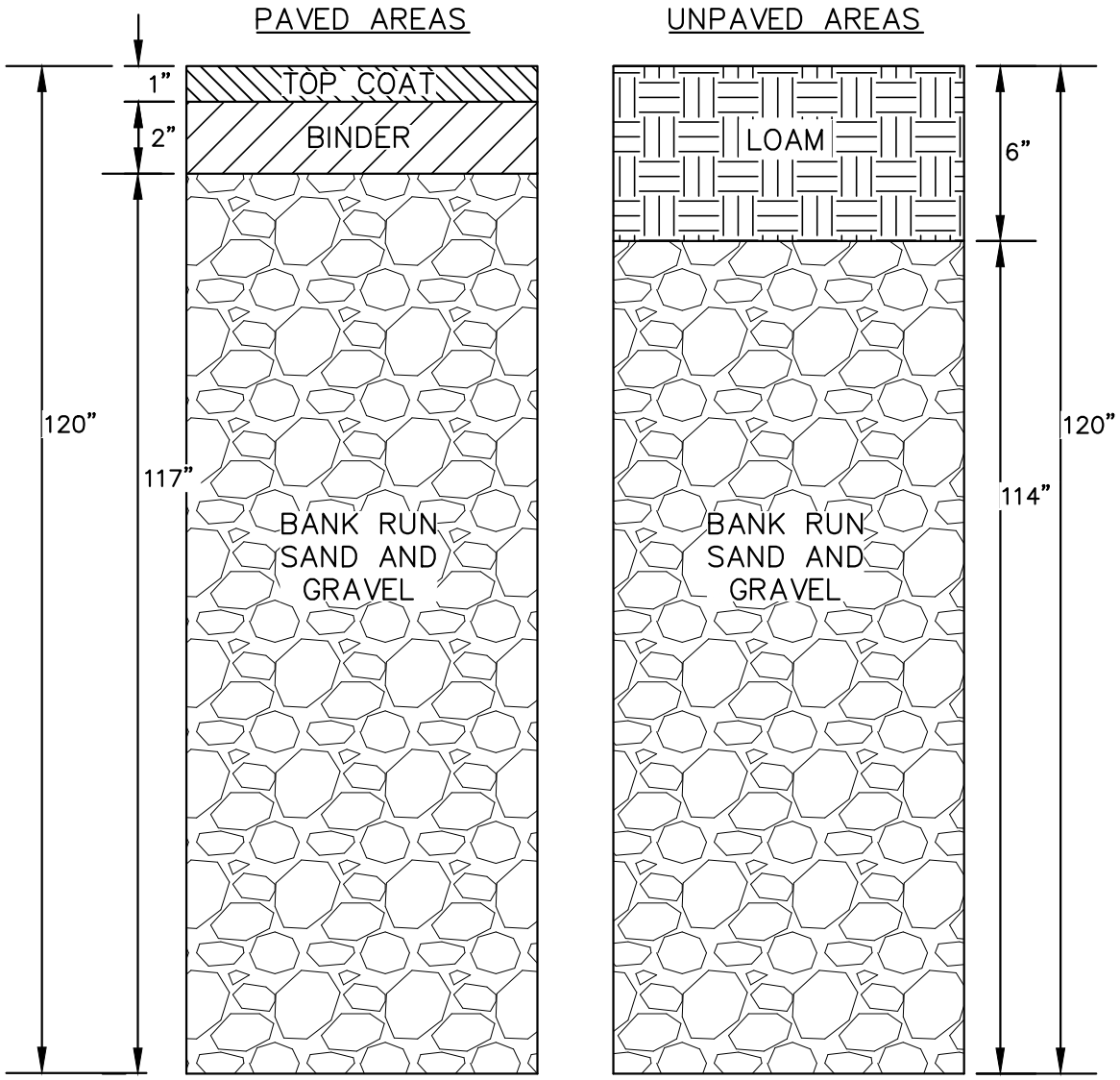

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FIGURE J4

ALTERNATIVES S03, S05, AND S07
PMC EXCEEDANCES BACKFILL SECTIONS
SCOVILL INDUSTRIAL LANDFILL
SUPERFUND SITE
WATERBURY, CONNECTICUT

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J

E3

E1

E2

H

I

D1

F

D3

G

N

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June 2013 | Revision No. 01

APPROXIMATE SCALE

0 50 100 200 Feet

Estimated Limit of Scovill Derived/Placed Fill

Area Limits

Roads

Assessor's Parcel Boundaries

Pre-Design Investigation Area

Estimated Extent of PRG Exccedances based on RI data. (SO6-Soil Cap Area)

FIGURE J5

Layout of Soil Alternative SO5 and SO6
Scovill Industrial Landfill
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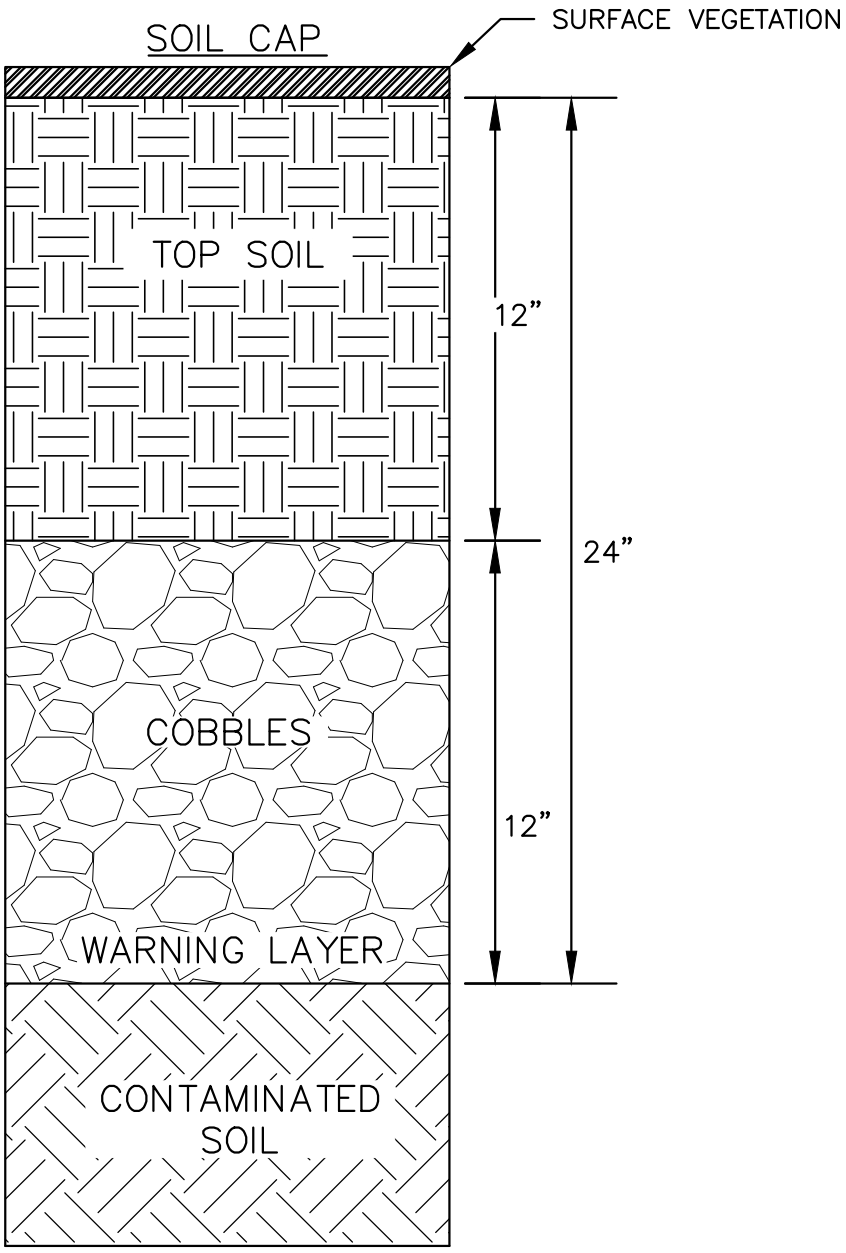

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FIGURE J6

ALTERNATIVE SO6 SOIL CAP
SCOVILL INDUSTRIAL LANDFILL
SUPERFUND SITE
WATERBURY, CONNECTICUT

DRAWN BY: JH	APPROVED BY: LC
PROJECT: 80018	JUNE 2013

J
E3
E2
E1
H
I
D1
F
D3
G

N

Drawn By: JH | Checked By: LC

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APPROXIMATE SCALE
0 50 100 200 Feet

Estimated Limit of Scovill Derived/Placed Fill
Area Limits
Roads
Assessor's Parcel Boundaries
Pre-Design Investigation Area

FIGURE J7
Layout of Soil Alternative SO8
Scovill Industrial Landfill
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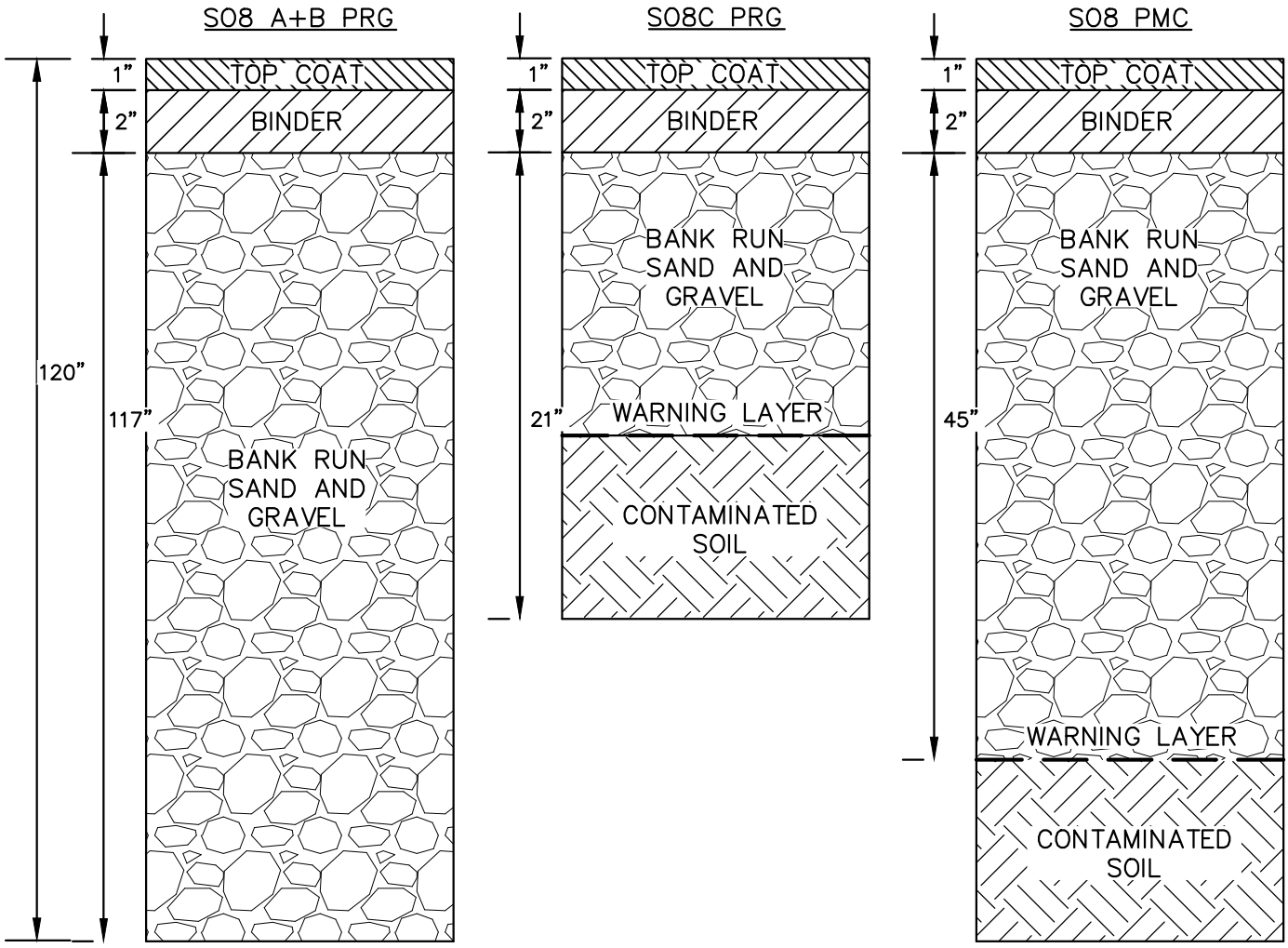

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FIGURE J8

ALTERNATIVE SO8 PRG AND PMC EXCEEDANCES BACKFILL SECTIONS SCOVILL INDUSTRIAL LANDFILL SUPERFUND SITE WATERBURY, CONNECTICUT

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Parcels Subject to Institutional Controls	
Address	Map-Lot
134 Monroe Ave.	299-121
126 Monroe Ave.	299-122
119 Store Ave.	300-1
	300-2

ALTYRE ST.
RAMONA AVE.
DALTON AVE.
HINDSDALE AVE.
SOUTHWICK AVE.
DONALD TERRACE
MONROE AVENUE
NEWBURY STREET
GATES AVE.
ACADEMY AVE.
ACADEMY AVENUE
BRONX AVE.
RADCLIFFE AVE.
ATWOOD AVENUE
VIRGINIA AVENUE
STORE AVENUE
DUNBAR STREET
NEWMAN AVENUE
MERIDEN ROAD
299-121
299-122
299-123
300-1
J
E1
E2
E3
F
G
H
I
D1
D3

N

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APPROXIMATE SCALE
0 75 150
Feet

Limit of Scovill Derived/Placed Fill
Risk Area Boundaries
Assessor's Parcel Boundaries
Area Affected by Alternative VI2

FIGURE J9
Layout of Vapor Intrusion Alternative VI2
Scovill Industrial Landfill
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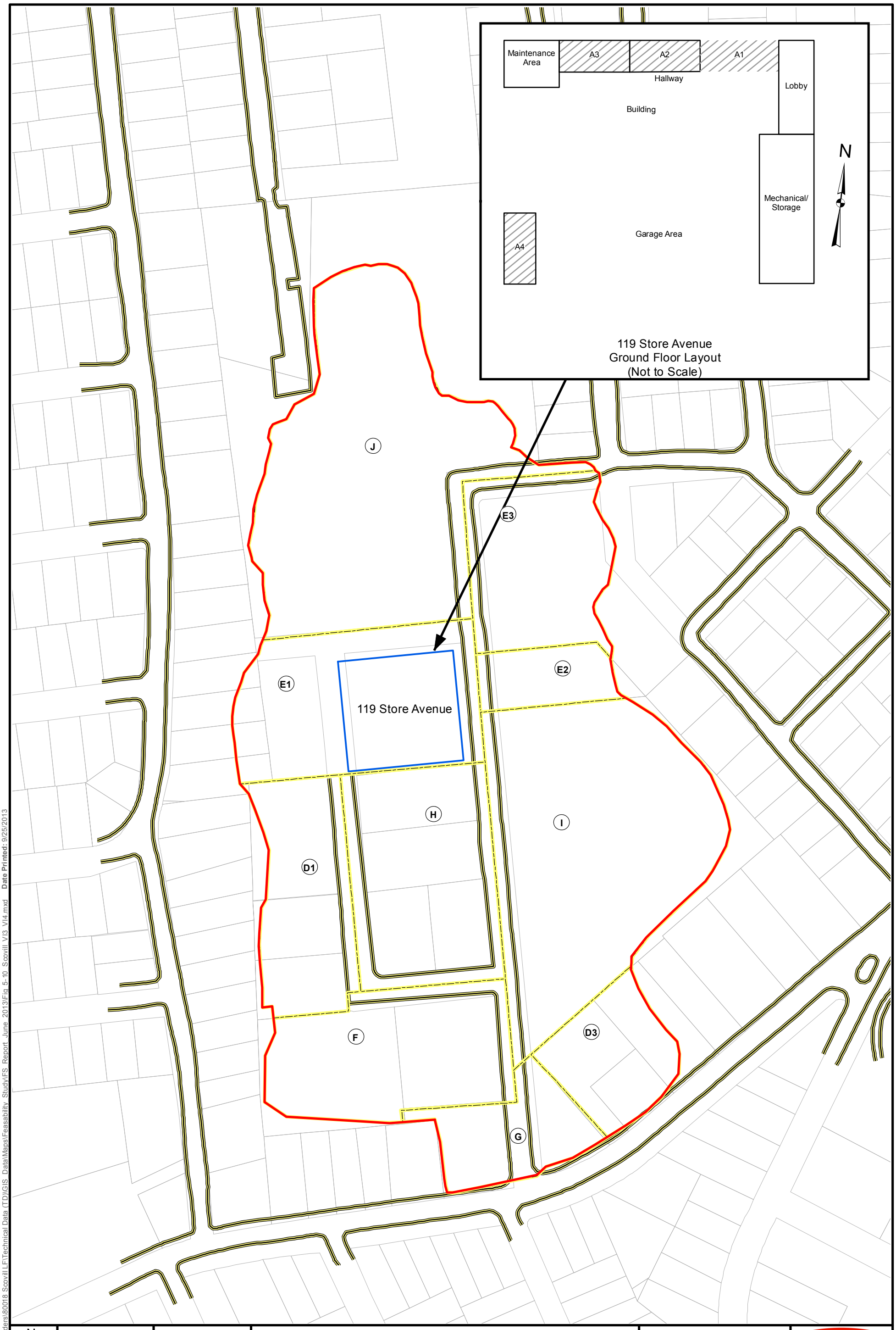

N

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July 2013	Revision No. 01

APPROXIMATE SCALE
0 50 100 200 Feet

- Estimated Limit of Scovill Derived/Placed Fill
- Area Limits
- Roads
- Assessor's Parcel Boundaries
- Existing Structure Affected by Alternatives VI3 & VI4
- Residential Units Affected by Alternatives VI3 and VI4

FIGURE J10

Layout of Vapor Intrusion Alternatives VI3 and VI4
Scovill Industrial Landfill
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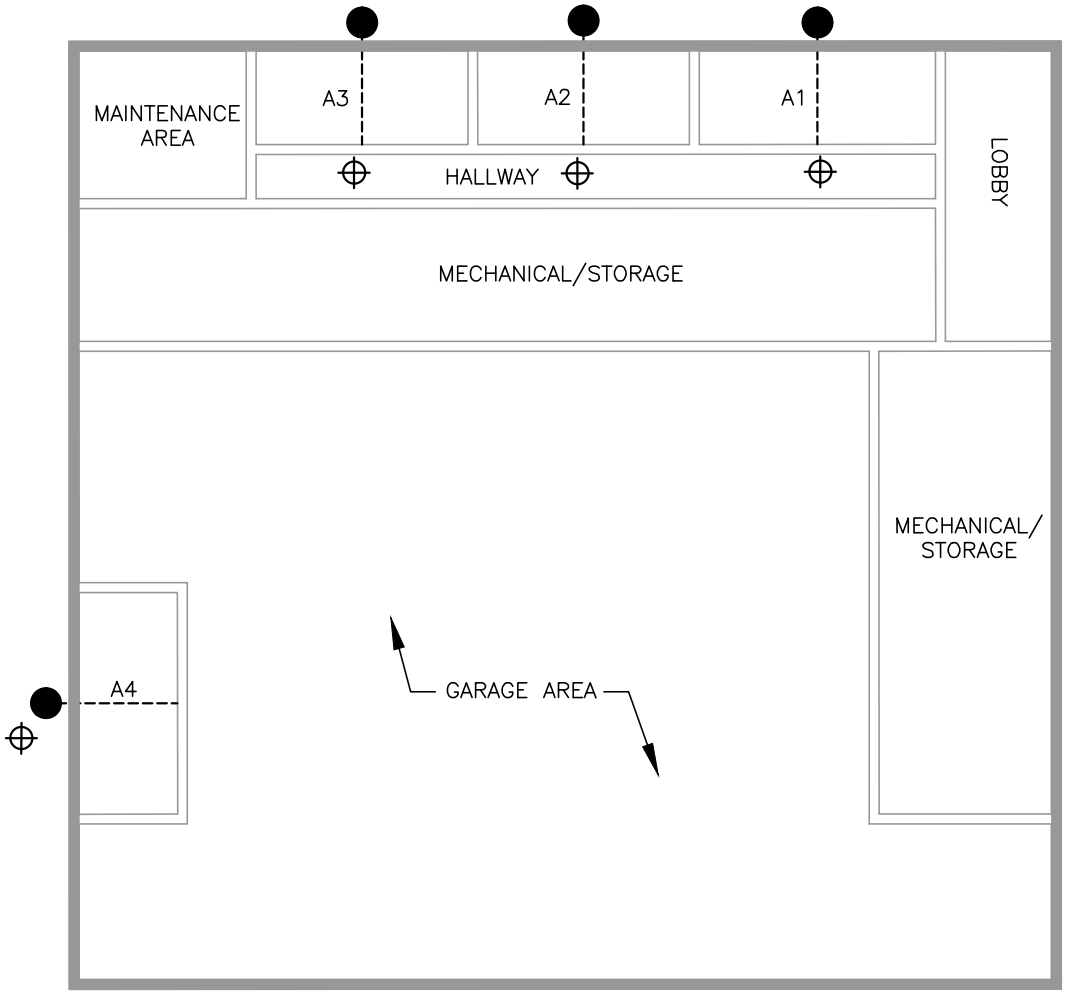

LEGEND

---------- VAPOR TRENCH

VAPOR DISCHARGE STACKS

VAPOR MONITORING WELL

INTERIOR WALLS

EXTERIOR WALL

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FIGURE J11

119 STORE AVENUE
GROUND FLOOR LAYOUT
SCOVILL INDUSTRIAL LANDFILL
SUPERFUND SITE
WATERBURY, CONNECTICUT

DRAWN BY: JH	APPROVED BY: LC
PROJECT: 80018	JULY 2013

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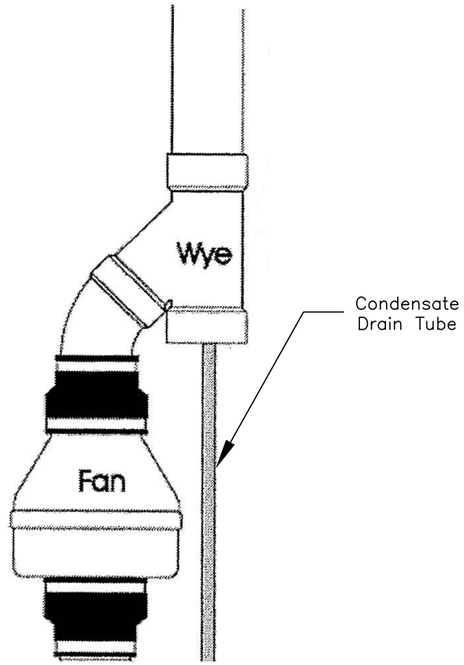
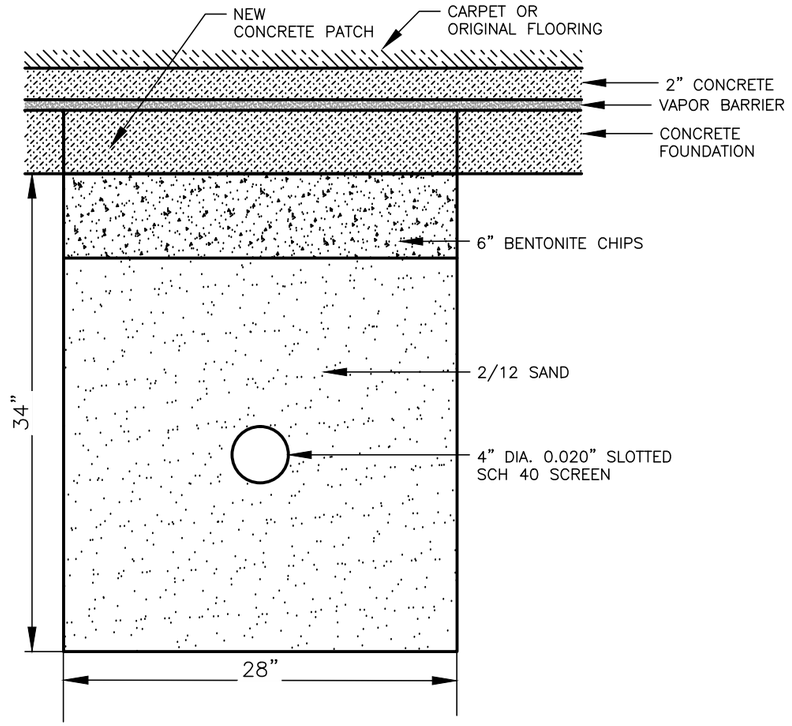
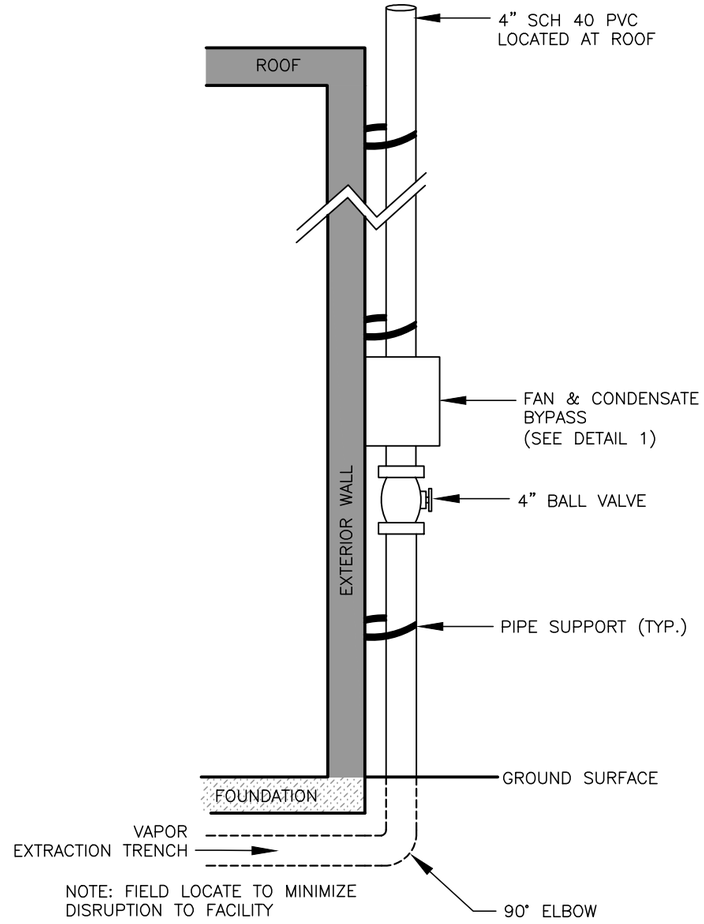


(1) Fan and Condensate Bypass
(Not to Scale)



(2) Extraction Trench Details
(Not to Scale)



(3) Vapor Discharge Stack
(Not to Scale)

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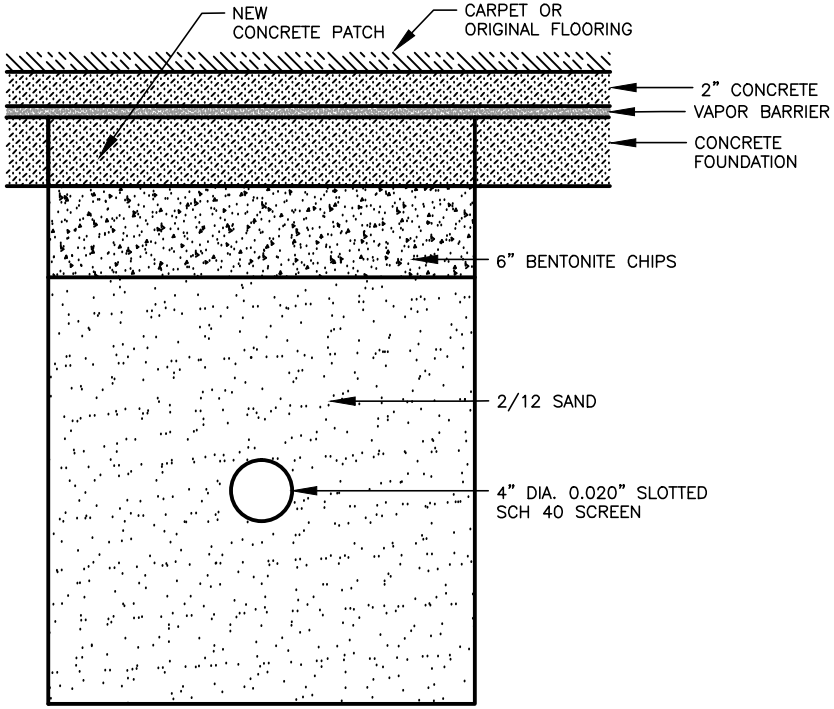
FIGURE J12

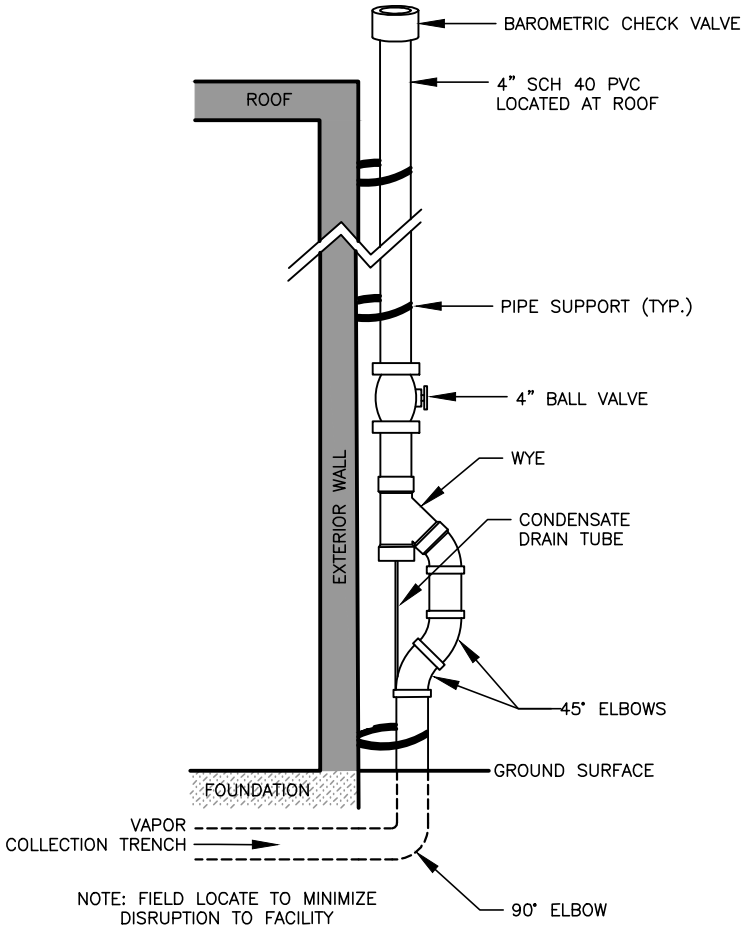
ACTIVE VAPOR MITIGATION
SYSTEM DETAILS (VI3)
SCOVILL INDUSTRIAL LANDFILL
SUPERFUND SITE
WATERBURY, CONNECTICUT

DRAWN BY:	JH	APPROVED BY:	LC
PROJECT:	80018.10		JULY 2013

R:\80000 Task Orders\80018 Scovill LF\Technical Data (TD)\CADD\80018 Figure 4-10.dwg



(1) Collection Trench Details
(Not to Scale)



(2) Vapor Discharge Stack
(Not to Scale)

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FIGURE J13

PASSIVE VAPOR MITIGATION SYSTEM DETAILS (VI4)
SCOVILL INDUSTRIAL LANDFILL SUPERFUND SITE
WATERBURY, CONNECTICUT

DRAWN BY:	JH	APPROVED BY:	LC
PROJECT:	80018.10		JULY 2013

APPENDIX C

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area D1 - Current/Future	Age-Adjusted Resident	Surface Soil	See child	1.2E-04	Benzo(a)anthracene	5.4E-06	NE	---	---	
					Benzo(a)pyrene	6.2E-05				
					Benzo(b)fluoranthene	8.3E-06				
					Dibenz(a,h)anthracene	2.2E-05				
					Indeno(1,2,3-cd)pyrene	6.1E-06				
					Arsenic	1.1E-05				
	Adult Resident	Surface Soil	See child	NE	---		0.13	No	---	
	Child Resident	Surface Soil	Not a COPC	NE	---		1.1	No	---	
	Construction Worker	Aggregate Soil	NE	5.7E-06	Vanadium	5.1E-06	1.5	No	---	
Risk Area D1 - Future	Age-Adjusted Resident	Aggregate Soil	See child	1.0E-04	Benzo(a)anthracene	3.8E-06	NE	---	---	
					Benzo(a)pyrene	5.9E-05				
					Benzo(b)fluoranthene	7.7E-06				
					Dibenz(a,h)anthracene	1.2E-05				
					Indeno(1,2,3-cd)pyrene	4.8E-06				
					Arsenic	9.7E-06				
					Vanadium	1.2E-06				
	Adult Resident	Aggregate Soil	See child	NE	---		0.25	No	---	
	Child Resident	Aggregate Soil	Not a COPC	NE	---		1.8	No	---	
Risk Area D3 - Current/Future	Industrial/ Commercial Worker	Surface Soil	0%	3.2E-05	Benzo(a)anthracene	1.8E-06	0.12	No	---	
					Benzo(a)pyrene	1.8E-05				
					Benzo(b)fluoranthene	2.7E-06				
					Dibenz(a,h)anthracene	1.5E-06				
					Arsenic	7.4E-06				
	Construction Worker	Aggregate Soil	NE	2.4E-06			0.90	No	---	
Risk Area D3 - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	3.1E-05	Benzo(a)anthracene	1.4E-06	0.092	No	---	
					Benzo(a)pyrene	1.6E-05				
					Benzo(b)fluoranthene	2.3E-06				
					Dibenz(a,h)anthracene	5.5E-06				
					Indeno(1,2,3-cd)pyrene	1.1E-06				
					Arsenic	4.7E-06				

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area D3 - Future	Age-Adjusted Resident	Surface Soil	See child	3.8E-04	Benzo(a)anthracene	2.6E-05	NE	---	---	
					Benzo(a)pyrene	2.6E-04				
					Benzo(b)fluoranthene	3.8E-05				
					Benzo(k)fluoranthene	2.4E-06				
					Dibenz(a,h)anthracene	2.1E-05				
					Indeno(1,2,3-cd)pyrene	5.8E-06				
					Arsenic	3.0E-05				
					Chromium VI	1.6E-06				
	Adult Resident	Surface Soil	See child	NE	---	---	0.17	No	---	
	Child Resident	Surface Soil	0.23%	NE	---	---	1.5	No	---	
Risk Area D3 - Future	Age-Adjusted Resident	Aggregate Soil	See child	4.0E-04	Benzo(a)anthracene	2.1E-05	NE	---	---	
					Benzo(a)pyrene	2.3E-04				
					Benzo(b)fluoranthene	3.4E-05				
					Benzo(k)fluoranthene	1.5E-06				
					Dibenz(a,h)anthracene	7.8E-05				
					Indeno(1,2,3-cd)pyrene	1.6E-05				
					Arsenic	1.9E-05				
	Adult Resident	Aggregate Soil	See child	NE	---	---	0.13	No	---	
	Child Resident	Aggregate Soil	0.051%	NE	---	---	1.1	No	---	
Risk Area E1 - Current/Future	Adult Resident (Elderly Only)	Surface Soil	See child	1.4E-05	Benzo(a)pyrene	7.8E-06	0.12	No	---	
					Arsenic	2.8E-06				
	Child Recreational Visitor	Surface Soil	Not a COPC	5.6E-05	Benzo(a)anthracene	4.7E-06	0.43	No	---	
					Benzo(a)pyrene	3.9E-05				
					Benzo(b)fluoranthene	2.7E-06				
					Dibenz(a,h)anthracene	4.5E-06				
					Indeno(1,2,3-cd)pyrene	2.2E-06				
					Arsenic	2.8E-06				
	Groundskeeper	Surface Soil	Not a COPC	1.1E-05	Benzo(a)pyrene	6.4E-06	0.071	No	---	
					Arsenic	2.0E-06				
	Construction Worker	Aggregate Soil	NE	6.1E-06	Vanadium	4.2E-06	1.3	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area E1 - Future	Age-Adjusted Resident (Families)	Surface Soil	See child	1.5E-04	Benzo(a)anthracene	1.2E-05	NE	---	---	
					Benzo(a)pyrene	1.0E-04				
					Benzo(b)fluoranthene	7.0E-06				
					Dibenz(a,h)anthracene	1.2E-05				
					Indeno(1,2,3-cd)pyrene	5.8E-06				
					Arsenic	9.0E-06				
	Child Resident	Surface Soil	Not a COPC	NE	---		0.96	No	---	
	Age-Adjusted Resident (Families)	Aggregate Soil	See child	4.6E-04	2,3,7,8-TCDD TEQ	2.5E-06	NE	---	---	
					Bis(2-chloroethyl)ether	1.8E-06				
					Hexachlorobenzene	1.2E-06				
					N-Nitrosodi-n-propylamine	5.4E-06				
					Benzo(a)anthracene	3.7E-05				
					Benzo(a)pyrene	3.3E-04				
					Benzo(b)fluoranthene	4.8E-05				
					Benzo(k)fluoranthene	1.9E-06				
					Dibenz(a,h)anthracene	1.4E-05				
					Indeno(1,2,3-cd)pyrene	7.2E-06				
					Arsenic	8.6E-06				
	Adult Resident	Aggregate Soil	See child	NE	---		0.23	No	---	
	Child Resident	Aggregate Soil	Not a COPC	NE	---		1.8	No	---	
Risk Area E2 - Current/Future	Daycare Child	Surface Soil	Not a COPC	4.1E-05	Benzo(a)anthracene	2.8E-06	0.63	No	---	
					Benzo(a)pyrene	2.4E-05				
					Benzo(b)fluoranthene	4.3E-06				
					Dibenz(a,h)anthracene	5.1E-06				
					Indeno(1,2,3-cd)pyrene	2.3E-06				
					Arsenic	3.0E-06				
	Industrial/ Commercial Worker	Surface Soil	Not a COPC	8.1E-06	Benzo(a)pyrene	3.9E-06	0.071	No	---	
					Arsenic	1.8E-06				
	Construction Worker	Aggregate Soil	NE	1.5E-06			0.84	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area E2 - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	1.5E-05	Benzo(a)pyrene	9.0E-06	0.093	No	---	
					Benzo(b)fluoranthene	1.2E-06				
					Arsenic	2.7E-06				
Risk Area E2 - Future	Age-Adjusted Resident	Surface Soil	See child	9.8E-05	Benzo(a)anthracene	6.6E-06	NE	---	---	
					Benzo(a)pyrene	5.6E-05				
					Benzo(b)fluoranthene	1.0E-05				
					Dibenz(a,h)anthracene	1.2E-05				
					Indeno(1,2,3-cd)pyrene	5.4E-06				
					Arsenic	7.3E-06				
	Adult Resident	Surface Soil	See child	NE	---	---	0.11	No	---	
	Child Resident	Surface Soil	Not a COPC	NE	---	---	0.89	No	---	
Risk Area E2 - Future	Age-Adjusted Resident	Aggregate Soil	See child	1.9E-04	2,3,7,8-TCDD TEQ	1.3E-06	NE	---	---	
					Benzo(a)anthracene	1.2E-05				
					Benzo(a)pyrene	1.3E-04				
					Benzo(b)fluoranthene	1.7E-05				
					Dibenz(a,h)anthracene	1.1E-05				
					Indeno(1,2,3-cd)pyrene	6.4E-06				
					Arsenic	1.1E-05				
	Adult Resident	Aggregate Soil	See child	NE	---	---	0.13	No	---	
	Child Resident	Aggregate Soil	0.092%	NE	---	---	1.1	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area E3 - Current/Future	Age-Adjusted Resident	Surface Soil	See child	1.6E-04	Benzo(a)anthracene	1.2E-05	NE	---	---	
					Benzo(a)pyrene	9.5E-05				
					Benzo(b)fluoranthene	1.1E-05				
					Dibenz(a,h)anthracene	1.7E-05				
					Indeno(1,2,3-cd)pyrene	6.6E-06				
					Arsenic	1.1E-05				
					Chromium VI	1.1E-06				
	Adult Resident	Surface Soil	See child	NE	---		0.15	No	---	
	Child Resident	Surface Soil	Not a COPC	NE	---		1.3	No	---	
	Groundskeeper	Surface Soil	Not a COPC	1.2E-05	Benzo(a)pyrene	6.0E-06	0.092	No	---	
					Dibenz(a,h)anthracene	1.1E-06				
					Arsenic	2.5E-06				
	Construction Worker	Aggregate Soil	NE	1.4E-06			1.1	No	---	
Risk Area E3 - Future	Age-Adjusted Resident	Aggregate Soil	See child	1.3E-04	Benzo(a)anthracene	9.5E-06	NE	---	---	
					Benzo(a)pyrene	7.4E-05				
					Benzo(b)fluoranthene	8.7E-06				
					Dibenz(a,h)anthracene	1.3E-05				
					Indeno(1,2,3-cd)pyrene	5.0E-06				
					Arsenic	1.3E-05				
					Chromium VI	2.6E-06				
	Adult Resident	Aggregate Soil	See child	NE	---		0.16	No	---	
	Child Resident	Aggregate Soil	0.14%	NE	---		1.3	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area F - Current/Future	Age-Adjusted Resident	Surface Soil	See child	1.5E-04	Benzo(a)anthracene	1.3E-05	NE	---	---	
					Benzo(a)pyrene	7.1E-05				
					Benzo(b)fluoranthene	1.4E-05				
					Benzo(k)fluoranthene	1.4E-06				
					Dibenz(a,h)anthracene	2.4E-05				
					Indeno(1,2,3-cd)pyrene	5.2E-06				
					Arsenic	2.0E-05				
	Adult Resident	Surface Soil	See child	NE	---		0.19	No	---	
	Child Resident	Surface Soil	0.18%	NE	---		1.6	No	---	
	Construction Worker	Aggregate Soil	NE	2.2E-06	Vanadium	1.4E-06	1.3	No	---	
Risk Area F - Future	Age-Adjusted Resident	Aggregate Soil	See child	1.7E-04	Benzo(a)anthracene	1.1E-05	NE	---	---	
					Benzo(a)pyrene	9.1E-05				
					Benzo(b)fluoranthene	1.2E-05				
					Benzo(k)fluoranthene	1.2E-06				
					Dibenz(a,h)anthracene	2.2E-05				
					Indeno(1,2,3-cd)pyrene	4.9E-06				
					Arsenic	1.9E-05				
					Chromium VI	5.5E-06				
	Adult Resident	Aggregate Soil	See child	NE	---		0.23	No	---	
	Child Resident	Aggregate Soil	0.21%	NE	---		1.9	No	---	
Risk Area G - Current/Future	Industrial/ Commercial Worker	Surface Soil	0.40%	2.0E-05	Benzo(a)pyrene	4.4E-06	0.40	No	---	
					Dibenz(a,h)anthracene	1.2E-06				
					Arsenic	1.3E-05				
	Construction Worker	Aggregate Soil	NE	1.9E-06			2.1	No	---	
Risk Area G - Future	Industrial/ Commercial Worker	Aggregate Soil	0.20%	1.4E-05	Benzo(a)pyrene	3.3E-06	0.36	No	---	
					Arsenic	8.2E-06				

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area G - Future	Age-Adjusted Resident	Surface Soil	See child	1.5E-04	Benzo(a)anthracene	5.5E-06	NE	---	---	
					Benzo(a)pyrene	6.2E-05				
					Benzo(b)fluoranthene	6.3E-06				
					Dibenz(a,h)anthracene	1.7E-05				
					Indeno(1,2,3-cd)pyrene	3.9E-06				
					Arsenic	5.3E-05				
					Chromium VI	3.5E-06				
	Adult Resident	Surface Soil	See child	NE	---	---	0.56	No	---	
	Child Resident	Surface Soil	48%	NE	---	---	5.0	Blood	Antimony	1.3
									Zinc	0.58
Risk Area G - Future	Age-Adjusted Resident	Aggregate Soil	See child	1.1E-04	Benzo(a)anthracene	4.4E-06	NE	---	---	
					Benzo(a)pyrene	4.7E-05				
					Benzo(b)fluoranthene	6.6E-06				
					Dibenz(a,h)anthracene	1.3E-05				
					Indeno(1,2,3-cd)pyrene	2.6E-06				
					Arsenic	3.4E-05				
					Chromium VI	2.1E-06				
	Adult Resident	Aggregate Soil	See child	NE	---	---	0.51	No	---	
	Child Resident	Aggregate Soil	39%	NE	---	---	4.6	Blood	Antimony	1.3
									Zinc	0.61
Risk Area H - Current/Future	Industrial/ Commercial Worker	Surface Soil	Not a COPC	2.5E-05	Benzo(a)anthracene	1.3E-06	0.081	No	---	
					Benzo(a)pyrene	1.4E-05				
					Benzo(b)fluoranthene	1.6E-06				
					Dibenz(a,h)anthracene	4.6E-06				
					Indeno(1,2,3-cd)pyrene	1.1E-06				
					Arsenic	2.4E-06				
	Construction Worker	Aggregate Soil	NE	3.7E-06	Benzo(a)pyrene	1.3E-06	1.5	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area H - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	4.8E-05	Benzo(a)anthracene	2.5E-06	0.17	No	---	
					Benzo(a)pyrene	2.6E-05				
					Benzo(b)fluoranthene	2.9E-06				
					Dibenz(a,h)anthracene	6.9E-06				
					Indeno(1,2,3-cd)pyrene	1.3E-06				
					Arsenic	8.8E-06				
Risk Area H - Future	Age-Adjusted Resident	Surface Soil	See child	3.4E-04	Benzo(a)anthracene	1.9E-05	NE	---	---	
					Benzo(a)pyrene	2.0E-04				
					Benzo(b)fluoranthene	2.3E-05				
					Benzo(k)fluoranthene	2.4E-06				
					Dibenz(a,h)anthracene	6.6E-05				
					Indeno(1,2,3-cd)pyrene	1.6E-05				
					Arsenic	9.8E-06				
	Adult Resident	Surface Soil	See child	NE	---	---	0.12	No	---	
	Child Resident	Surface Soil	Not a COPC	NE	---	---	1.0	No	---	
Risk Area H - Future	Age-Adjusted Resident	Aggregate Soil	See child	6.0E-04	Benzo(a)anthracene	3.5E-05	NE	---	---	
					Benzo(a)pyrene	3.7E-04				
					Benzo(b)fluoranthene	4.2E-05				
					Benzo(k)fluoranthene	4.4E-06				
					Dibenz(a,h)anthracene	9.9E-05				
					Indeno(1,2,3-cd)pyrene	1.8E-05				
					Arsenic	3.6E-05				
	Adult Resident	Aggregate Soil	See child	NE	---	---	0.25	No	---	
	Child Resident	Aggregate Soil	8.98%	NE	---	---	2.1	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area I - Current/Future	Industrial/ Commercial Worker	Surface Soil	Not a COPC	3.3E-05	Benzo(a)anthracene	2.1E-06	0.12	No	---	
					Benzo(a)pyrene	2.0E-05				
					Benzo(b)fluoranthene	3.5E-06				
					Dibenz(a,h)anthracene	2.7E-06				
					Arsenic	3.4E-06				
	Construction Worker	Aggregate Soil	NE	1.9E-05	Benzo(a)anthracene	1.3E-06	1.1	No	---	
					Benzo(a)pyrene	1.1E-05				
					Dibenz(a,h)anthracene	2.7E-06				
					Vanadium	1.5E-06				
Risk Area I - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	3.3E-04	Benzo(a)anthracene	2.5E-05	0.16	No	---	
					Benzo(a)pyrene	2.1E-04				
					Benzo(b)fluoranthene	8.8E-06				
					Dibenz(a,h)anthracene	5.3E-05				
					Indeno(1,2,3-cd)pyrene	1.8E-05				
					Arsenic	6.2E-06				
Risk Area I - Future	Age-Adjusted Resident	Surface Soil	See child	4.3E-04	Benzo(a)anthracene	3.0E-05	NE	---	---	
					Benzo(a)pyrene	2.9E-04				
					Benzo(b)fluoranthene	4.9E-05				
					Benzo(k)fluoranthene	1.6E-06				
					Dibenz(a,h)anthracene	3.8E-05				
					Indeno(1,2,3-cd)pyrene	7.5E-06				
					Arsenic	1.4E-05				
	Adult Resident	Surface Soil	See child	NE	---	---	0.13	No	---	
	Child Resident	Surface Soil	Not a COPC	NE	---	---	1.1	No	---	

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME					
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area I - Future	Age-Adjusted Resident	Aggregate Soil	See child	4.6E-03	Benzo(a)anthracene	3.6E-04	NE	---	---	
					Benzo(a)pyrene	3.1E-03				
					Benzo(b)fluoranthene	1.3E-04				
					Benzo(k)fluoranthene	8.3E-06				
					Chrysene	4.0E-06				
					Dibenz(a,h)anthracene	7.6E-04				
					Indeno(1,2,3-cd)pyrene	2.6E-04				
					Arsenic	2.6E-05				
	Adult Resident	Aggregate Soil	See child	NE	---	---	0.24	No	---	
	Child Resident	Aggregate Soil	0.25%	NE	---	---	2.0	No	---	
Risk Area J - Current/Future	Trespasser	Surface Soil	NE	4.0E-05	Benzo(a)pyrene	5.6E-06	3.4	None Observed	Total Chromium as 100% Chromium VI	2.5
					Dibenz(a,h)anthracene	1.8E-06				
					Aroclor 1254	3.9E-06				
					Chromium VI	2.5E-05				
		Sediment	NE	9.6E-06	Benzo(a)pyrene	5.9E-06	0.052	No	---	
					Dibenz(a,h)anthracene	1.1E-06				
		Surface Water	NE	6.8E-06	Benzo(a)pyrene	5.2E-06	0.021	No	---	
Risk Area J - Future	Age-Adjusted Resident	Surface Soil	See child	9.8E-04	Benzo(a)anthracene	1.5E-05	NE	---	---	
					Benzo(a)pyrene	1.1E-04				
					Benzo(b)fluoranthene	1.2E-05				
					Dibenz(a,h)anthracene	3.4E-05				
					Indeno(1,2,3-cd)pyrene	7.5E-06				
					Aroclor 1254	5.2E-05				
					Aroclor 1260	2.7E-06				
					Arsenic	1.2E-05				
					Chromium VI	7.3E-04				
					Vanadium	1.1E-06				

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area J - Future	Adult Resident	Surface Soil	See child	NE	---		8.1	Eyes and Immune System	Aroclor 1254	1.2
								None Observed	Total Chromium as 100% Chromium VI	6.5
	Child Resident	Surface Soil	0.35%	NE	---		73	Eyes and Immune System	Aroclor 1254	10
								None Observed	Total Chromium as 100% Chromium VI	60
								Body Weight	Nickel	1.2
	Industrial/ Commercial Worker	Surface Soil	0%	7.0E-05	Benzo(a)anthracene	1.1E-06	5.9	Eyes and Immune System	Aroclor 1254	1.1
					Benzo(a)pyrene	7.4E-06		None Observed	Total Chromium as 100% Chromium VI	4.6
					Dibenz(a,h)anthracene	2.4E-06				
					Aroclor 1254	1.5E-05				
					Arsenic	3.0E-06				
					Chromium VI	3.9E-05				
	Age-Adjusted Resident	Aggregate Soil	See child	3.6E-04	2,3,7,8-TCDD TEQ	7.2E-06	NE	---	---	
					Benzo(a)anthracene	1.0E-05				
					Benzo(a)pyrene	8.3E-05				
					Benzo(b)fluoranthene	9.7E-06				
					Dibenz(a,h)anthracene	1.9E-05				
					Indeno(1,2,3-cd)pyrene	6.8E-06				
					Aroclor 1254	1.0E-05				
					Aroclor 1260	1.2E-06				
					Arsenic	1.2E-05				
					Chromium VI	2.0E-04				

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient
Risk Area J - Future	Adult Resident	Aggregate Soil	See child	NE	---		2.3	None Observed	Total Chromium as 100% Chromium VI	1.8
	Child Resident	Aggregate Soil	0.12%	NE	---		21	Eyes and Immune System	Aroclor 1254	2.0
								None Observed	Total Chromium as 100% Chromium VI	16
	Industrial/ Commercial Worker	Aggregate Soil	0%	2.8E-05	2,3,7,8-TCDD TEQ	1.8E-06	1.7	None Observed	Total Chromium as 100% Chromium VI	1.3
					Benzo(a)pyrene	5.8E-06				
					Dibenz(a,h)anthracene	1.3E-06				
					Aroclor 1254	3.1E-06				
					Arsenic	2.9E-06				
					Chromium VI	1.1E-05				
	Groundskeeper	Aggregate Soil	0%	2.5E-05	2,3,7,8-TCDD TEQ	1.6E-06	1.5	None Observed	Total Chromium as 100% Chromium VI	1.1
					Benzo(a)pyrene	5.2E-06				
					Dibenz(a,h)anthracene	1.2E-06				
					Aroclor 1254	2.8E-06				
					Arsenic	2.7E-06				
					Chromium VI	9.5E-06				
	Construction Worker	Aggregate Soil	NE	1.1E-05	Chromium VI	6.7E-06	7.5	Lungs/ Respiratory System	Total Chromium as 100% Chromium VI	5.4
					Vanadium	2.9E-06				

Table E-1
Summary of Risks by Risk Areas[1]
Scovill Industrial Landfill Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 ug/dl	RME						
				Total Cancer Risks[2]	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Non-cancer Hazard Index[3]	Organ-specific Hazard Index above 1.0	Major contributors to non-cancer organ-specific Hazard Index above 1.0	Individual COC hazard quotient

Notes:

1) Lead evaluation is performed only where lead is a COPC and only for child residents (IEUBK Model) and industrial/commercial workers or groundskeepers (Adult Lead Model)

2) Based on 2011 Chromium speciation data, total chromium consists of 1.54% hexavalent chromium. Calculated cancer risks from total chromium, which were based on hexavalent chromium toxicity values, have been multiplied by 1.54% to estimate cancer risks from hexavalent chromium. Total cancer risks have been reduced to reflect the revised total cancer risks with the decreased contribution from total chromium.

3) Calculated hazard indices from total chromium were based on hexavalent chromium non-cancer toxicity values. However, based on 2011 Chromium speciation data, total chromium consists of only 1.54% hexavalent chromium. Therefore HQs from chromium are overestimated.

NE Not Evaluated
RME Reasonable Maximum Exposure
2,3,7,8-TCDD TEQ Dioxins and Furans 2,3,7,8-TCDD Toxic Equivalents
COC Contaminant of Concern - Major contributors to total cancer risk with individual cancer risk >1E-06.
CR Cancer risk

Cancer Risks are above 1E-04.
Cancer risks fall in the range of 10^{-6} to 10^{-4}.
Non-cancer Hazard Indices are above 1.
Exposure Scenario

Table K-1
Comparative Analysis of Soil Alternatives Summary
Scovill Industrial Landfill Site
Waterbury, Connecticut

Soil Alternatives	Protection of Human Health & Environment	Compliance with ARARs	Long-Term Effectiveness & Permanence	Reduction of Toxicity, Mobility, & Volume Through Treatment	Short-Term Effectiveness	Implementability	Cost	State Acceptance	Community Acceptance
SO1 - No Action				NA		●	low	TBD	TBD
SO2 - Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	●	●	●	NA	●	●	low	TBD	TBD
SO3 - Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, and F]	●	●	●	NA	●	●	med	TBD	TBD
SO4 - Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, and F]	●	●	◌	◌	●	●	med	TBD	TBD
SO5 - Pre-Design Investigations, Limited Excavation and Off-Site Disposal, Institutional Controls, Long-Term Monitoring, and Five-Year Reviews [Area J]	●	●	●	NA	●	●	high	TBD	TBD
SO6 - Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [Area J]	●	●	●	NA	●	●	med	TBD	TBD
SO7 - Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	●	●	●	NA	●	●	high	TBD	TBD
SO8 - Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five Year Reviews [Area I]	●	●	●	NA	●	●	med	TBD	TBD

Legend

	Does not meet criterion
◌	Partially meets criterion
●	Meets criterion
TBD	To be determined and addressed during the Public Comment Period.

Table K-2
Comparative Analysis of Vapor Intrusion Alternatives Summary
Scovill Industrial Landfill Site
Waterbury, Connecticut

Vapor Intrusion Alternatives	Protection of Human Health & Environment	Compliance with ARARs	Long-Term Effectiveness & Permanence	Reduction of Toxicity, Mobility, & Volume Through Treatment	Short-Term Effectiveness	Implementability	Cost	State Acceptance	Community Acceptance
VI1 - No Action				NA		●	low	TBD	TBD
VI2 - Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1, J]	◌	◌	◌	NA	●	●	low	TBD	TBD
VI3 - Active Soil Vapor Mitigation System, Institutional Controls, Operations & Maintenance, and Five-Year Reviews [Area E1]	●	●	●	NA	●	●	med	TBD	TBD
VI4 - Passive Soil Vapor Mitigation System, Institutional Controls, Operations & Maintenance, and Five-Year Reviews [Area E1]	●	●	◌	NA	●	●	med	TBD	TBD

Legend

	Does not meet criterion
◌	Partially meets criterion
●	Meets criterion
TBD	To be determined and addressed during the Public Comment Period.

Table L-1
Potential Soil Residential Preliminary Remediation Goals
Scovill Landfill Superfund Site
Waterbury, Connecticut

Analyte	Background Threshold Value-Based PRGs [1]		Risk-Based PRGs [2]				ARAR-based PRGs	Policy	Recommended Residential PRGs			
	Surface Soil (mg/Kg)	Sub-surface Soil (mg/Kg)	Res. E-06 (mg/Kg)	Res. E-05 (mg/Kg)	Res. E-04 (mg/Kg)	Res. HI=1 (mg/Kg)	CT RSR - DEC Res. (mg/Kg)	EPA [3] (mg/Kg)	Surface Soil (mg/Kg)	Basis	Sub-surface Soil (mg/Kg)	Basis
PAHs												
Benzo(a)anthracene	3.424	0.715	0.15	1.5	15	na	1	na	**3.4**	**BTV**	**1**	**RSR**
Benzo(a)pyrene	3.748	0.776	0.015	0.15	1.5	na	1	na	**3.7**	**BTV**	**1**	**RSR**
Benzo(b)fluoranthene	5.143	1.067	0.15	1.5	15	na	1	na	**5.1**	**BTV**	**1.1**	**BTV**
Benzo(k)fluoranthene	3.582	0.685	1.5	15	150	na	8.4	na	**8.4**	**RSR**	**8.4**	**RSR**
Dibenz(a,h)anthracene	0.628	0.324	0.015	0.15	1.5	na	1	na	**1**	**2008 Draft**	**1**	**2008 Draft**
Indeno(1,2,3-cd)pyrene	1.945	0.508	0.15	1.5	15	na	1	na	**1.9**	**BTV**	**1**	**2008 Draft**
PCBs, Dioxins												
Dioxin TEQ - CalEPA [4]	na	na	4.5E-06	4.5E-05	4.5E-04	na	na	na	**5.E-05**	**risk-based**	**5.E-05**	**risk-based**
Dioxin TEQ - HEAST [5]	na	na	3.9E-06	3.9E-05	3.9E-04	na	na	na				
Dioxin TEQ - IRIS [6]	na	na	na	na	na	5.0E-05	na	na				
PCBs	na	na	0.22	2.2	22	1.1	1	1	**1**	**EPA/RSR**	**1**	**EPA/RSR**
Metals												
Antimony [7]	na	na	na	na	na	31.3	27	na	**27**	**RSR**	**27**	**RSR**
Arsenic	13.4	10.43	0.39	3.9	39	22	10	na	**13.4**	**BTV**	**10.4**	**BTV**
Chromium - Trivalent	na	na	na	na	na	120,000	3,900	na	**3,900**	**RSR**	**3,900**	**RSR**
Chromium - Hexavalent	na	na	0.293	2.93	29	15,200	100	na	**100**	**RSR**	**100**	**RSR**
Nickel [7]	na	na	na	na	na	1,550	1,400	na	**1,400**	**RSR**	**1,400**	**RSR**
Vanadium [7]	51	41	227	2270	22,700	390	470	na	**470**	**RSR**	**470**	**RSR**

Abbr.:

CT RSR - CT Remediation Standard Regulations (RCSA 22a-133-1 through -3)

Res. - residential

DEC - RSR Direct Exposure Criteria

VOCs - volatile organic compounds

PAHs - Polycyclic aromatic hydrocarbons
PCBs - polychlorinated biphenyls

PRGs - Preliminary Remediation Goals

Dioxin TEQ - 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) Toxicity Equivalent

ARAR - Applicable or Relevant and Appropriate Requirement

na - not applicable, tbd - to be determined

Legend:

8.4	Appendix A to 22a-133k-1 to 22a-133k-3 of the CT RSRs
1	2008 Draft Criteria per CT DEEP (2012)

Notes:

1. Based on Upper Simultaneous Limit 95 (USL 95) prepared by A. Singh, Apr. 5, 2012.
2. Risk-based PRG values development presented in Appendix C.
3. For PCBs, based on *A Guide on Remedial Actions at Superfund Sites With PCB Contamination* , EPA Publication No. 9355.4-01FS, Fact Sheet, Aug. 1990.
4. Based on CalEPA CSF of 1.3E+05 $(mg/kg–day)^{-1}$
5. Based on HEAST CSF of 1.5E+05 $(mg/kg–day)^{-1}$
6. Based on IRIS Feb. 17, 2012 non-cancer RfD of 7E-10 mg/kg-day.
7. PRGs have been developed and will apply should land use convert to residential use in Areas G (Sn) and J (Ni and V).

Table L-2
Potential Soil Commercial/Industrial Preliminary Remediation Goals
Scovill Landfill Superfund Site
Waterbury, Connecticut

Analyte	Background Threshold Value-Based PRGs [1]		Risk-Based PRGs[2]				ARAR-based PRG	Policy	Recommended Comm./Ind. PRGs			
	Surface Soil (mg/Kg)	Sub-surface Soil (mg/Kg)	Com./Ind. E-06 (mg/Kg)	Com./Ind. E-05 (mg/Kg)	Com./Ind. E-04 (mg/Kg)	Com./Ind. HI=1 (mg/Kg)	CT RSR - DEC Ind./Com. (mg/Kg)	EPA [3] (mg/Kg)	Surface Soil (mg/Kg)	Basis	Sub-surface Soil (mg/Kg)	Basis
PAHs												
Benzo(a)anthracene	3.424	0.715	2.1	21	210	na	7.8	na	**7.8**	**RSR**	**7.8**	**RSR**
Benzo(a)pyrene	3.748	0.776	0.21	2.1	21	na	1	na	**3.7**	**BTV**	**1**	**RSR**
Benzo(b)fluoranthene	5.143	1.067	2.1	21	210	na	7.8	na	**7.8**	**RSR**	**7.8**	**RSR**
Benzo(k)fluoranthene	3.582	0.685	21	210	2,100	na	78	na	**78**	**RSR**	**78**	**RSR**
Dibenz(a,h)anthracene	0.628	0.324	0.21	2.1	21	na	1	na	**1**	**RSR**	**1**	**2008 Draft**
Indeno(1,2,3-cd)pyrene	1.945	0.508	2.1	21	210	na	7.8	na	**7.8**	**RSR**	**7.8**	**2008 Draft**
PCBs, Dioxins												
Dioxin TEQ - CalEPA [4]	na	na	1.84E-05	1.84E-04	1.84E-03	na	na	na	**6.00E-04**	**risk-based**	**6.00E-04**	**risk-based**
Dioxin TEQ - HEAST [5]	na	na	1.59E-05	1.59E-04	1.59E-03	na	na	na				
Dioxin TEQ - IRIS [6]	na	na	na	na	na	6.00E-04	na	na				
PCBs	na	na	0.74	7.4	74	11	10	10 - 25	**10**	**EPA/RSR**	**10**	**EPA/RSR**
Metals												
Antimony	na	na	na	na	na	410	8,200	**na**	**8,200**	**RSR**	**8,200**	**RSR**
Arsenic	13.4	10.43	1.6	16	160	255	10	na	**13.4**	**BTV**	**10.4**	**BTV**
Chromium - Trivalent	na	na	na	na	na	1,500,000	51,000	na	**51,000**	**RSR**	**51,000**	**RSR**
Chromium - Hexavalent	na	na	5.57	55.7	557	3,100	100	na	**100**	**RSR**	**100**	**RSR**
Nickel	na	na	na	na	na	20,000	7,500	na	**7,500**	**RSR**	**7,500**	**RSR**
Vanadium	51	41	1140	11,400	114,000	5,200	14,000	na	**14,000**	**RSR**	**14,000**	**RSR**

Abbr.:

CT RSR - CT Remediation Standard Regulations (RCSA 22a--133--1 through -3)

Comm./Ind.- commercial/industrial
DEC - RSR Direct Exposure Criteria
VOCs - volatile organic compounds
PAHs - Polycyclic aromatic hydrocarbons
PCBs - polychlorinated biphenyls

PRGs - Preliminary Remediation Goals

Dioxin TEQ - 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) Toxicity Equivalent

ARAR - Applicable or Relevant and Appropriate Requirement

na - not applicable, tbd - to be determined

Legend:

7.8	Appendix A to 22a-133k-1 to 22a-133k-3 of the CT RSRs
1	2008 Draft Criteria per CT DEEP (2012)

Notes:

1. Based on Upper Simultaneous Limit 95 (USL 95) prepared by A. Singh, Apr. 5, 2012.
2. Risk-based PRG values development presented in Appendix C.
3. For PCBs, based on *A Guide on Remedial Actions at Superfund Sites With PCB Contamination*, EPA Publication No. 9355.4-01FS, Fact Sheet, Aug. 1990.
4. Based on CalEPA CSF of 1.3E+05 $(mg/kg–day)^{-1}$
5. Based on HEAST CSF of 1.5E+05 $(mg/kg–day)^{-1}$
6. Based on IRIS Feb. 17, 2012 non-cancer RfD of 7E-10 mg/kg-day.
7. Site-specific risk-based PRGs were developed using site-specific ratio of hexavalent to total chromium ratio of 1.54%.

Table L-3
SOil Clean-Up Levels and Soil Gas Screening Levels
Scovill Landfill Superfund Site
Waterbury, Connecticut

Soil Contaminant of Concern	Residential Soil Clean-Up Levels				Comm./Ind. Soil Clean-Up Levels			
	Surface Soil (mg/Kg)	Basis	Sub-surface Soil	Basis	Surface Soil (mg/Kg)	Basis	Sub-surface Soil (mg/Kg)	Basis
Benzo(a)anthracene	3.4	BTV	1	RSR DEC	7.8	RSR DEC	7.8	RSR DEC
Benzo(a)pyrene	3.7	BTV	1	RSR DEC	3.7	BTV	1	RSR DEC
Benzo(b)fluoranthene	5.1	BTV	1.1	BTV	7.8	RSR DEC	7.8	RSR DEC
Benzo(k)fluoranthene	8.4	RSR	8.4	RSR DEC	78	RSR DEC	78	RSR DEC
Dibenz(a,h)anthracene	1	2008 Draft	1	2008 Draft	1	RSR DEC	1	2008 Draft
Indeno(1,2,3-cd)pyrene	1.9	BTV	1	2008 Draft	7.8	RSR DEC	7.8	2008 Draft
Dioxin TEQ	5.E-05	risk-based	5.E-05	risk-based	6.00E-04	risk-based	6.00E-04	risk-based
PCBs	1	EPA/RSR	1	EPA/RSR DEC	10	EPA/RSR DEC	10	EPA/RSR DEC
Antimony	27	RSR	27	RSR DEC	8,200	RSR DEC	8,200	RSR DEC
Arsenic	13.4	BTV	10.4	BTV	13.4	BTV	10.4	BTV
Chromium - Trivalent	3,900	RSR	3,900	RSR DEC	51,000	RSR DEC	51,000	RSR DEC
Chromium - Hexavalent	100	RSR	100	RSR DEC	100	RSR DEC	100	RSR DEC
Nickel	1,400	RSR	1,400	RSR DEC	7,500	RSR DEC	7,500	RSR DEC
Vanadium	470	RSR	470	RSR DEC	14,000	RSR DEC	14,000	RSR DEC

Soil Gas Contaminant of Concern	Soil Gas Screening Levels (ug/m^3)	Basis
Chloroform	22	RSR VC
Trichloroethene	38	RSR VC
Vinyl Chloride	3	RSR VC

Abbr.:

BTV - Background Threshold Values

DEC - RSR Direct Exposure Criteria

EPA - *A Guide on Remedial Actions at Superfund Sites With PCB Contamination* , EPA Publication No. 9355.4-01FS, Fact Sheet, Aug. 1990.

RSR - CT Remediation Standard Regulations (RCSA 22a-133-1 through -3), Amended June 27, 2013

PCBs - polychlorinated biphenyls

VC - RSR Volatilization Criteria for Soil Vapor

Dioxin TEQ - 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) Toxicity

APPENDIX D

TABLE G-7A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	PAHs									
			Benzo(a)anthracene	3.9E-06	---	1.5E-06	5.4E-06	---	---	---	---	---
			Benzo(a)pyrene	4.5E-05	---	1.7E-05	6.2E-05	---	---	---	---	---
			Benzo(b)fluoranthene	6.0E-06	---	2.3E-06	8.3E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.6E-05	---	6.1E-06	2.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.4E-06	---	1.7E-06	6.1E-06	---	---	---	---	---
			Metals									
			Arsenic	9.9E-06	---	9.4E-07	1.1E-05	---	---	---	---	---
			Chromium Total	5.1E-05	---	---	5.1E-05	---	---	---	---	---
			Chemical Total	1.4E-04	---	3.0E-05	1.7E-04		---	---	---	---
		Exposure Point Total					1.7E-04					---
		Air at Risk Area D1	PAHs									
			Benzo(a)anthracene	---	6.5E-11	---	6.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.5E-10	---	7.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.4E-11	---	7.4E-11	---	---	---	---	---
			Metals									
			Arsenic	---	5.4E-09	---	5.4E-09	---	---	---	---	---
			Chromium Total	---	9.5E-07	---	9.5E-07	---	---	---	---	---
			Chemical Total	---	9.5E-07	---	9.5E-07		---	---	---	---
		Exposure Point Total					9.5E-07					---
	Surface Soil Total						1.7E-04					---
Soil Total							1.7E-04					---

Total Risk Across All Media: 1.7E-04

Total Hazard Across All Media: ---

TABLE G-7B
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	PAHs					---				
			Benzo(a)anthracene	9.0E-06	---	3.5E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	6.8E-05	---	2.6E-05	9.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.0E-06	---	3.1E-06	1.1E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-05	---	4.8E-06	1.7E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.7E-06	---	1.8E-06	6.6E-06	---	---	---	---	---
			Metals					---				
			Arsenic	1.0E-05	---	9.8E-07	1.1E-05	---	---	---	---	---
			Chromium Total	6.8E-05	---	---	6.8E-05	---	---	---	---	---
			Chemical Total	1.8E-04	---	4.0E-05	2.2E-04		---	---	---	---
		Exposure Point Total					2.2E-04					---
		Air at Risk Area E3	PAHs					---				
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Metals					---				
			Arsenic	---	5.6E-09	---	5.6E-09	---	---	---	---	---
			Chromium Total	---	1.3E-06	---	1.3E-06	---	---	---	---	---
			Chemical Total	---	1.3E-06	---	1.3E-06		---	---	---	---
		Exposure Point Total					1.3E-06					---
	Surface Soil Total						2.2E-04					---
Soil Total							2.2E-04					---

Total Risk Across All Media: 2.2E-04

Total Hazard Across All Media: ---

TABLE G-7C
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	PAHs									
			Benzo(a)anthracene	9.1E-06	---	3.5E-06	1.3E-05	---	---	---	---	---
			Benzo(a)pyrene	5.1E-05	---	2.0E-05	7.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.0E-05	---	4.0E-06	1.4E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.0E-06	---	3.8E-07	1.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.7E-05	---	6.6E-06	2.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.8E-06	---	1.5E-06	5.2E-06	---	---	---	---	---
			Metals									
			Arsenic	1.8E-05	---	1.7E-06	2.0E-05	---	---	---	---	---
			Chromium Total	6.2E-05	---	---	6.2E-05	---	---	---	---	---
			Chemical Total	1.7E-04	---	3.7E-05	2.1E-04		---	---	---	---
		Exposure Point Total					2.1E-04					---
		Air at Risk Area F	PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	8.6E-10	---	8.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.3E-11	---	6.3E-11	---	---	---	---	---
			Metals									
			Arsenic	---	9.7E-09	---	9.7E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	1.2E-06	---	1.2E-06		---	---	---	---
		Exposure Point Total					1.2E-06					---
	Surface Soil Total						2.1E-04					---
Soil Total							2.1E-04					---

Total Risk Across All Media: 2.1E-04

Total Hazard Across All Media: ---

TABLE G-8A

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	1.9E-05	---	7.1E-06	2.6E-05	---	---	---	---	---
			Benzo(a)pyrene	1.9E-04	---	7.1E-05	2.6E-04	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-05	---	1.1E-05	3.8E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.8E-06	---	6.8E-07	2.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.5E-05	---	5.8E-06	2.1E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.2E-06	---	1.6E-06	5.8E-06	---	---	---	---	---
			Metals									
			Arsenic	2.8E-05	---	2.6E-06	3.0E-05	---	---	---	---	---
			Chromium Total	9.9E-05	---	---	9.9E-05	---	---	---	---	---
			Chemical Total	3.8E-04	---	1.0E-04	4.8E-04		---	---	---	---
		Exposure Point Total					4.8E-04					---
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Benzo(a)pyrene	---	3.1E-09	---	3.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.6E-10	---	4.6E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.8E-10	---	2.8E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.0E-11	---	7.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.5E-08	---	1.5E-08	---	---	---	---	---
			Chromium Total	---	1.8E-06	---	1.8E-06	---	---	---	---	---
			Chemical Total	---	1.9E-06	---	1.9E-06		---	---	---	---
		Exposure Point Total					1.9E-06					---
	Surface Soil Total						4.8E-04					---
Soil Total							4.8E-04					---

Total Risk Across All Media: 4.8E-04

Total Hazard Across All Media: ---

TABLE G-8B
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)anthracene	8.9E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	7.3E-05	---	2.8E-05	1.0E-04	---	---	---	---	---
			Benzo(b)fluoranthene	5.1E-06	---	2.0E-06	7.0E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	8.6E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.2E-06	---	1.6E-06	5.8E-06	---	---	---	---	---
			Metals									
			Arsenic	8.2E-06	---	7.8E-07	9.0E-06	---	---	---	---	---
			Chromium Total	5.7E-05	---	---	5.7E-05	---	---	---	---	---
			Chemical Total	1.7E-04	---	3.9E-05	2.0E-04		---	---	---	---
		Exposure Point Total					2.0E-04					---
		Air at Risk Area E1	PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.5E-11	---	8.5E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.0E-11	---	7.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	4.5E-09	---	4.5E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	1.1E-06	---	1.1E-06		---	---	---	---
		Exposure Point Total					1.1E-06					---
	Surface Soil Total						2.1E-04					---
Soil Total							2.1E-04					---

Total Risk Across All Media: 2.1E-04

Total Hazard Across All Media: ---

TABLE G-8C
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	4.0E-06	---	1.5E-06	5.5E-06	---	---	---	---	---
			Benzo(a)pyrene	4.5E-05	---	1.7E-05	6.2E-05	---	---	---	---	---
			Benzo(b)fluoranthene	4.6E-06	---	1.7E-06	6.3E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.2E-05	---	4.7E-06	1.7E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.8E-06	---	1.1E-06	3.9E-06	---	---	---	---	---
			Metals									
			Arsenic	4.9E-05	---	4.6E-06	5.3E-05	---	---	---	---	---
			Chromium Total	2.2E-04	---	---	2.2E-04	---	---	---	---	---
			Chemical Total	3.4E-04	---	3.1E-05	3.7E-04		---	---	---	---
		Exposure Point Total					3.7E-04					---
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	6.6E-11	---	6.6E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.5E-10	---	7.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	7.6E-11	---	7.6E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	2.6E-08	---	2.6E-08	---	---	---	---	---
			Chromium Total	---	4.1E-06	---	4.1E-06	---	---	---	---	---
			Chemical Total	---	4.2E-06	---	4.2E-06		---	---	---	---
		Exposure Point Total					4.2E-06					---
	Surface Soil Total						3.7E-04					---
Soil Total							3.7E-04					---

Total Risk Across All Media: 3.7E-04

Total Hazard Across All Media: ---

TABLE G-8D
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area H	PAHs									
			Benzo(a)anthracene	1.4E-05	---	5.3E-06	1.9E-05	---	---	---	---	---
			Benzo(a)pyrene	1.5E-04	---	5.7E-05	2.0E-04	---	---	---	---	---
			Benzo(b)fluoranthene	1.6E-05	---	6.3E-06	2.3E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.7E-06	---	6.6E-07	2.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	4.8E-05	---	1.8E-05	6.6E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.2E-05	---	4.5E-06	1.6E-05	---	---	---	---	---
			Metals									
			Arsenic	8.9E-06	---	8.5E-07	9.8E-06	---	---	---	---	---
			Chromium Total	5.3E-05	---	---	5.3E-05	---	---	---	---	---
			Chemical Total	3.0E-04	---	9.3E-05	3.9E-04		---	---	---	---
		Exposure Point Total					3.9E-04					---
		Air at Risk Area H	PAHs									
			Benzo(a)anthracene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.5E-09	---	2.5E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.7E-10	---	2.7E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.7E-10	---	8.7E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Metals									
			Arsenic	---	4.8E-09	---	4.8E-09	---	---	---	---	---
			Chromium Total	---	9.8E-07	---	9.8E-07	---	---	---	---	---
			Chemical Total	---	9.9E-07	---	9.9E-07		---	---	---	---
		Exposure Point Total					9.9E-07					---
	Surface Soil Total						3.9E-04					---
Soil Total							3.9E-04					---

Total Risk Across All Media: 3.9E-04

Total Hazard Across All Media: ---

TABLE G-8E
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	2.2E-05	---	8.3E-06	3.0E-05	---	---	---	---	---
			Benzo(a)pyrene	2.1E-04	---	8.1E-05	2.9E-04	---	---	---	---	---
			Benzo(b)fluoranthene	3.6E-05	---	1.4E-05	4.9E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.1E-06	---	4.3E-07	1.6E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.7E-05	---	1.1E-05	3.8E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.4E-06	---	2.1E-06	7.5E-06	---	---	---	---	---
			Metals									
			Arsenic	1.3E-05	---	1.2E-06	1.4E-05	---	---	---	---	---
			Chromium Total	5.5E-05	---	---	5.5E-05	---	---	---	---	---
			Chemical Total	3.7E-04	---	1.2E-04	4.9E-04		---	---	---	---
		Exposure Point Total					4.9E-04					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	3.6E-10	---	3.6E-10	---	---	---	---	---
			Benzo(a)pyrene	---	3.5E-09	---	3.5E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.0E-10	---	6.0E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.0E-10	---	5.0E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.0E-11	---	9.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	6.9E-09	---	6.9E-09	---	---	---	---	---
			Chromium Total	---	1.0E-06	---	1.0E-06	---	---	---	---	---
			Chemical Total	---	1.0E-06	---	1.0E-06		---	---	---	---
		Exposure Point Total					1.0E-06					---
	Surface Soil Total						4.9E-04					---
Soil Total							4.9E-04					---

Total Risk Across All Media: 4.9E-04

Total Hazard Across All Media: ---

TABLE G-8F
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PAHs									
			Benzo(a)anthracene	1.1E-05	---	4.2E-06	1.5E-05	---	---	---	---	---
			Benzo(a)pyrene	7.7E-05	---	2.9E-05	1.1E-04	---	---	---	---	---
			Benzo(b)fluoranthene	9.0E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	2.4E-05	---	9.3E-06	3.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.4E-06	---	2.1E-06	7.5E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	3.6E-05	---	1.6E-05	5.2E-05	---	---	---	---	---
			Aroclor-1260	1.9E-06	---	8.4E-07	2.7E-06	---	---	---	---	---
			Metals									
			Arsenic	1.1E-05	---	1.1E-06	1.2E-05	---	---	---	---	---
			Chromium Total	4.7E-02	---	---	4.7E-02	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	4.7E-02	---	6.6E-05	4.7E-02		---	---	---	---
		Exposure Point Total					4.7E-02					---
		Air at Risk Area J	PAHs									
			Benzo(a)anthracene	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.4E-10	---	4.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.0E-11	---	9.0E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Aroclor-1260	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Metals									
			Arsenic	---	6.1E-09	---	6.1E-09	---	---	---	---	---
			Chromium Total	---	8.7E-04	---	8.7E-04	---	---	---	---	---
			Vanadium	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	8.7E-04	---	8.7E-04		---	---	---	---
		Exposure Point Total					8.7E-04					---
	Surface Soil Total						4.8E-02					---
Soil Total							4.8E-02					---

Total Risk Across All Media: 4.8E-02

Total Hazard Across All Media: ---

TABLE G-9A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	PAHs									
			Benzo(a)anthracene	2.7E-06	---	1.0E-06	3.8E-06	---	---	---	---	---
			Benzo(a)pyrene	4.3E-05	---	1.6E-05	5.9E-05	---	---	---	---	---
			Benzo(b)fluoranthene	5.5E-06	---	2.1E-06	7.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	8.6E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-06	---	1.3E-06	4.8E-06	---	---	---	---	---
			Metals									
			Arsenic	8.9E-06	---	8.4E-07	9.7E-06	---	---	---	---	---
			Chromium Total	4.9E-05	---	---	4.9E-05	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.2E-04	---	2.5E-05	1.5E-04		---	---	---	---
		Exposure Point Total					1.5E-04					---
		Air at Risk Area D1	PAHs									
			Benzo(a)anthracene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.2E-10	---	7.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.2E-11	---	9.2E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.8E-11	---	5.8E-11	---	---	---	---	---
			Metals									
			Arsenic	---	4.8E-09	---	4.8E-09	---	---	---	---	---
			Chromium Total	---	9.2E-07	---	9.2E-07	---	---	---	---	---
			Vanadium	---	1.2E-06	---	1.2E-06	---	---	---	---	---
			Chemical Total	---	2.2E-06	---	2.2E-06		---	---	---	---
		Exposure Point Total					2.2E-06					---
	Aggregate Soil Total						1.5E-04					---
Soil Total							1.5E-04					---

Total Risk Across All Media: 1.5E-04

Total Hazard Across All Media: ---

TABLE G-9B
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	1.5E-05	---	5.7E-06	2.1E-05	---	---	---	---	---
			Benzo(a)pyrene	1.7E-04	---	6.4E-05	2.3E-04	---	---	---	---	---
			Benzo(b)fluoranthene	2.4E-05	---	9.3E-06	3.4E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.1E-06	---	4.2E-07	1.5E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	5.6E-05	---	2.2E-05	7.8E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.2E-05	---	4.5E-06	1.6E-05	---	---	---	---	---
			Metals									
			Arsenic	1.8E-05	---	1.7E-06	1.9E-05	---	---	---	---	---
			Chemical Total	2.9E-04	---	1.1E-04	4.0E-04		---	---	---	---
		Exposure Point Total					4.0E-04					---
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.8E-09	---	2.8E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.1E-10	---	4.1E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Metals									
			Arsenic	---	---	---	---	---	---	---	---	---
			Chemical Total	---	3.6E-09	---	3.6E-09		---	---	---	---
		Exposure Point Total					3.6E-09					---
	Aggregate Soil Total						4.0E-04					---
Soil Total							4.0E-04					---

Total Risk Across All Media: 4.0E-04

Total Hazard Across All Media: ---

TABLE G-9C
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	6.5E-07	---	---			---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	2.3E-06	---	2.2E-07	2.5E-06	---	---	---	---	---
			Hexachlorobenzene	9.4E-07	---	3.0E-07	1.2E-06	---	---	---	---	---
			N-Nitrosodi-n-propylamine	4.1E-06	---	1.3E-06	5.4E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.7E-05	---	1.0E-05	3.7E-05	---	---	---	---	---
			Benzo(a)pyrene	2.4E-04	---	9.0E-05	3.3E-04	---	---	---	---	---
			Benzo(b)fluoranthene	3.5E-05	---	1.3E-05	4.8E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.4E-06	---	5.2E-07	1.9E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.0E-05	---	4.0E-06	1.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.2E-06	---	2.0E-06	7.2E-06	---	---	---	---	---
			Metals									
			Arsenic	7.8E-06	---	7.4E-07	8.6E-06	---	---	---	---	---
			Chromium Total	6.0E-05	---	---	6.0E-05	---	---	---	---	---
			Chemical Total	3.9E-04	---	1.2E-04	5.1E-04		---	---	---	---
		Exposure Point Total					5.1E-04					---
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	1.14E-06	---	1.1E-06	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Hexachlorobenzene	---	5.1E-11	---	5.1E-11	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.5E-10	---	4.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	3.9E-09	---	3.9E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.8E-10	---	5.8E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	8.7E-11	---	8.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	4.2E-09	---	4.2E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	2.3E-06	---	2.3E-06		---	---	---	---
		Exposure Point Total					2.3E-06					---
	Aggregate Soil Total						5.2E-04					---
Soil Total							5.2E-04					---

Total Risk Across All Media: 5.2E-04

Total Hazard Across All Media: ---

TABLE G-9D

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.1E-06	---	1.1E-07	1.3E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	8.7E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	9.3E-05	---	3.6E-05	1.3E-04	---	---	---	---	---
			Benzo(b)fluoranthene	1.2E-05	---	4.7E-06	1.7E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	8.3E-06	---	3.2E-06	1.1E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.6E-06	---	1.8E-06	6.4E-06	---	---	---	---	---
			Metals									
			Arsenic	1.0E-05	---	9.4E-07	1.1E-05	---	---	---	---	---
			Chromium Total	4.4E-05	---	---	4.4E-05	---	---	---	---	---
			Chemical Total	1.8E-04	---	5.0E-05	2.3E-04		---	---	---	---
		Exposure Point Total					2.3E-04					---
		Air at Risk Area E2	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	6.4E-11	---	6.4E-11	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.6E-09	---	1.6E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.1E-10	---	2.1E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	5.4E-09	---	5.4E-09	---	---	---	---	---
			Chromium Total	---	8.2E-07	---	8.2E-07	---	---	---	---	---
			Chemical Total	---	8.2E-07	---	8.2E-07		---	---	---	---
		Exposure Point Total					8.2E-07					---
	Aggregate Soil Total						2.3E-04					---
Soil Total							2.3E-04					---

Total Risk Across All Media: 2.3E-04

Total Hazard Across All Media: ---

TABLE G-9E
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	PAHs									
			Benzo(a)anthracene	6.9E-06	---	2.6E-06	9.5E-06	---	---	---	---	---
			Benzo(a)pyrene	5.3E-05	---	2.0E-05	7.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	6.3E-06	---	2.4E-06	8.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	9.7E-06	---	3.7E-06	1.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.6E-06	---	1.4E-06	5.0E-06	---	---	---	---	---
			Metals									
			Arsenic	1.2E-05	---	1.1E-06	1.3E-05	---	---	---	---	---
			Chromium Total	1.7E-04	---	---	1.7E-04	---	---	---	---	---
			Chemical Total	2.6E-04	---	3.2E-05	2.9E-04		---	---	---	---
		Exposure Point Total					2.9E-04					---
		Air at Risk Area E3	PAHs									
			Benzo(a)anthracene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(a)pyrene	---	8.9E-10	---	8.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.0E-11	---	6.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	6.4E-09	---	6.4E-09	---	---	---	---	---
			Chromium Total	---	3.1E-06	---	3.1E-06	---	---	---	---	---
			Chemical Total	---	3.1E-06	---	3.1E-06		---	---	---	---
		Exposure Point Total					3.1E-06					---
	Aggregate Soil Total						2.9E-04					---
Soil Total							2.9E-04					---

Total Risk Across All Media: 2.9E-04

Total Hazard Across All Media: ---

TABLE G-9F
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	PAHs									
			Benzo(a)anthracene	7.9E-06	---	3.0E-06	1.1E-05	---	---	---	---	---
			Benzo(a)pyrene	6.6E-05	---	2.5E-05	9.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.9E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(k)fluoranthene	8.6E-07	---	3.3E-07	1.2E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.6E-05	---	6.1E-06	2.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-06	---	1.3E-06	4.9E-06	---	---	---	---	---
			Metals									
			Arsenic	1.7E-05	---	1.6E-06	1.9E-05	---	---	---	---	---
			Chromium Total	3.6E-04	---	---	3.6E-04	---	---	---	---	---
			Chemical Total	4.8E-04	---	4.1E-05	5.2E-04		---	---	---	---
		Exposure Point Total					5.2E-04					---
		Air at Risk Area F	PAHs									
			Benzo(a)anthracene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.9E-11	---	5.9E-11	---	---	---	---	---
			Metals									
			Arsenic	---	9.3E-09	---	9.3E-09	---	---	---	---	---
			Chromium Total	---	6.6E-06	---	6.6E-06	---	---	---	---	---
			Chemical Total	---	6.7E-06	---	6.7E-06		---	---	---	---
		Exposure Point Total					6.7E-06					---
	Aggregate Soil Total						5.2E-04					---
Soil Total							5.2E-04					---

Total Risk Across All Media: 5.2E-04

Total Hazard Across All Media: ---

TABLE G-9G
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	3.2E-06	---	1.2E-06	4.4E-06	---	---	---	---	---
			Benzo(a)pyrene	3.4E-05	---	1.3E-05	4.7E-05	---	---	---	---	---
			Benzo(b)fluoranthene	4.7E-06	---	1.8E-06	6.6E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	9.5E-06	---	3.7E-06	1.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.9E-06	---	7.1E-07	2.6E-06	---	---	---	---	---
			Metals									
			Arsenic	3.1E-05	---	2.9E-06	3.4E-05	---	---	---	---	---
			Chromium Total	1.3E-04	---	---	1.3E-04	---	---	---	---	---
			Chemical Total	2.2E-04	---	2.3E-05	2.4E-04		---	---	---	---
		Exposure Point Total					2.4E-04					---
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	5.4E-11	---	5.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	5.7E-10	---	5.7E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.1E-11	---	3.1E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.7E-08	---	1.7E-08	---	---	---	---	---
			Chromium Total	---	2.5E-06	---	2.5E-06	---	---	---	---	---
			Chemical Total	---	2.5E-06	---	2.5E-06		---	---	---	---
		Exposure Point Total					2.5E-06					---
	Aggregate Soil Total						2.4E-04					---
Soil Total							2.4E-04					---

Total Risk Across All Media: 2.4E-04

Total Hazard Across All Media: ---

TABLE G-9H
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	PAHs									
			Benzo(a)anthracene	2.6E-05	---	9.8E-06	3.5E-05	---	---	---	---	---
			Benzo(a)pyrene	2.6E-04	---	1.0E-04	3.7E-04	---	---	---	---	---
			Benzo(b)fluoranthene	3.0E-05	---	1.2E-05	4.2E-05	---	---	---	---	---
			Benzo(k)fluoranthene	3.2E-06	---	1.2E-06	4.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	7.1E-05	---	2.7E-05	9.9E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-05	---	5.0E-06	1.8E-05	---	---	---	---	---
			Metals									
			Arsenic	3.3E-05	---	3.1E-06	3.6E-05	---	---	---	---	---
			Chromium Total	5.8E-05	---	---	5.8E-05	---	---	---	---	---
			Chemical Total	5.0E-04	---	1.6E-04	6.6E-04		---	---	---	---
		Exposure Point Total					6.6E-04					---
		Air at Risk Area H	PAHs									
			Benzo(a)anthracene	---	4.3E-10	---	4.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	4.4E-09	---	4.4E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.0E-10	---	5.0E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	5.3E-10	---	5.3E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			Metals									
			Arsenic	---	1.8E-08	---	1.8E-08	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	1.1E-06	---	1.1E-06		---	---	---	---
		Exposure Point Total					1.1E-06					---
	Aggregate Soil Total						6.6E-04					---
Soil Total							6.6E-04					---

Total Risk Across All Media: 6.6E-04

Total Hazard Across All Media: ---

TABLE G-9I
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	2.6E-04	---	1.0E-04	3.6E-04	---	---	---	---	---
			Benzo(a)pyrene	2.2E-03	---	8.5E-04	3.1E-03	---	---	---	---	---
			Benzo(b)fluoranthene	9.1E-05	---	3.5E-05	1.3E-04	---	---	---	---	---
			Benzo(k)fluoranthene	6.0E-06	---	2.3E-06	8.3E-06	---	---	---	---	---
			Chrysene	2.9E-06	---	1.1E-06	4.0E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	5.5E-04	---	2.1E-04	7.6E-04	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.9E-04	---	7.1E-05	2.6E-04	---	---	---	---	---
			Metals									
			Arsenic	2.3E-05	---	2.2E-06	2.6E-05	---	---	---	---	---
			Chromium Total	4.0E-05	---	---	4.0E-05	---	---	---	---	---
			Chemical Total	3.4E-03	---	1.3E-03	4.6E-03		---	---	---	---
		Exposure Point Total					4.6E-03					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	4.3E-09	---	4.3E-09	---	---	---	---	---
			Benzo(a)pyrene	---	3.7E-08	---	3.7E-08	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-09	---	1.5E-09	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Chrysene	---	4.8E-10	---	4.8E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.0E-08	---	1.0E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.1E-09	---	3.1E-09	---	---	---	---	---
			Metals									
			Arsenic	---	1.3E-08	---	1.3E-08	---	---	---	---	---
			Chromium Total	---	7.5E-07	---	7.5E-07	---	---	---	---	---
			Chemical Total	---	8.2E-07	---	8.2E-07		---	---	---	---
		Exposure Point Total					8.2E-07					---
	Aggregate Soil Total						4.6E-03					---
Soil Total							4.6E-03					---

Total Risk Across All Media: 4.6E-03

Total Hazard Across All Media: ---

TABLE G-9J
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	6.6E-06	---	6.3E-07	7.2E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	7.6E-06	---	2.9E-06	1.0E-05	---	---	---	---	---
			Benzo(a)pyrene	6.0E-05	---	2.3E-05	8.3E-05	---	---	---	---	---
			Benzo(b)fluoranthene	7.0E-06	---	2.7E-06	9.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.4E-05	---	5.3E-06	1.9E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.9E-06	---	1.9E-06	6.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	7.2E-06	---	3.2E-06	1.0E-05	---	---	---	---	---
			Aroclor-1260	8.4E-07	---	3.7E-07	1.2E-06	---	---	---	---	---
			Metals									
			Arsenic	1.1E-05	---	1.0E-06	1.2E-05	---	---	---	---	---
			Chromium Total	1.3E-02	---	---	1.3E-02	---	---	---	---	---
			Chemical Total	1.3E-02	---	4.1E-05	1.3E-02		---	---	---	---
		Exposure Point Total					1.3E-02					---
		Air at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	3.7E-07	---	3.7E-07	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Aroclor-1260	---	4.5E-11	---	4.5E-11	---	---	---	---	---
			Metals									
			Arsenic	---	6.0E-09	---	6.0E-09	---	---	---	---	---
			Chromium Total	---	2.4E-04	---	2.4E-04	---	---	---	---	---
			Chemical Total	---	2.4E-04	---	2.4E-04		---	---	---	---
		Exposure Point Total					2.4E-04					---
	Aggregate Soil Total						1.3E-02					---
Soil Total							1.3E-02					---

Total Risk Across All Media: 1.3E-02

Total Hazard Across All Media: ---

TABLE G-10A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	1.4E-05	---	1.2E-05	2.5E-05	---	---	---	---	---
			Benzo(a)pyrene	1.2E-04	---	9.9E-05	2.1E-04	---	---	---	---	---
			Benzo(b)fluoranthene	4.8E-06	---	4.1E-06	8.8E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-05	---	2.5E-05	5.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	9.7E-06	---	8.3E-06	1.8E-05	---	---	---	---	---
			Metals									
			Arsenic	5.2E-06	---	1.0E-06	6.2E-06	---	---	---	---	---
			Chromium Total	2.1E-06	---	---	2.1E-06	---	---	---	---	---
			Chemical Total	1.8E-04	---	1.5E-04	3.3E-04		---	---	---	---
		Exposure Point Total					3.3E-04					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	3.4E-10	---	3.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.9E-09	---	2.9E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	7.9E-10	---	7.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Metals									
			Arsenic	---	2.5E-09	---	2.5E-09	---	---	---	---	---
			Chromium Total	---	5.9E-08	---	5.9E-08	---	---	---	---	---
			Chemical Total	---	6.6E-08	---	6.6E-08		---	---	---	---
		Exposure Point Total					6.6E-08					---
	Aggregate Soil Total						3.3E-04					---
Soil Total							3.3E-04					---

Total Risk Across All Media: 3.3E-04

Total Hazard Across All Media: ---

TABLE G-11A

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area G	Metals									
			Antimony	---	---	---	---	Blood	1.3	---	---	1.3
			Chemical Total	---	---	---	---		1.3	---	---	1.3
		Exposure Point Total					---					1.3
	Surface Soil Total						---					1.3
Soil Total							---					1.3

Total Risk Across All Media: ---

Total Hazard Across All Media: 1.3

TABLE G-11B
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	7.4	---	2.9	10
			Metals									
			Chromium Total	---	---	---	---	None observed	59	---	---	59
			Nickel	---	---	---	---	Body weight	1.2	---	---	1.2
			Chemical Total	---	---	---	---		68	---	2.9	71
		Exposure Point Total					---					71
		Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Nickel	---	---	---	---	Respiratory tract	---	0.015	---	0.015
			Chemical Total	---	---	---	---		---	0.11	---	0.11
		Exposure Point Total					---					0.11
	Surface Soil Total						---					71
Soil Total							---					71

Total Risk Across All Media: ---

Total Hazard Across All Media: 71

Total Eye HI Across All Media	10
Total Immune System HI Across All Media	10
Total Body Weight HI Across All Media	1.2
Total Lung/Respiratory Tract HI Across All Media	0.11

TABLE G-12A

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Metals									
			Antimony	---	---	---	---	Blood	1.3	---	---	1.3
			Chemical Total	---	---	---	---		1.3	---	---	1.3
		Exposure Point Total					---					1.3
	Aggregate Soil Total						---					1.3
Soil Total							---					1.3

Total Risk Across All Media: ---

Total Hazard Across All Media: 1.3

TABLE G-12B
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	1.5	---	0.58	2.0
			Metals									
			Chromium Total	---	---	---	---	None observed	16	---	---	16
			Chemical Total	---	---	---	---		18	---	0.58	18
		Exposure Point Total					---					18
		Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Chemical Total	---	---	---	---		---	0.026	---	0.026
		Exposure Point Total					---					0.026
	Aggregate Soil Total						---					18
Soil Total							---					18

Total Risk Across All Media: ---

Total Hazard Across All Media: 18

Total Eye HI Across All Media: 2.0
Total Immune System HI Across All Media: 2.0
Total Lung/Respiratory Tract HI Across All Media: 0.026

TABLE G-13A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Metals									
			Chromium Total	---	---	---	---	None observed	6.4	---	---	6.4
			Chemical Total	---	---	---	---		6.4	---	---	6.4
		Exposure Point Total					---					6.4
		Air at Risk Area J	Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Chemical Total	---	---	---	---		---	0.096	---	0.096
		Exposure Point Total					---					0.096
	Surface Soil Total						---					6.5
Soil Total							---					6.5

Total Risk Across All Media: ---

Total Hazard Across All Media: 6.5

Total Lung/Respiratory Tract HI Across All Media: 0.096

TABLE G-14A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	---	---	---	---	None observed	1.7	---	---	1.7
			Chemical Total	---	---	---	---		1.7	---	---	1.7
		Exposure Point Total					---					1.7
		Air at Risk Area J	Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Chemical Total	---	---	---	---		---	0.026	---	0.026
		Exposure Point Total					---					0.026
	Aggregate Soil Total						---					1.8
Soil Total							---					1.8

Total Risk Across All Media: ---

Total Hazard Across All Media: 1.8

Total Lung/Respiratory Tract HI Across All Media: 0.026

TABLE G-15A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PAHs									
			Benzo(a)anthracene	5.7E-07	---	4.9E-07	1.1E-06	---	---	---	---	---
			Benzo(a)pyrene	4.0E-06	---	3.4E-06	7.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-06	---	1.1E-06	2.4E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	8.0E-06	---	7.4E-06	1.5E-05	---	---	---	---	---
			Metals									
			Arsenic	2.5E-06	---	5.0E-07	3.0E-06	---	---	---	---	---
			Chromium Total	2.4E-03	---	---	2.4E-03	None observed	4.5	---	---	4.5
			Chemical Total	2.5E-03	---	1.3E-05	2.5E-03		4.5	---	---	4.5
		Exposure Point Total					2.5E-03					4.5
		Air at Risk Area J	PAHs									
			Benzo(a)anthracene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.5E-11	---	3.5E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Metals									
			Arsenic	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Chromium Total	---	6.9E-05	---	6.9E-05	Respiratory tract	---	0.023	---	0.023
			Chemical Total	---	6.9E-05	---	6.9E-05		---	0.023	---	0.023
		Exposure Point Total					6.9E-05					0.023
	Surface Soil Total						2.5E-03					4.6
Soil Total							2.5E-03					4.6

Total Risk Across All Media: 2.5E-03

Total Hazard Across All Media: 4.6

TABLE G-16A
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.5E-06	---	2.9E-07	1.8E-06	---	---	---	---	---
			PAHs									
			Benzo(a)pyrene	3.1E-06	---	2.7E-06	5.8E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	7.2E-07	---	6.2E-07	1.3E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.6E-06	---	1.5E-06	3.1E-06	---	---	---	---	---
			Metals									
			Arsenic	2.5E-06	---	4.9E-07	2.9E-06	---	---	---	---	---
			Chromium Total	6.7E-04	---	---	6.7E-04	None observed	1.2	---	---	1.2
			Chemical Total	6.8E-04	---	5.6E-06	6.8E-04		1.2	---	---	1.2
		Exposure Point Total					6.8E-04					1.2
		Air at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	7.3E-11	---	7.3E-11	---	---	---	---	---
			PAHs									
			Benzo(a)pyrene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Chromium Total	---	1.9E-05	---	1.9E-05	Respiratory tract	---	0.0063	---	0.0063
			Chemical Total	---	1.9E-05	---	1.9E-05		---	0.0063	---	0.0063
		Exposure Point Total					1.9E-05					0.0063
	Aggregate Soil Total						7.0E-04					1.3
Soil Total							7.0E-04					1.3

Total Risk Across All Media: 7.0E-04

Total Hazard Across All Media: 1.3

Total Lung/Respiratory Tract HI Across All Media: 0.0063

APPENDIX E

Table J-1
Chemical-Specific ARARs and TBCs for Soil Alternatives SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Federal Criteria, Advisories, and Guidance						
EPA Guidance on Remedial Actions for Superfund Sites with PCB Contamination (EPA/540/G-90/007)	To Be Considered	This document describes the recommended approach for developing remediation goals and selecting remedies at Superfund sites with PCB contamination.	This policy would be used when developing clean up goals within Area J, an area with PCB contamination in soil. Under SO1, no action will be taken to address Area J. Therefore, SO1 will not be consistent with this TBC.	Area J is not included in Alternative SO2. Therefore, this TBC would not be applicable.	Area J is not included in Alternative SO3. Therefore, this TBC would not be applicable.	Area J is not included in Alternative SO5. Therefore, this ARAR would not be applicable.
EPA Risk Reference Doses	To Be Considered	A reference dose is an estimated daily oral exposure to a contaminant by humans that is unlikely to have an appreciable risk of non-carcinogenic effects. The cancer potency factor is used as qualitative weight-of-evidence judgment as to the likelihood of a chemical being a carcinogen.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were PRGs.
Cancer Slope Factors	To Be Considered	Slope factors are developed by EPA from health effects assessments and provide the most current information on cancer risks caused by exposure to contaminants.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.
Guidelines for Carcinogenic Risk Assessment, EPA/630/P-03/001F	To Be Considered	These guidelines provide guidance on conducting risk assessments involving carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-03/003F	To Be Considered	These guidelines provide guidance on conducting risk assessments involving carcinogens in children.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.
EPA Policy Statement on Role of Background in the CERCLA Cleanup Program (OSWER 9285.6-07P)	To Be Considered	This policy clarifies EPA's preferred approach in considering background natural and anthropogenic concentrations in the remedy selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.

Table J-1
Chemical-Specific ARARs and TBCs for Soil Alternatives SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
State Criteria, Advisories, and Guidance						
Connecticut Remediation Standard Regulations (RSR) (22a-133k-1 to22a-133k-3)	Applicable, if a response action is warranted under CERCLA and the NCP	These regulations establish allowable numeric direct exposure criteria (DEC) for soils and pollutant mobility criteria (PMC) under residential and commercial/ industrial land use conditions. The RSR also provide alternative means to assess and evaluate compliance with regulatory requirements.	The RSR DECs were considered in the development of PRGs for Site soil. SO1 will not attain this ARAR because no actions will be taken to mitigate or remediate soil contaminants.	The RSR DECs were considered in the development of PRGs for Site soil. SO2 will attain this ARAR because use restrictions will prevent potential exposure to soil contaminants in these Areas if the ICs are periodically assessed and enforced.	The RSR DECs were considered in the development of PRGs for Site soil. SO3 will attain this ARAR because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 4 feet and disposed of off-site. Use restrictions will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants.	The RSR DECs were considered in the development of PRGs for Site soil. SO4 will attain this ARAR because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be encapsulated in-situ. Use restrictions will prevent excavation and use of deeper soil and prevent exposure to soil contaminants.

Table J-2
Location-Specific ARARs and TBCs for Soil Alternatives SO1 – SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Federal Criteria, Advisories, and Guidance						
Protection of Wetlands (Executive Order 11990) Statement of Procedures on Floodplain Management and Wetland Protection (June 5, 1979)	To Be Considered	Federal agencies are required to avoid adversely impacting wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	Not applicable. No action will be implemented under SO1.	Not applicable. There are no wetlands in Areas D3, E2, E3, G, and H.	Not applicable. There are no wetlands in Areas D1, E1, and F.	Not applicable. There are no wetlands in Areas D1, E1, and F.
Clean Water Act (33 U.S.C. 1251 *et seq.*); Section 404, Compensatory Mitigation for Losses of Aquatic Resources (40 CFR 230)	Applicable, if wetland impacted	Outlines requirements for the discharge of dredged or fill materials into surface waters including wetlands. Such discharges are not allowed if there are practicable alternatives with less adverse impacts. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources.	Not applicable. No action will be implemented under SO1.	Not applicable. There are no wetlands in Areas D3, E2, E3, G, and H.	Not applicable. There are no wetlands in Areas D1, E1, and F.	Not applicable. There are no wetlands in Areas D1, E1, and F.
National Historic Preservation Act (NHPA) (16 U.S.C. 470)	Applicable, if such resources are identified	Pursuant to Sections 106 and 110(f) of the NHPA, as amended, CERCLA response actions are required to take into account the effects of the response activities on any historic property included or eligible for inclusion on the National Register of Historic Places.	Not applicable. No action will be implemented.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO2 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO3 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO4 will comply with this ARAR.
State Criteria, Advisories, and Guidance						
Connecticut Environmental Protection Act (Public Act 82-367)	Applicable, if such resources are identified	This regulation directs that the provisions of CGS Sections 22a-15 through 22a-19, inclusive of the Connecticut Environmental Protection Act, shall also be applicable to historic structures and landmarks, and are defined as those properties that are listed or under consideration for listing as individual units on the National Register of Historic Places or which are part of a district listed or under consideration for listing determined by the State Historic Preservation Board.	Not applicable. No action will be implemented.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO2 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO3 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO4 will comply with this ARAR.

Table J-3
Action-Specific ARARs and TBCs for Soil Alternatives for SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Federal Criteria, Advisories, and Guidance						
TSCA - PCB Storage, Capping and Disposal (40 CFR 761.61)	Applicable	These regulations establish standards for the storage, decontamination, capping, and response to PCB remediation waste.	Not applicable. Because no action will be performed under SO1, handling of PCB remediation waste will not be required.	PCB contaminated soil in Area J is not addressed by Alternative SO2. Therefore, this ARAR would not be applicable.	PCB contaminated soil in Area J is not addressed by Alternative SO3. Therefore, this ARAR would not be applicable.	PCB contaminated soil in Area J is not addressed by Alternative SO4. Therefore, this ARAR would not be applicable.
Clean Water Act NPDES Regulations (Stormwater Discharges) (40 CFR 122.26(c)(ii)(C))	Applicable	Discharges of stormwater associated with construction activities affecting one acre or more are required to implement measures, including best management practices, to control pollutants in stormwater discharges during and after construction activities.	Not applicable. No action will be implemented under SO1.	Not applicable. SO2 involves use restrictions and no active remediation.	The targeted excavations of SO3 will be designed and implemented to comply with the substantive provisions of the construction general permit for stormwater requirements, such as best management practices.	The in-situ physical treatment of SO4 will be designed and implemented to comply with the substantive provisions of the construction general permit for stormwater requirements, such as best management practices.
Invasive Species (Executive Order 13112)	To Be Considered	Federal agencies are directed to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause when requiring actions that impact the environment.	Not applicable. No action will be implemented under SO1.	Not applicable. No active remediation activities that will affect the environment are anticipated for Areas D3, E2, E3, G, and H under SO2.	The targeted remediation under SO3 is unlikely to result in the introduction of invasive species in Areas D1, E1, F. However, appropriate measures will be taken to prevent and minimize unintentional impacts.	The targeted in-situ remediation under SO3 is unlikely to result in the introduction of invasive species in Areas D1, E1, F. However, appropriate measures will be taken to prevent and minimize unintentional impacts.
Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act (TSCA), US EPA Nov. 2005	To Be Considered	This EPA guidance provides information on characterizing, cleaning up, containing, and disposing of PCB waste (for example, soil and other debris generated as a result of any PCB spill cleanup). The guidance provides directions for compliance with 40 CFR Part 761.	Not applicable. No action will be implemented under SO1.	Not applicable. PCBs are not COCs for Areas D3, E2, E3, G, and H.	Not applicable. PCBs are not COCs for Areas D1, E1, and F.	Not applicable. PCBs are not COCs for Areas D1, E1, and F.

Table J-3
Action-Specific ARARs and TBCs for Soil Alternatives for SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
State Criteria, Advisories, and Guidance						
Reporting of Certain Significant Environmental Hazards by Owners of Contaminated Real Property (CGS §22a-6u)	Applicable	After Oct. 1, 1998, when certain conditions described in the regulation are encountered by a technical environmental professional collecting soil, water, vapor or air samples for the purposes of investigating or remediating sources of pollution to the waters of the State, certain notifications to the property owner, the client, the Commissioner, and in some cases, the local fire department are required. The property owner may have to post the notice onsite if certain activities are undertaken onsite. Information is available from http://www.ct.gov/deep/cwp/view.asp?a=2715&q=324976&depNav_GID=1626..	Not applicable. No action will be implemented under SO1.	Not applicable. SO2 involves use restrictions and no construction. Therefore, this ARAR is not applicable.	During SO3 implementation, if polluted groundwater, soil, or soil vapor is encountered that meet certain conditions, the appropriate parties will be notified. SO3 will comply with this ARAR.	During SO4 implementation, if polluted groundwater, soil, or soil vapor is encountered that meet certain conditions, the appropriate parties will be notified. SO3 will comply with this ARAR.
Report of Discharge, Spill, Loss, Seepage, or Filtration (CGS §22a-450)	Applicable	Requires reporting of spills to DEEP. Information is available at http://www.ct.gov/deep/cwp/view.asp?A=2692&Q=322584.	Not applicable. No action will be implemented under SO1.	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO2 implementation, SO2 will comply with the reporting and notification requirements of this ARAR.	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO3 implementation, SO3 will comply with the reporting and notification requirements of this ARAR.	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO4 implementation, SO4 will comply with the reporting and notification requirements of this ARAR.

Table J-3
Action-Specific ARARs and TBCs for Soil Alternatives for SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Hazardous Waste Management: Generator & Handler Requirements – General Standards, Listing, and Identification (RCSA 22a-449(c)100-101)	Applicable, if hazardous waste is generated	These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference. Chromium is not exempted from listing as a hazardous waste..	Not applicable. No action will be implemented under SO1.	Not applicable. Under SO2, periodic assessments and evaluations will not result in generation of investigation-derived waste.	Prior to off-site disposal, excavated contaminated soil will undergo testing for RCRA characteristics to determine the appropriate waste classification and disposal options. SO3 will comply with this ARAR	SO4 may result in the generation of unused reagents that require disposal. These materials will be tested for RCRA characteristics to determine the appropriate waste classification and disposal options. SO4 will comply with this ARAR.
Hazardous Waste Management: Generator Standards (RCSA 22a-449(c)102)	Applicable, if hazardous waste is generated	This section establishes standards for various classes of generators. The standards of 40 CFR 262 are incorporated by reference. Storage requirements given at 40 CFR 265.15 are also included. These regulations govern manifesting, packaging, labeling, marking, placarding, record keeping and reporting requirements.	Not applicable. No action will be implemented under SO1.	Not applicable. No hazardous wastes expected to be generated.	SO3 will comply with the substantive provisions of these requirements during the temporary storage of excavated soils which constitute hazardous wastes, prior to off-site disposal.	SO4 may result in the generation of unused reagents that require disposal. SO4 will comply with the substantive provisions of these requirements during the temporary storage of excess materials which constitute hazardous wastes, prior to off-site disposal.
Hazardous Waste Management: Management Standards for Specific Waste Types (RCSA §22a-449(c)106)	Applicable, if the specific hazardous wastes are identified	This section establishes standards for specific types of wastes, including waste oil and spent lead acid batteries being reclaimed. The standards of 40 CFR §266 are incorporated by reference. .	Not applicable. No action will be implemented under SO1.	Not applicable. No hazardous wastes expected to be generated.	If the specific wastes identified in this ARAR are found, SO3 will comply with this ARAR's requirements in the handling and management of the wastes.	If the specific wastes identified in this ARAR are found. SO4 will comply with this ARAR's requirements in the handling and management of the wastes.
Solid Waste Management (RCSA §§22a-209-1 to 16)	Relevant and Appropriate, if solid waste is disposed.	These standards establish operating and closure standards for solid waste disposal areas including closure, post-closure, and groundwater monitoring requirements. Note that the definition of Solid Waste is given in CGS §22a-207. See http://www.cga.ct.gov/2011/pub/chap446d.htm. Solid Waste Regulations are available at http://www.ct.gov/deep/lib/deep/regulations/22a/22a-209-1through16.pdf	Not applicable. No action will be implemented under SO1.	Not applicable. No active remediation will be implemented under SO2.	Not applicable. On-site solid waste disposal will not occur under SO3.	Not applicable. On-site solid waste disposal will not occur under SO4.

Table J-3
Action-Specific ARARs and TBCs for Soil Alternatives for SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)(DEP-SW-GP-001) CGS § 22a-208a(1))	Applicable	The substantive requirements of this permit must be meet. Fact sheet is available at http://www.ct.gov/deep/cwp/view.asp?a=2709&q=329620&depNav_GID=1646 http://www.ct.gov/deep/lib/deep/Permits_and_Licenses/Factsheets_Waste/soilstaging_fs.pdf. Registration is required dependent on volume to be managed (>1000 CY, > 10,000 CY, or exceeds 45 day duration). General conditions include control of stockpiles, erosion and dust control, characterization, etc.	Not applicable. No action will be implemented under SO1.	Not applicable. No active remediation will be performed under SO2.	SO3 will comply with the substantive requirements of this ARAR during active remediation that result in excavation, handling, and storage of contaminated soil. As needed, stockpile controls, erosion and dust controls, and access will be limited.	SO4 will comply with the substantive requirements of this ARAR during active remediation that result in excavation, handling, and storage of contaminated soil. As needed, stockpile controls, erosion and dust controls, and access will be limited.
General Permits (for various activities)	Applicable	Substantive requirements of the general permits must be attained, The General Permit Program Fact Sheet (DEEP-FS-004) is available from the following web page:http://www.ct.gov/deep/cwp/view.asp?a=2709&q=324154&depNav_GID=1643#SoilStaging. The following General Permit relates to remedial actions at the Site: • *Stormwater and Dewatering Wastewaters from Construction Activities* (DEEP-PERD-GP-015)	Not applicable. No action will be implemented under SO1.	Not applicable. No active remediation will be performed under SO2.	As appropriate, SO3 will comply with the substantive requirements of this ARAR during active remediation.	As appropriate, SO5 will comply with the substantive requirements of this ARAR during active remediation.
Temporary Authorization (TA)/Emergency Authorization (EA) (CGS 22a-6K)	Applicable	This statute a temporary or emergency authorization, under certain condition, for many activities that require a permit. The substantive requirements of a TA must be met. Temporary Authorization (TA)/ Emergency Authorization (EA) for In-situ Remediation	Not applicable. No action will be implemented under SO1.	Not applicable. No active remediation will be performed under SO2.	If during remedial action implementation an emergency discharge to groundwater, surface water, or a sanitary sewer is required, SO3 will comply with the substantive requirements of this ARAR.	If during remedial action implementation an emergency discharge to groundwater, surface water, or a sanitary sewer is required, SO4 will comply with the substantive requirements of this ARAR.

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Disposition of PCBs CGS §22a-463 through 469. Disposition of PCB regulated by 22a-467	Applicable	This statute requires that PCBs be disposed of in a manner consistent with TSCA requirements.	Not Applicable. No action will be implemented under SO1.	Not applicable. PCBs are not COCs for Areas D3, E2, E3, G, and H.	Not applicable. PCBs are not COCs for Areas D1, E1, and F.	Not applicable. PCBs are not COCs for Areas D1, E1, and F.
Control of Noise (RSCA Section 22a-69-1 to 69-7.4)	Applicable	These Regulations establish allowable noise levels for different classes of noise zones and would apply to construction activities at a site.	Not applicable. No action will be implemented under SO1.	Not applicable. SO2 involves no construction activities. Therefore, this ARAR is not applicable.	During SO3 implementation, noise levels will be monitored and SO3 will comply with the allowable noise levels defined in this ARAR.	During SO4 implementation, noise levels will be monitored and SO4 will comply with the allowable noise levels defined in this ARAR.
Water Pollution Control - Regulations (RCSA §§22a-430-1 to 8, & CGS §§22a-430)	Applicable	These regulations establish permitting requirements and criteria for water discharge to groundwater. http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-1and2.pdf, http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-3and4.pdf, http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-6and7.pdf, http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-8.pdf.	Not applicable. No action will be implemented under SO1.	Not applicable. Under SO2, no discharge of water is anticipated.	Discharges of water to ground or surface water is not expected as part of SO3, Should discharge of water to groundwater be required during implementation, the substantive requirements of this ARAR will be met.	The injection of stabilization materials into soil, which has the potential to affect groundwater is treated as a discharge to groundwater. The substantive requirements of this ARAR will be met.
Air Pollution Control - Control of Particulate Emissions (Sec. 22a-174-18)	Applicable	This subsection sets specific standards for particulate emissions. Specific standards include Fugitive Particulate Matter (18c). See http://www.ct.gov/deep/lib/deep/air/regulations/mainregs/sec18.pdf. Reasonable precautions must be taken to prevent particulate matter from becoming airborne during demolition and construction activities and material handling operations.	Not applicable. No action will be implemented under SO1.	Not applicable. Periodic assessments and site evaluations will not result in fugitive dust generation under SO2.	Air monitoring and best engineering practices will be employed to minimize fugitive dust emissions during targeted excavations. SO3 will comply with this ARAR.	Air monitoring and best engineering practices will be employed to minimize fugitive dust emissions during in-situ physical treatment (solidification/ stabilization) using heavy equipment and large-diameter augers. SO4 will comply with this ARAR.

Table J-3
Action-Specific ARARs and TBCs for Soil Alternatives for SO1 to SO4
Scovill Industrial Landfill Site
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Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Air Pollution Control-Control of Odors (RCSA §22a-174-23)	Applicable	This section prohibits emission of any substance that constitutes a nuisance because of objectionable odor. See http://www.ct.gov/deep/lib/deep/air/regulations/mainregs/sec23.pdf	Not applicable. No action will be implemented under SO1.	Assessment activities are unlikely to generate odors under SO2. However, should odors be generated, appropriate measures will be taken to mitigate the conditions.	If odors are generated during the implementation of SO3, appropriate measures (covering, source removal, dilution) will be taken to mitigate the conditions.	If odors are generated during the implementation of SO4, appropriate measures (covering, source removal, dilution) will be taken to mitigate the conditions.
Well Drilling (CGS §§ 25-126 through 137)	Applicable, if wells are drilled or abandoned	Peizometers, containment recovery wells and monitoring wells are included in the definition of (and regulated as) as "non-water supply wells". Well drillers must be registered, and the driller must file a completion report for non-water supply wells. Pursuant to CGS §25-131(c). See http://www.cga.ct.gov/2011/pub/chap482.htm#Sec25-126.htm and http://www.ct.gov/dcp/lib/dcp/pdf/well_drilling_regulations.pdf	Not applicable. No action will be implemented under SO1.	If monitoring wells are installed or abandoned, SO2 will comply with the substantive requirements of this ARAR.	If monitoring wells are installed or abandoned, SO3 will comply with the substantive requirements of this ARAR.	If monitoring wells are installed or abandoned, SO4 will comply with the substantive requirements of this ARAR.

Table J-3
Action-Specific ARARs and TBCs for Soil Alternatives for SO1 to SO4
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
Regulations for the Well Drilling Industry (RCSA §25-128-33 through 64)	Applicable, if wells are drilled or abandoned	Non-water supply wells must be constructed so that they are not a source or cause of groundwater contamination. Procedures for abandonment of wells apply to both water wells and other types of wells. http://www.ct.gov/dcp/lib/dcp/pdf/well_drilling_regulations.pdf	Not applicable. No action will be implemented under SO1.	If monitoring wells are installed or abandoned, SO2 will comply with the requirements of this ARAR.	If monitoring wells are installed or abandoned, SO3 will comply with the requirements of this ARAR.	If monitoring wells are installed or abandoned, SO4 will comply with the requirements of this ARAR.
CT Guidelines for Soil Erosion and Sediment Control (May 2002) (adopted pursuant to CGS 22a-328) Revised document issued May 2002, also identified as DEP Bulletin 34	To Be Considered	The Guidelines provide technical and administrative guidance for the development, adoption, and implementation of erosion and sediment control programs. The Guidelines are available electronically in 4 parts (from http://www.ct.gov/deep/cwp/view.asp?a=2720&q=325660&depNav_GID=1654) as listed below: http://www.ct.gov/deep/lib/deep/water_inland/sesc/sesc_intro_toc.pdf http://www.ct.gov/deep/lib/deep/water_inland/sesc/secs_chapter_1_5.pdf http://www.ct.gov/deep/lib/deep/water_inland/sesc/secs_appendix_a_k.pdf http://www.ct.gov/deep/lib/deep/water_inland/sesc/secs_appendix_l_m.pdf.	Not applicable.	Not applicable.	SO3 will use best management practices to be consistent with these guidelines during the targeted excavations and storage and handling of excavated contaminated soil.	SO4 will use best management practices to be consistent with these guidelines when using heavy equipment to implement in-situ remediation.

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO1 No Action	ALTERNATIVE SO2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas D3, E2, E3, G, and H]	ALTERNATIVE SO3 Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]	ALTERNATIVE SO4 Targeted In-Situ Physical Treatment (Solidification/Stabilization), Institutional Controls, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Areas D1, E1, F]
CT DEEP Final Site Characterization Guidance Document, September 2007, revised December 2010	To Be Considered	This provides guidance to persons preparing environmental site assessments of potentially contaminated properties. The Final Site Characterization Guidance Document is available at http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/Site_Characterization/Final_SCGD.pdf	Not applicable.	Not applicable. No characterization will be performed under SO2.	For designing and implementing PDIs. SO3 will consider the guidance.	For designing and implementing PDIs. SO4 will consider the guidance.
Guidance for Groundwater Monitoring for Demonstrating Compliance with the Connecticut Remediation Standard Regulations , 3/17/2006	To Be Considered	http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/gwm_guidance_for_demonstrating_compliance_with_ct_rsr.pdf	Not applicable.	Not applicable. No sampling will be performed.	As appropriate, relevant groundwater monitoring guidance will be consulted.	As appropriate, groundwater monitoring guidance will be consulted.
Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory Determination of Volatile Organic Compounds, Final 2/28/2006	To Be Considered	The Guidance document is available at: http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/soil_sampling_voc_final_wcomments.pdf.	Not applicable.	If sampling is performed under State oversight during O&M, this guidance will be followed.	If sampling is performed under State oversight during O&M, this guidance will be followed.	If sampling is performed under State oversight during O&M, this guidance will be followed.

Table J-4
Chemical-Specific ARARs and TBCs for Soil Alternatives SO5 to SO8
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
Federal Criteria, Advisories, and Guidance						
EPA Guidance on Remedial Actions for Superfund Sites with PCB Contamination (EPA/540/G-90/007)	To Be Considered	This document describes the recommended approach for developing remediation goals and selecting remedies at Superfund sites with PCB contamination.	This policy would be used when developing clean up goals within Area J, an area with PCB contamination in soil. This TBC was considered when establishing soil Preliminary Remediation Goals (PRGs) for PCBs. SO5 will be consistent with this TBC because the excavation to be conducted in Area J will decrease PCB contaminant levels to the PRG, which will be protective of human health.	This policy would be used when developing clean up goals within Area J, an area with PCB contamination in soil. This TBC was considered when establishing soil Preliminary Remediation Goals (PRGs) for PCBs. SO6 will be consistent with this TBC because the excavation to be conducted in Area J will decrease PCB contaminant levels to the PRG, which will be protective of human health.	This policy would be used when developing clean up goals within Area J, an area with PCB contamination in soil. This TBC was considered when establishing soil Preliminary Remediation Goals (PRGs) for PCBs. SO7 will be consistent with this TBC because the excavation to be conducted in Area J will decrease PCB contaminant levels to the PRG, which will be protective of human health.	Area J is not included in Alternative SO8. Therefore, this ARAR would not be applicable.
EPA Risk Reference Doses	To Be Considered	A reference dose is an estimated daily oral exposure to a contaminant by humans that is unlikely to have an appreciable risk of non-carcinogenic effects. The cancer potency factor is used as qualitative weight-of-evidence judgment as to the likelihood of a chemical being a carcinogen.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Reference doses and cancer potency factors were used to evaluate non-carcinogenic and carcinogenic health risks associated with site-related contaminants, and were PRGs.
Cancer Slope Factors	To Be Considered	Slope factors are developed by EPA from health effects assessments and provide the most current information on cancer risks caused by exposure to contaminants.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.	Cancer slope factors were used to evaluate carcinogenic health risks associated with site-related contaminants, and were used to develop PRGs.
Guidelines for Carcinogenic Risk Assessment, EPA/630/P-03/001F	To Be Considered	These guidelines provide guidance on conducting risk assessments involving carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.	These guidelines for assessing cancer risks can also be used to develop PRGs for carcinogens.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-03/003F	To Be Considered	These guidelines provide guidance on conducting risk assessments involving carcinogens in children.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.	These guidelines for evaluating cancer risks in children were also used to develop PRGs for carcinogens.
EPA Policy Statement on Role of Background in the CERCLA Cleanup Program (OSWER 9285.6-07P)	To Be Considered	This policy clarifies EPA's preferred approach in considering background natural and anthropogenic concentrations in the remedy selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.	Background soil chemical concentrations were considered in the PRGs development and selection process.

Table J-4
Chemical-Specific ARARs and TBCs for Soil Alternatives SO5 to SO8
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
State Criteria, Advisories, and Guidance						
Connecticut Remediation Standard Regulations (RSR) (22a-133k-1 to22a-133k-3)	Applicable, if a response action is warranted under CERLCA and the NCP.	These regulations establish allowable numeric direct exposure criteria (DEC) for soils under residential and commercial/ industrial land use conditions. The RSR also provide alternative means to assess and evaluate compliance with regulatory requirements.	The RSR DECs were considered in the development of PRGs for Site soil. SO5 will attain this ARAR because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 4 feet and disposed of off-site. Use restrictions will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants.	The RSR DECs were considered in the development of PRGs for Site soil. SO6 will attain this ARAR because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be covered for with a soil cap. Use restrictions will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants.	The RSR DECs were considered in the development of PRGs for Site soil. SO7 will attain this ARAR because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 4 feet and disposed of off site. Use restrictions will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants.	The RSR DECs were considered in the development of PRGs for Site soil. SO8 will attain this ARAR because soil contaminated above applicable DECs, PMCs, or background levels established as PRGs will be excavated to 2 or 4 feet and disposed of off site. Use restrictions will prevent excavation and use of deeper soil and prevent potential exposure to soil contaminants.

Table J-5
Location-Specific ARARs and TBCs for Soil Alternatives SO5 to SO8
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
Federal Criteria, Advisories, and Guidance						
Protection of Wetlands (Executive Order 11990) Statement of Procedures on Floodplain Management and Wetland Protection (June 5, 1979)	To Be Considered	Federal agencies are required to avoid adversely impacting wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	Wetlands have been identified in Area J. During the implementation of SO5, erosion and sediment controls and other actions will be taken to minimize the potential impacts to the wetlands. Alternative SO5 will comply with this ARAR.	Wetlands have been identified in Area J. During the implementation of SO6, erosion and sediment controls and other actions will be taken to minimize the potential impacts to the wetlands. Alternative SO6 will comply with this ARAR.	Wetlands have been identified in Area J. During the implementation of SO7, erosion and sediment controls and other actions will be taken to minimize the potential impacts to the wetlands. Alternative SO7 will comply with this ARAR.	There are no wetlands in Area I. This ARAR is not applicable.
Clean Water Act (33 U.S.C. 1251 *et seq.*); Section 404, Compensatory Mitigation for Losses of Aquatic Resources (40 CFR 230)	Applicable, if wetland impacted	Outlines requirements for the discharge of dredged or fill materials into surface waters including wetlands. Such discharges are not allowed if there are practicable alternatives with less adverse impacts. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources.	It is not expected that discharges of dredged or fill material will occur in wetlands at Area J; however, if during PDI it is determined that discharges of dredged or fill material into wetlands are unavoidable, mitigation will be performed.	It is not expected that discharges of dredged or fill material will occur in wetlands at Area J as part of SO6; however, if during PDI it is determined that discharges of dredged or fill material into wetlands are unavoidable, mitigation will be performed. Alternative SO6 is the least environmentally damaging practicable alternative that achieves the remedial action objectives. Alternative SO6 will comply with this ARAR.	It is not expected that discharges of dredged or fill material will occur in wetlands at Area J as part of SO7; however, iff during PDI it is determined that discharges of dredged or fill material into wetlands are unavoidable, mitigation will be performed.	There are no wetlands in Area I. This ARAR is not applicable.
National Historic Preservation Act (NHPA) (16 U.S.C. 470)	Applicable, if such resources are identified	Pursuant to Sections 106 and 110(f) of the NHPA, as amended, CERCLA response actions are required to take into account the effects of the response activities on any historic property included or eligible for inclusion on the National Register of Historic Places.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO5 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO6 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO7 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO8 will comply with this ARAR.
State Criteria, Advisories, and Guidance						
Connecticut Environmental Protection Act (Public Act 82-367)	Applicable, if such resources are identified	This regulation directs that the provisions of CGS Sections 22a-15 through 22a-19, inclusive of the Connecticut Environmental Protection Act, shall also be applicable to historic structures and landmarks, and are defined as those properties that are listed or under consideration for listing as individual units on the National Register of Historic Places or which are part of a district listed or under consideration for listing determined by the State Historic Preservation Board.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO5 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO6 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO7 will comply with this ARAR.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. SO8 will comply with this ARAR.

Table J-6
Action-Specific ARARs and TBCs for Soil Alternatives for SO5 to SO8
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
Federal Criteria, Advisories, and Guidance						
TSCA - PCB Storage, Capping and Disposal (40 CFR 761.61)	Applicable	These regulations establish standards for the storage, decontamination, capping, and response to PCB remediation waste.	SO5 will comply with this ARAR during excavations, decontamination, and off-site disposal of PCB-contaminated soil (>25 mg/Kg) in Area J.	SO6 will comply with this ARAR during excavations, capping, decontamination, and off-site disposal of PCB-contaminated soil (>25 mg/Kg) in Area J.	SO7 will comply with this ARAR during targeted excavations, decontamination, and off-site disposal of PCB-contaminated soil (>25 mg/Kg) in Area J.	Not applicable. PCBs not a COC for Area I.
Clean Water Act NPDES Regulations (Stormwater Discharges) (40 CFR 122.26(c)(ii)(C))	Relevant and Appropriate	Discharges of stormwater associated with construction activities affecting one acre or more are required to implement measures, including best management practices, to control pollutants in stormwater discharges during and after construction activities.	The excavations of SO5 will be designed and implemented to comply with the substantive provisions of the construction general permit for stormwater requirements, such as best management practices.	The excavations of SO6 will be designed and implemented to comply with the substantive provisions of the construction general permit for stormwater requirements, such as best management practices.	The excavations of SO7 will be designed and implemented to comply with the substantive provisions of the construction general permit for stormwater requirements, such as best management practices.	The excavations of SO8 will be designed and implemented to comply with the substantive provisions of the construction general permit for stormwater requirements, such as best management practices.
Invasive Species (Executive Order 13112)	Relevant and Appropriate	Federal agencies are directed to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause when requiring actions that impact the environment.	Wetlands have been identified in Area J. During the implementation of SO5, actions will be taken to prevent and minimize the introduction of invasive species in the wetlands. Alternative SO5 will comply with this ARAR.	Wetlands have been identified in Area J. During the implementation of SO6, actions will be taken to prevent and minimize the introduction of invasive species in the wetlands. Alternative SO6 will comply with this ARAR.	Wetlands have been identified in Area J. During the implementation of SO7, actions will be taken to prevent and minimize the introduction of invasive species in the wetlands. Alternative SO7 will comply with this ARAR.	The excavations under SO8 are unlikely to result in the introduction of invasive species in Area I. However, appropriate measures will be taken to prevent and minimize unintentional impacts.
Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act (TSCA), US EPA Nov. 2005	To Be Considered	This EPA guidance provides information on characterizing, cleaning up, containing, and disposing of PCB waste (for example, soil and other debris generated as a result of any PCB spill cleanup). The guidance provides directions for compliance with 40 CFR Part 761.	Under SO5, PCB-contaminated soils that are excavated will be characterized and addressed consistent with this Guidance.	Under SO6, PCB-contaminated soils that are excavated will be characterized and addressed consistent with this Guidance.	Under SO7, PCB-contaminated soils that are excavated will be characterized and addressed consistent with this Guidance.	Not applicable. PCBs not a COC for Area I.

Table J-6
Action-Specific ARARs and TBCs for Soil Alternatives for SO5 to SO8
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
State Criteria, Advisories, and Guidance						
Disposition of PCBs CGS §22a-463 through 469. Disposition of PCB regulated by 22a-467	Applicable	This statute requires that PCBs be disposed of in a manner consistent with TSCA requirements.	Under SO5, PCB-contaminated soils that are excavated will be characterized and addressed in accordance with this ARAR.	Under SO6, PCB-contaminated soils that are excavated will be characterized and addressed in accordance with this ARAR.	Under SO7, PCB-contaminated soils that are excavated will be characterized and addressed in accordance with this ARAR.	Not applicable. PCBs not a COC for Area I.
Reporting of Certain Significant Environmental Hazards by Owners of Contaminated Real Property (CGS §22a-6u)	Applicable	After Oct. 1, 1998, when certain conditions described in the regulation are encountered by a technical environmental professional collecting soil, water, vapor or air samples for the purposes of investigating or remediating sources of pollution to the waters of the State, certain notifications to the property owner, the client, the Commissioner, and in some cases, the local fire department are required. The property owner may have to post the notice onsite if certain activities are undertaken onsite. Information is available from http://www.ct.gov/deep/cwp/view.asp?a=2715&q=324976&depNav_GID=1626.	During SO5 implementation, if polluted groundwater, soil, or soil vapor is encountered that meet certain conditions, the appropriate parties will be notified. SO5 will comply with this ARAR.	During SO6 implementation, if polluted groundwater, soil, or soil vapor is encountered that meet certain conditions, the appropriate parties will be notified. SO6 will comply with this ARAR.	During SO7 implementation, if polluted groundwater, soil, or soil vapor is encountered that meet certain conditions, the appropriate parties will be notified. SO7 will comply with this ARAR.	During SO87 implementation, if polluted groundwater, soil, or soil vapor is encountered that meet certain conditions, the appropriate parties will be notified. SO8 will comply with this ARAR.
Report of Discharge, Spill, Loss, Seepage, or Filtration (CGS §22a-450)	Applicable	Requires reporting of spills to DEEP. Information is available at http://www.ct.gov/deep/cwp/view.asp?A=2692&Q=322584	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO5 implementation, SO5will comply with the reporting and notification requirements of this ARAR.	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO6 implementation, SO6 will comply with the reporting and notification requirements of this ARAR.	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO7 implementation, SO7 will comply with the reporting and notification requirements of this ARAR.	If a spill, loss, seepage or filtration of petroleum, chemicals, or hazardous waste occurs during SO8 implementation, SO8 will comply with the reporting and notification requirements of this ARAR.
State Criteria, Advisories, and Guidance (cont.)						
Hazardous Waste Management: Generator & Handler Requirements – General Standards, Listing, and Identification (RCSA 22a-449(c)100-101)	Applicable, if hazardous waste is generated	These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference. Chromium is not exempted from listing as a hazardous waste.	Prior to off-site disposal, excavated contaminated soil will undergo testing for RCRA characteristics to determine the appropriate waste classification and disposal options. SO5 will comply with this ARAR	Prior to off-site disposal, excavated contaminated soil will undergo testing for RCRA characteristics to determine the appropriate waste classification and disposal options. SO6 will comply with this ARAR	Prior to off-site disposal, excavated contaminated soil will undergo testing for RCRA characteristics to determine the appropriate waste classification and disposal options. SO7 will comply with this ARAR	SO8 may result in the generation of unused reagents that require disposal. These materials will be tested for RCRA characteristics to determine the appropriate waste classification and disposal options. SO8 will comply with this ARAR
Hazardous Waste Management: Generator Standards (RCSA 22a-449(c)102)	Applicable, if hazardous waste is generated	This section establishes standards for various classes of generators. The standards of 40 CFR 262 are incorporated by reference. Storage requirements given at 40 CFR 265.15 are also included.	SO5 will comply with the substantive provisions of these requirements during the temporary storage of excavated soils which constitute hazardous wastes, prior to off-site disposal.	SO6 will comply with the substantive provisions of these requirements during the temporary storage of excavated soils which constitute hazardous wastes, prior to off-site disposal.	SO7 will comply with the substantive provisions of these requirements during the temporary storage of excavated soils which constitute hazardous wastes, prior to off-site disposal.	SO8 will comply with the substantive provisions of these requirements during the temporary storage of excavated soils which constitute hazardous wastes, prior to off-site disposal.

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
Hazardous Waste Management: Management Standards for Specific Waste Types (RCSA §22a-449(c)106)	Applicable, if the specific hazardous wastes are identified	This section establishes standards for specific types of wastes, including waste oil and spent lead acid batteries being reclaimed. The standards of 40 CFR §266 are incorporated by reference.	If the specific wastes identified in this ARAR are found, SO5 will comply with this ARAR requirements in the handling and management of the wastes.	If the specific wastes identified in this ARAR are found. SO6 will comply with this ARAR requirements in the handling and management of the wastes.	If the specific wastes identified in this ARAR are found, SO7 will comply with this ARAR requirements in the handling and management of the wastes.	If the specific wastes identified in this ARAR are found, SO8 will comply with this ARAR requirements in the handling and management of the wastes.
State Criteria, Advisories, and Guidance (cont.)						
General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)(DEP-SW-GP-001) CGS § 22a-208a(1))	Applicable	The substantive requirements of this permit must be meet. Fact sheet is available at http://www.ct.gov/deep/cwp/view.asp?a=2709&q=329620&depNav_GID=1646 http://www.ct.gov/deep/lib/deep/Permits_and_Licenses/Factsheets_Waste/soilstaging_fs.pdf. Registration is required dependent on volume to be managed (>1000 CY, > 10,000 CY, or exceeds 45 day duration). General conditions include control of stockpiles, erosion and dust control, characterization, etc.	SO5 will comply with the substantive requirements of this ARAR during active remediation that result in excavation, handling, and storage of contaminated soil. As needed, stockpile controls, erosion and dust controls, and access will be limited.	SO6 will comply with the substantive requirements of this ARAR during active remediation that result in excavation, handling, and storage of contaminated soil. As needed, stockpile controls, erosion and dust controls, and access will be limited.	SO7 will comply with the substantive requirements of this ARAR during active remediation that result in excavation, handling, and storage of contaminated soil. As needed, stockpile controls, erosion and dust controls, and access will be limited.	SO8 will comply with the substantive requirements of this ARAR during active remediation that result in excavation, handling, and storage of contaminated soil. As needed, stockpile controls, erosion and dust controls, and access will be limited.
General Permits (for various activities)	Applicable	Substantive requirements of the general permits must be attained, The General Permit Program Fact Sheet (DEEP-FS-004) is available from the following web page: http://www.ct.gov/deep/cwp/view.asp?a=2709&q=324154&depNav_GID=1643#SoilStaging. The following General Permits relates to remedial actions at the Site: • *Stormwater and Dewatering Wastewaters from Construction Activities* (DEEP-PERD-GP-015)	As appropriate, SO5 will comply with the substantive requirements of this ARAR during active remediation.	As appropriate, SO6 will comply with the substantive requirements of this ARAR during active remediation.	As appropriate, SO7 will comply with the substantive requirements of this ARAR during active remediation.	As appropriate, SO8 will comply with the substantive requirements of this ARAR during active remediation.
Temporary Authorization (TA)/Emergency Authorization (EA) (CGS 22a-6K)	Applicable	This statute provides for a temporary or emergency authorization, under certain conditions, for many activities that require a permit. The substantive requirements of a TA must be met. Temporary Authorization (TA)/ Emergency Authorization (EA) for In-situ Remediation	If during remedial action implementation an emergency discharge to groundwater, surface water, or a sanitary sewer is required, SO5 will comply with the substantive requirements of this ARAR.	If during remedial action implementation an emergency discharge to groundwater, surface water, or a sanitary sewer is required, SO6 will comply with the substantive requirements of this ARAR.	If during remedial action implementation an emergency discharge to groundwater, surface water, or a sanitary sewer is required, SO7 will comply with the substantive requirements of this ARAR.	If during remedial action implementation an emergency discharge to groundwater, surface water, or a sanitary sewer is required, SO8 will comply with the substantive requirements of this ARAR.

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
State Criteria, Advisories, and Guidance (cont.)						
Control of Noise (RSCA Section 22a-69-1 to 69-7.4)	Applicable	These Regulations establish allowable noise levels for different classes of noise zones and would apply to construction activities at a site. See: http://www.ct.gov/deep/lib/deep/regulations/22a/22a-69-1through7.pdf	During SO5 implementation, noise levels will be monitored and SO5 will comply with the allowable noise levels defined in this ARAR.	During SO6 implementation, noise levels will be monitored and SO6 will comply with the allowable noise levels defined in this ARAR.	During SO7 implementation, noise levels will be monitored and SO7 will comply with the allowable noise levels defined in this ARAR.	During SO8 implementation, noise levels will be monitored and SO8 will comply with the allowable noise levels defined in this ARAR.
Water Pollution Control - Regulations (RCSA §§22a-430-1 to 8 & CGS §§22a-430)	Applicable	These regulations establish permitting requirements and criteria for water discharge to groundwater. http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-1and2.pdf, http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-3and4.pdf, http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-6and7.pdf, http://www.ct.gov/deep/lib/deep/regulations/22a/22a-430-8.pdf.	During SO5 implementation, should discharge of water to groundwater be required, the substantive requirements of this ARAR will be met. SO5 will comply with this ARAR.	During SO6 implementation, should discharge of water to groundwater be required, the substantive requirements of this ARAR will be met. SO6 will comply with this ARAR.	During SO7 implementation, should discharge of water to groundwater be required, the substantive requirements of this ARAR will be met. SO7 will comply with this ARAR.	During SO8 implementation, should discharge of water to groundwater be required, the substantive requirements of this ARAR will be met. SO8 will comply with this ARAR.
Air Pollution Control - Control of Particulate Emissions (Sec. 22a-174-18)	Applicable	This subsection sets specific standards for particulate emissions. Specific standards include Fugitive Particulate Matter (18c). See http://www.ct.gov/deep/lib/deep/air/regulations/mainregs/sec18.pdf. Reasonable precautions must be taken to prevent particulate matter from becoming airborne during demolition and construction activities and material handling operations.	Air monitoring and best engineering practices will be employed to minimize fugitive dust emissions during excavation and earth moving using heavy equipment. SO5 will comply with this ARAR.	Air monitoring and best engineering practices will be employed to minimize fugitive dust emissions during excavation and earth moving using heavy equipment SO6 will comply with this ARAR.	Air monitoring and best engineering practices will be employed to minimize fugitive dust emissions during excavation and earth moving using heavy equipment SO7 will comply with this ARAR.	Air monitoring and best engineering practices will be employed to minimize fugitive dust emissions during excavation and earth moving using heavy equipment SO8 will comply with this ARAR.
Air Pollution Control - Control of Odors (RCSA §22a-174-23)	Applicable	This section prohibits emission of any substance that constitutes a nuisance because of objectionable odor. See http://www.ct.gov/deep/lib/deep/air/regulations/mainregs/sec23.pdf	If odors are generated during the implementation of SO5, appropriate measures (covering, source removal, dilution) will be taken to mitigate the conditions.	If odors are generated during the implementation of SO6, appropriate measures (covering, source removal, dilution) will be taken to mitigate the conditions.	If odors are generated during the implementation of SO7, appropriate measures (covering, source removal, dilution) will be taken to mitigate the conditions.	If odors are generated during the implementation of SO8, appropriate measures (covering, source removal, dilution) will be taken to mitigate the conditions.
Well Drilling (CGS §§ 25-126 through 137)	Applicable, if wells are drilled or abandoned	Piezometers, containment recovery wells and monitoring wells are included in the definition of (and regulated as) as “non-water supply wells”. Well drillers must be registered, and the driller must file a completion report for non-water supply wells. Pursuant to CGS §25-131(c). See http://www.cga.ct.gov/2011/pub/chap482.htm#Sec25-126.htm and http://www.ct.gov/dcp/lib/dcp/pdf/well_drilling_regulations.pdf	If monitoring wells are installed or abandoned, SO5 will comply with the substantive requirements of this ARAR.	If monitoring wells are installed or abandoned, SO6 will comply with the substantive requirements of this ARAR.	If monitoring wells are installed or abandoned, SO7 will comply with the substantive requirements of this ARAR.	If monitoring wells are installed or abandoned, SO8 will comply with the substantive requirements of this ARAR.

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
State Criteria, Advisories, and Guidance (cont.)						
Regulations for the Well Drilling Industry (RCSA §25-128-33 through 64)	Applicable, if wells are drilled or abandoned	Non-water supply wells must be constructed so that they are not a source or cause of groundwater contamination. Procedures for abandonment of wells apply to both water wells and other types of wells. http://www.ct.gov/dcp/lib/dcp/pdf/well_drilling_regulations.pdf	If monitoring wells are installed or abandoned, SO5 will comply with the requirements of this ARAR.	If monitoring wells are installed or abandoned, SO6 will comply with the requirements of this ARAR.	If monitoring wells are installed or abandoned, SO7 will comply with the requirements of this ARAR.	If monitoring wells are installed or abandoned, SO8 will comply with the requirements of this ARAR.
CT Guidelines for Soil Erosion and Sediment Control (May 2002) (adopted pursuant to CGS 22a-328) Revised document issued May 2002, also identified as DEP Bulletin 34	To Be Considered	The Guidelines provide technical and administrative guidance for the development, adoption, and implementation of erosion and sediment control programs. The Guidelines are available electronically in 4 parts (from http://www.ct.gov/deep/cwp/view.asp?a=2720&q=325660&depNav_GID=1654) as listed below: http://www.ct.gov/deep/lib/deep/water_inland/sesc/sesc_intro_toc.pdf http://www.ct.gov/deep/lib/deep/water_inland/sesc/secs_chapter_1_5.pdf http://www.ct.gov/deep/lib/deep/water_inland/sesc/secs_appendix_a_k.pdf http://www.ct.gov/deep/lib/deep/water_inland/sesc/secs_appendix_l_m.pdf.	SO5 will use best management practices to be consistent with these guidelines when using heavy equipment	SO6 will use best management practices to be consistent with these guidelines when using heavy equipment	SO7 will use best management practices to be consistent with these guidelines during the targeted excavations and storage and handling of excavated contaminated soil.	SO8 will use best management practices to be consistent with these guidelines when using heavy equipment
State Criteria, Advisories, and Guidance (cont.)						
CT DEEP Final Site Characterization Guidance Document, September 2007, revised December 2010	To Be Considered	This provides guidance to persons preparing environmental site assessments of potentially contaminated properties. The guidance advocates the use of a conceptual site model and phased investigations. The Final Site Characterization Guidance Document is available at http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/Site_Characterization/Final_SCGD.pdf	For designing and implementing PDIs. SO5 will consider the guidance.	For designing and implementing PDIs. SO6 will consider the guidance.	For designing and implementing PDIs. SO7 will consider the guidance.	For designing and implementing PDIs. SO8 will consider the guidance.

Table J-6
Action-Specific ARARs and TBCs for Soil Alternatives for SO5 to SO8
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE SO5 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO6 Pre-Design Investigations, Soil Cap, Institutional Controls, Operation and Maintenance, Periodic Assessments, and Five-Year Reviews [PRG and PMC Exceedances within Area J]	ALTERNATIVE SO7 Pre-Design Investigations, Targeted Remediation (Targeted Excavation and Off-site Disposal), Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area J]	ALTERNATIVE SO8 Pre-Design Investigations, Excavation and Off-site Disposal, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Area I]
Guidance for Groundwater Monitoring for Demonstrating Compliance with the Connecticut Remediation Standard Regulations, 3/17/2006	To Be Considered	http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/gwm_guidance_for_demonstrating_compliance_with_ct_rsr.pdf	As appropriate, relevant guidance documents will be consulted.	As appropriate, relevant groundwater monitoring documents will be consulted.	As appropriate, relevant groundwater monitoring documents will be consulted.	As appropriate, relevant groundwater monitoring documents will be consulted.
Guidance for Collecting and Preserving Soil a nd Sediment Samples for Laboratory Determination of Volatile Organic Compounds, Final 2/28/2006	To Be Considered	The Guidance document is available at: http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/soil_sampling_voc_final_wcomments.pdf.	If sampling is performed under State oversight during O&M, this guidance will be followed.	If sampling is performed under State oversight during O&M, this guidance will be followed.	If sampling is performed under State oversight during O&M, this guidance will be followed.	If sampling is performed under State oversight during O&M, this guidance will be followed.

Table J-7
Chemical-Specific ARARs and TBCs for Vapor Intrusion Alternatives
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE VI1 No Action	ALTERNATIVE VI2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1 and J]	ALTERNATIVE VI3 Active Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]	ALTERNATIVE VI4 Passive Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1].
Federal Criteria, Advisories, and Guidance						
OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA 530-D-02-004, November 2002)	To Be Considered	This EPA guidance establishes a methodology for assessing potential indoor air risks to human health that may result from volatilization of contaminants from groundwater and soil vapor into an overlying building.	The guidance was used in the HHRA to identify VOC concentrations in groundwater that pose potential vapor intrusion risks.	The guidance was used in the HHRA to identify VOC concentrations in groundwater that pose potential vapor intrusion risks.	The guidance was used in the HHRA to identify VOC concentrations in groundwater that pose potential vapor intrusion risks.	The guidance was used in the HHRA to identify VOC concentrations in groundwater that pose potential vapor intrusion risks.
State Regulatory Criteria, Advisories, and Guidance						
Connecticut Remediation Standard Regulations (RSR) (22a-133k)	Applicable	The RSRs provide the allowable volatilization criteria (VC) for groundwater, soil gas, and indoor air concentrations that would be protective of human health if volatile contaminants in groundwater are present. The regulation requires remediation of VOC contaminated groundwater below a building used for residential or industrial/commercial activity to concentrations equal to or below the VC. It allows exemption from the Volatilization Criteria if: (i) the concentrations of contaminants in soil vapors below a building do not exceed volatilization criteria for soil gas (ii) measures are taken to prevent the migration of such substances into any overlying building, (iii) a program is implemented to maintain and monitor all such measures, and (iv) notice of such measures has been submitted to the Commissioner. Under 22a-133k(3)(C)(3)(A), if an environmental land use restriction on the property prevents residential use, remediation of a volatile organic substance is not required if the concentration is less than the VC for industrial/commercial use.	VI1 will not comply with this ARAR because no action will be implemented to address potential vapor intrusion risks due to groundwater contamination.	VI2 will not comply with this ARAR at Area E1, which is currently in residential use, because this alternative does not include remediation of contaminated groundwater or mitigation measures preventing vapor intrusion. V12 will comply with this ARAR at Area J, because institutional controls will be used to prevent residential use and new construction unless appropriate vapor mitigation system s are installed. The RSR groundwater VC were considered for the VI Screening Levels development.	VI3 will comply with this ARAR though installation and monitoring of active vapor mitigation systems in the existing building's residential units on the ground floor. The RSR groundwater VC were considered for the VI Screening Levels development.	VI4 will comply with this ARAR though installation and monitoring of passive vapor mitigation systems in the existing building's residential units on the ground floor. The RSR groundwater VC were considered for the VI Screening Levels development.

Table J-8
Location-Specific ARARs and TBCs for Vapor Intrusion Alternatives
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE VI1 No Action	ALTERNATIVE VI2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1 and J]	ALTERNATIVE VI3 Active Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]	ALTERNATIVE VI4 Passive Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1].
Federal Regulatory Requirements						
National Historic Preservation Act (16 U.S.C. 470 et seq., 40 CFR 800)	Applicable, if such resources are identified	Pursuant to Sections 106 and 110(f) of the NHPA, as amended, CERCLA response actions are required to take into account the effects of the response activities on any historic property included or eligible for inclusion on the National Register of Historic Places.	Not applicable.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. VI2 will comply with this ARAR.	VI3 will comply with this ARAR. If significant historic properties (including prehistoric or archaeological) are identified during implementation of the active vapor mitigation systems, then the requirements of these regulations will be followed. Significant historic features or artifacts are not expected to be encountered during installation of vapor mitigation systems beneath existing buildings.	VI4 will comply with this ARAR. If significant historic properties (including prehistoric or archaeological) are identified during implementation of the passive vapor mitigation systems, then the requirements of these regulations will be followed. Significant historic features or artifacts are not expected to be encountered during installation of vapor mitigation systems beneath existing buildings.
State Regulatory Requirements						
Connecticut Environmental Protection Act (Public Act 82-367)	Applicable, if such resources are identified	This regulation directs that the provisions of CGS Sections 22a-15 through 22a-19, inclusive of the Connecticut Environmental Protection Act, shall also be applicable to historic structures and landmarks, and are defined as those properties that are listed or under consideration for listing as individual units on the National Register of Historic Places or which are part of a district listed or under consideration for listing determined by the State Historic Preservation Board.	Not applicable.	If significant historic properties (including prehistoric or archaeological) are identified, then the requirements of these regulations will be followed. VI2 will comply with this ARAR.	VI3 will comply with this ARAR. If significant historic properties (including prehistoric or archaeological) are identified during implementation of the active vapor mitigation systems, then the requirements of these regulations will be followed. Significant historic features or artifacts are not expected to be encountered during installation of these systems beneath existing buildings.	VI4 will comply with this ARAR. If significant historic properties (including prehistoric or archaeological) are identified during implementation of the passive vapor mitigation systems, then the requirements of these regulations will be followed. Significant historic features or artifacts are not expected to be encountered during installation of these systems beneath existing buildings.

Table J-9
Action-Specific ARARs and TBCs for Vapor Intrusion Alternatives
Scovill Industrial Landfill Site
Waterbury, Connecticut

Requirement	Status	Requirement Synopsis	ALTERNATIVE VI1 No Action	ALTERNATIVE VI2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1 and J]	ALTERNATIVE VI3 Active Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]	ALTERNATIVE VI4 Passive Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1].
Federal Criteria, Advisories, and Guidance						
RCRA Air Emission Standards for Process Vents (40 CFR 264, Subpart AA)	Relevant and Appropriate, if threshold limit is exceeded	Provides requirements and treatment limits applicable to air stripping facilities that treat RCRA wastes with total VOCs of 10 ppm by weight or greater.	Not applicable.	Not applicable.	VI3 will comply with this ARAR. It is not anticipated that VOC concentrations at the active vapor mitigation systems will exceed the thresholds. However, if concentrations of VOCs captured by vapor mitigation systems exceed the thresholds, then air pollution control devices will be used to meet this ARAR.	VI4 will comply with this ARAR. It is not anticipated that VOC concentrations at the passive vapor mitigation systems will exceed the thresholds. However, if concentrations of VOCs captured by vapor mitigation systems exceed the thresholds, then air pollution control devices will be used to meet this ARAR.
RCRA Air Emission Standards for Equipment Leaks (40 CFR 264, Subpart BB)	Relevant and Appropriate, if threshold limit is exceeded	This regulation contains air pollutant emission standards for equipment leaks at hazardous waste TSD facilities. This subpart applies to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight.	Not applicable.	Not applicable.	VI3 will comply with this ARAR. It is not anticipated that VOC concentrations at the active vapor mitigation systems will exceed the thresholds. However, if concentrations of VOCs captured by vapor mitigation systems exceed the thresholds, then air pollution control devices will be used to meet this ARAR.	VI4 will comply with this ARAR. It is not anticipated that VOC concentrations at the passive vapor mitigation systems will exceed the thresholds. However, if concentrations of VOCs captured by vapor mitigation systems exceed the thresholds, then air pollution control devices will be used to meet this ARAR.
National Emission Standards for Hazardous Air Pollutants (NESHAPS) (40 CFR 61, Subparts F & J)	Relevant and Appropriate, if threshold limit is exceeded	Regulates VOC emissions from specific source categories. Establishes allowable numerical limits for emissions of benzene and vinyl chloride for specific stationary source categories. Applies to benzene emissions if the facility produces more than 1,102 tons per year of benzene. Applies to specific vinyl chloride process units if numerical limits are exceeded. Provides requirements for monitoring, testing, reporting, and repairs.	Not applicable.	Not applicable.	VI3 will comply with this ARAR. It is not anticipated that VOC concentrations at the active vapor mitigation systems will exceed the thresholds. However, if concentrations of VOCs captured by vapor mitigation systems exceed the thresholds, then air pollution control devices will be used to meet this ARAR.	VI4 will comply with this ARAR. It is not anticipated that VOC concentrations at the passive vapor mitigation systems will exceed the thresholds. However, if concentrations of VOCs captured by vapor mitigation systems exceed the thresholds, then air pollution control devices will be used to meet this ARAR.

Requirement	Status	Requirement Synopsis	ALTERNATIVE VI1 No Action	ALTERNATIVE VI2 Limited Action, Institutional Controls, Periodic Assessments, and Five-Year Reviews [Areas E1 and J]	ALTERNATIVE VI3 Active Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1]	ALTERNATIVE VI4 Passive Soil Vapor Mitigation System, Institutional Controls, Operation and Maintenance, and Five-Year Reviews [Area E1].
State Criteria, Advisories, and Guidance						
Hazardous Waste Management: Generator Standards (RSCA Section 22a-449(c) 102)	Relevant and Appropriate	This section of the rule establishes standards for various classes of generators. The standards of 40 CFR 262 are incorporated by reference. This rule applies to treatment residues that fail hazardous characteristic tests that are generated from treatment systems.	Not applicable.	Not applicable.	VI3 will comply with this ARAR. It is not anticipated that air pollution control devices will be needed on the active vapor mitigation systems. However, if air pollution control devices are used to capture or treat emissions from the vapor mitigation systems, treatment residues that are determined to be hazardous will be properly managed and disposed of to comply with this ARAR.	VI4 will comply with this ARAR. It is not anticipated that air pollution control devices will be needed on the passive vapor mitigation systems. However, if air pollution control devices are used to capture or treat emissions from the vapor mitigation systems, treatment residues that are determined to be hazardous will be properly managed and disposed of to comply with this ARAR.
Air Pollution Control - Control of Organic Compound Emissions RCSA §22a-174-20	Applicable, if allowable limits are exceeded	Subsection (f) sets standards for emission of organic compounds. Limits organic compound emissions to 40 pounds per day or 8 pounds per hour.	Not applicable.	Not applicable.	VI3 will comply with this ARAR. It is not anticipated that air pollution control devices will be needed on the active vapor mitigation systems. If air emissions of organic compounds from the active vapor mitigation systems are expected to exceed the limits of this ARAR, then pollution control devices will be used to reduce emissions to meet the ARAR requirements.	VI4 will comply with this ARAR. It is not anticipated that air pollution control devices will be needed on the passive vapor mitigation systems. If air emissions of organic compounds from the active vapor mitigation systems are expected to exceed the limits of this ARAR, then pollution control devices will be used to reduce emissions to meet the ARAR requirements.
Air Pollution Control - Control of Odors (RCSA Section 22a-174-23(c))	Applicable, if allowable limits are exceeded	These regulations require that odors determined to be a nuisance (defined by exceedance of identified standards or otherwise determined by the commissioner) must be investigated and remediated.	Not applicable.	Not applicable. .	VI3 will comply with this ARAR. Only minimal odors are anticipated from installation and operation of the active vapor mitigation systems. Any nuisance odors will be addressed as required by this regulation.	VI4 will comply with this ARAR. Only minimal odors are anticipated from installation and operation of the passive vapor mitigation systems. Any nuisance odors will be addressed as required by this regulation.
Air Pollution Control - Hazardous Air Pollutants (RCSA Section 22a-174-29)	Applicable if allowable limits are exceeded	These regulations identify the maximum allowable stack concentrations for specific hazardous air pollutants and specify the testing requirements. Allowable limits are provided in Table 29-1 of this regulation.	Not applicable.	Not applicable.	VI3 will comply with this ARAR. It is not expected that air emissions of hazardous air pollutants from the active vapor mitigation system will exceed the limits of this ARAR. If air emissions of hazardous air pollutants from the active vapor mitigation systems are expected to exceed the limits of this ARAR, then pollution control devices will be used to reduce emissions to meet the maximum allowable stack concentrations.	VI4 will comply with this ARAR. It is not expected that air emissions of hazardous air pollutants from the passive vapor mitigation system will exceed the limits of this ARAR. If air emissions of hazardous air pollutants from the passive vapor mitigation systems are expected to exceed the limits of this ARAR, then pollution control devices will be used to reduce emissions to meet the maximum allowable stack concentrations.

APPENDIX F

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

September 25, 2013

James T. Owens, III
Director, Office of Site Remediation & Restoration
U.S. Environmental Protection Agency
Region 1 - New England
5 Post Office Square, Suite 100
Mail Code OSRR07-5
Boston, MA 02109-3912

Dear Mr. Owens:

The Connecticut Department of Energy and Environmental Protection (DEEP) concurs with the remedial action selected by EPA for the Scovill Industrial Landfill Superfund Site in Waterbury, Connecticut. The remedial action includes limited soil excavation, a soil cap, an active soil vapor mitigation system, and environmental land use restrictions to prevent exposures to soil contaminants left in place. The remedial action is described in detail in the "USEPA Proposed Plan, Scovill Industrial Landfill Superfund Site, Waterbury, Connecticut" dated July 2013, and in the Record of Decision titled "Record Of Decision Summary, Scovill Industrial Landfill, Waterbury, Connecticut".

Concurrence with EPA's selected remedial action for the Scovill Industrial Landfill Superfund site, shall in no way affect the Commissioner's authority to institute any proceeding to prevent or abate violations of the law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of any permit issued by the Commissioner.

Sincerely,

Macky McCleary
Deputy Commissioner

MM/SG

APPENDIX G

References

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APPENDIX H

Acronyms & Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
BEHP	Bis(2-ethylhexyl)phthalate
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
cm^2	Square Centimeters
COC	Chemicals of Concern
Company	Scovill Manufacturing Company
CSM	Conceptual Site Model
CT DEEP	Connecticut Department of Energy and Environmental Protection
CT DPH	Connecticut Department of Public Health
CUL	Cleanup Level
cy	Cubic Yards
DEC	Direct Exposure Criteria
EPA	United States Environmental Protection Agency
EPC	Exposure Point Concentration
ft bgs	Feet Below Ground Surface
FS	Feasibility Study
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IEUBK	Integrated Exposure and Uptake Biokinetic
mg	Milligrams
mg/cm^2-event	Milligrams per Square Centimeter per Event
mg/Kg	Milligrams per Kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OSRR	Office of Site Remediation and Restoration
PAH	Polycyclic Aromatic Hydrocarbons
Parcel A	Risk Areas D1, D3, E1, E2, E3, F, G, H, and I
Parcel B	Risk Area J, Calabrese Parcel
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PDI	Pre-Design Investigation
PMC	Pollutant Mobility Criteria
PRGs	Preliminary Remediation Goals
PRPs	Potentially Responsible Parties
RAGS	Risk Assessment Guidance
RAOs	Response Action Objectives
RfC	Reference Concentrations
RfD	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
ROD	Record of Decision

RSR	Remediation Standard Regulations
Saltire	Saltire, Inc.
SARA	Superfund Amendments and Reauthorization Act of 1986
SC	Source Control
sf	Square Feet
Site	Scovill Industrial Landfill
SPLP	Synthetic Precipitation Leaching Procedure
SSAF	Soil-to-Skin Adherence Factors
SVOCs	Semi-Volatile Organic Compounds
SWPC	Surface-Water Protection Criteria
sy	Square Yard
TBC	To Be Considered
TEQ	Toxicity Equivalency
TCE	Trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
UCL	Upper Confidence Limit
µg/dL	Micrograms per Deciliter
$\mu g/m^3$	Microgram per Cubic Meter
µg/Kg	Micrograms per Kilogram
VOCs	Volatile Organic Compounds