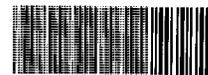


Superfund Records Center  
SITE: Atlas Tack  
BREAK: 8.3  
OTHER: 472018



SDMS DocID 472018

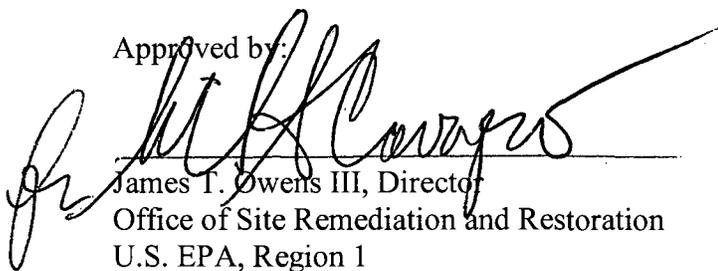
**First Five-Year Review Report  
For  
Atlas Tack Corporation Superfund Site  
Fairhaven, Massachusetts**

**September 2010**

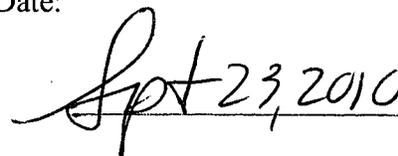
**Prepared by**

**U.S. Environmental Protection Agency  
Region 1  
Boston, Massachusetts**

Approved by:

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

Date:

  
Sept 23, 2010

## EXECUTIVE SUMMARY

The remedy for the Atlas Tack Corporation Superfund Site (Site) located in Fairhaven, Massachusetts, (as modified by the September 2009 Explanation of Significant Differences (ESD)), included demolition of former manufacturing facility buildings, excavation and off-site disposal of approximately 55,000 cubic yards of contaminated soil and sediment, monitored natural attenuation of groundwater, long term (30 years) monitoring of soil, sediment, surface water and vegetation, site restoration, and establishment of institutional controls. The Site achieved construction completion with the signing of the Preliminary Close Out Report on September 28, 2007, and became operational and functional in September 2008. The trigger for this five-year review was the actual start of construction on June 5, 2005.

The approximately 48-acre Site was the location of a manufacturing facility that operated from 1901 to 1985. Products manufactured at the facility included wire tacks, steel nails, rivets, bolts, and shoe eyelets. Atlas Tack's operations included electroplating, acid-washing, enameling and painting. Process wastes containing acids, metals, and solvents were discharged to floor drains, Boys Creek marsh, and an onsite unlined lagoon.

The assessment of this five-year review found that the remedy was constructed in accordance with the requirements of the Record of Decision. The aforementioned ESD was issued to document the decision to remove the phytoremediation component of the selected remedy. As modified, the remedy is functioning as designed. It is expected to be protective of both human health and the environment when groundwater cleanup goals are achieved through monitored natural attenuation, which is expected to require ten years.

In order for the remedy to be protective in the long-term, certain follow-up actions need to be completed. Institutional Controls enforceable against all future Site property owners must be put in place to restrict certain land and groundwater uses. EPA must also evaluate potential adjustments to the surface water monitoring program, complete post-remediation toxicity testing, and perform additional evaluation of any potential vapor intrusion risks to future site users.

**Five-Year Review Summary Form**

**SITE IDENTIFICATION**

*Site name:* **Atlas Tack Corporation Superfund Site**

*EPA ID:* **MAD001026319**

*Region:* **1**     *State:* **Massachusetts**     *City/County:* **Fairhaven, Bristol County**

**SITE STATUS**

*NPL status:*      **Final**                     Deleted                     Other (specify)

*Remediation status (choose all that apply):*     Under Construction                      **Operating**                     Complete

*Multiple OUs?\** **NO**                     *Construction completion date:*     **September 2007**

*Has Site been put into reuse?*     **NO**

**REVIEW STATUS**

*Lead agency:* **EPA**                     State                     Tribe                     Other Federal Agency

*Author name:* **Elaine Stanley with technical assistance from USACE**

*Author title:* **MA Superfund Remedial Project Manager**                     *Author affiliation:* **U.S. EPA, Region I**

*Review period:\*\**     **06/05/2005 to 04/31/2010**

*Date(s) of Site inspections:*     **January 13, 2010**

*Type of review:*

**Post-SARA**                     \_\_\_\_\_ Pre-SARA                     \_\_\_\_\_ NPL-Removal only  
 \_\_\_\_\_ Non-NPL Remedial Action Site                     \_\_\_\_\_ Regional Discretion                     \_\_\_\_\_ NPL State/Tribe-lead

*Review number:*      **(first)**     2 (second)     3 (third)     Other (specify)

*Triggering action:*

<input checked="" type="checkbox"/> Actual RA Removal Action	Actual RA Start at OU1	_____ NA
_____ Construction Completion	Previous Five-Year Review Report	_____ NA
_____ Other (specify) Signing of ROD		

*Triggering action date (from WasteLAN):*     **06/05/2005**

*Due date (five years after triggering action date):*     **06/05/2010**

\* ["OU" refers to operable unit.]

\*\* [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

## FIVE-YEAR REVIEW SUMMARY FORM, CONT'D.

### Issues:

1. Permanent institutional controls are not in place. Although permanent institutional controls are not in place, the current owners of the Site properties are required by applicable consent decrees to comply with these requirements.
2. Some analytical methods for surface water sampling are not sufficiently sensitive to achieve monitoring criteria levels as currently set.
3. Characterization of VOCs in groundwater is not sufficient to rule out the possibility of future vapor intrusion for future use.
4. Post-remediation toxicity testing has not been conducted.

### Recommendations and Follow-up Actions:

1. Establish schedule with representatives of property owners for submission of proposed grant of easement to the Department of Justice for approval.
2. Sample and analyze for total VOCs in groundwater Fall 2010 and Spring 2011.
3. Investigate practicability and cost efficiency of alternative analytical methods for cyanide and nine pesticides.
4. Conduct post-remediation toxicity testing.

### Protectiveness Statement(s):

The remedy at the Site is expected to be protective of human health and the environment upon completion of the monitored natural attenuation of the groundwater. In the interim, soil and sediment at the Site no longer present an unacceptable risk to environmental receptors via ingestion of contaminated vegetation or biota, or incidental ingestion of contaminated soil and sediment. In addition, the soil will no longer act as a source of surface water and sediment contamination in Boys Creek, thereby providing suitable habitat for environmental receptors. Also, as the contaminated soil and sediment in the Commercial Area and Boys Creek have been remediated, they no longer present an unacceptable risk to human health. Additionally, court ordered restrictions limit the current Site property owners' uses of the property to those that are consistent with the risk assessment, and specifically prohibit withdrawal, consumption, exposure or utilization of groundwater for any purpose and cultivation of plants or crops for human consumption. Similarly, activities such as excavation and drilling that might disturb the soil are limited by the order.

### Long-Term Protectiveness:

In order for the remedy to be protective in the long-term, certain follow-up actions need to be completed. Institutional Controls enforceable against all future Site property owners must be put in place to restrict certain land and groundwater uses. EPA must also evaluate potential adjustments to the surface water monitoring program, complete post-remediation toxicity testing, and perform additional evaluation of any potential vapor intrusion risks to future site users.

### Other Comments:

Additional time and monitoring data are needed to assess contaminant-concentration trends

in groundwater, surface water and sediment at the Site and the effectiveness of the monitored natural attenuation groundwater remedy. EPA estimates that it will take approximately three more years for the full establishment of vegetation in the restored saltwater marsh and freshwater wetland areas.

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## LIST OF ABBREVIATIONS AND ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
AWQC	Ambient Water Quality Criteria
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	Contaminants of Concern
CWA	Clean Water Act
cy	Cubic yards
ER-M Q	Effect Range-Median Quotients
EPA	United States Environmental Protection Agency
FS	Feasibility Study
Ft BGS F	Feet Below Ground Surface
IC	Institutional Control
IGCL	Interim groundwater clean-up levels
LTRA	Long-Term Response Action
MA UCL	Massachusetts Contingency Plan Upper Concentration Limit
MCL	Maximum Contaminant Level
MCP	Massachusetts Contingency Plan
mg/kg	milligrams per kilogram
MNA	Monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
NOB	North of Hurricane Barrier
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRPL	Notice of Responsibility and Potential Liability
O&M	Operation and Maintenance
PAH	Polycyclic Aromatic Hydrocarbon
PRPs	Potentially Responsible Parties
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose (non-cancer)
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SOB	South of Hurricane Barrier
SWDA	Solid Waste Debris Area
SVOC	Semi-Volatile Organic Compound
TBC	To be considered
UAO	Unilateral Administrative Order
µg/L	micrograms per liter
USACE	United States Army Corps of Engineers
VOC	Volatile Organic Compound

## I INTRODUCTION

The purpose of this five-year review is to determine whether the remedy for the Atlas Tack Corporation Superfund Site in Fairhaven, Massachusetts (Site) is protective of human health and the environment. The findings and conclusions of this review are documented in this report. This report also identifies issues found during the five-year review process and offers recommendations to address such issues.

The United States Environmental Protection Agency (EPA) is preparing this Five-Year Review report pursuant to Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Reauthorization Act, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121(c), 42 U.S.C. §9621(2), which states:

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

The Agency interpreted this requirement further in the NCP; CFR §300.430(f)(4)(ii) states:

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

The Five-Year Review Team included Elaine Stanley, EPA Remedial Project Manager, Cornell Rosiu, EPA Ecological Risk Assessor, Claire Willscher, EPA Human Health Risk Assessor, Joseph Coyne, Massachusetts Department of Environmental Protection Project Manager, Ken Finkelstein of NOAA, and the U.S. Army Corps of Engineers (USACE) members with expertise in geology and hydrology (Forest Lyford), ecological risk assessment (Mike Penko) and human health risk assessment (Cynthia Hanna). This review was conducted from October 2009 to March 2010. This report documents the results of this review.

This is the first review for the Site. The trigger for this statutory review was the initiation of the on-site construction of the remedial action in June 2005. This review is required by statute because the remedial action performed at the Site will not allow for unlimited use and unrestricted exposure following completion of the cleanup.

## II SITE CHRONOLOGY

A chronology of all significant Site events is included below in Table 1.

**Table 1 Chronology of Site Events.**

EVENT	DATE
Atlas Tack ceased manufacturing operations onsite.	June 1985
Commonwealth of Massachusetts completed partial removal of unlined wastewater lagoon.	October 1985
Site proposed for inclusion on EPA's NPL.	June 1988
Site placed on NPL.	February 1990
EPA issued a UAO to Atlas Tack requiring installation of a fence to limit site access.	1992
Remedial Investigation completed by EPA.	May 1995
Feasibility Study completed by EPA.	July 1998
Proposed Plan for the selected remedy issued by EPA.	December 1998
Atlas Tack demolishes the middle section of the main building.	Fall 1998 to January 1999
EPA conducts a Removal Action to remove asbestos from the buildings.	September 28, 1999 through February 9, 2000
Record of Decision (ROD) issued by EPA.	March 10, 2000
EPA conducts the RD for the first two phases of the RA with CERCLA funds.	January 2001
EPA completes the Phase III RD.	September 2004
Phase I Commercial Area demolition & excavation/disposal initiated.	June 2005
RA Phase I completed.	March 2006
RA Phase II Solid Waste & Debris Area excavation initiated.	March 2006
RA Phase III Boys Creek Marsh and Boys Creek excavation/disposal & Site restoration initiated.	January 2007
RA Phase III completed, Construction Completion for the Site.	September 2007
EPA determines that the remedy is Operational & Functional (O&F).	September 2008
Massachusetts Department of Environmental Protection assumes responsibility for O&M of the source control. EPA begins LTRA for the groundwater remedy.	September 2008
Explanation of Significant Differences issued by EPA.	September 16, 2009

### **III BACKGROUND**

#### **Physical Characteristics**

The roughly 48-acre Site (Figures 1 and 2) is located at 83 Pleasant Street in Fairhaven, Massachusetts, which is approximately one-half mile from Fairhaven Center. The Site is within the Boys Creek watershed and Boys Creek flows through the eastern portion of the site from north to south. Boys Creek discharges into Buzzards Bay via Priest Cove. Site surface drainage discharges into Boys Creek and indirectly into the adjoining marsh. Immediately to the north, the Site is bounded by a bike path, residences, and a few commercial/light industrial businesses. To the south and east, there is a tidal marsh, and there are residences to the south. About 200 feet to the northwest there is an elementary school. A hurricane dike (also referred to as "barrier" in this report), built in the early 1960s, runs northeasterly through the marsh area of the Site.

For the purposes of the investigation and remedy selection, the site was divided into the Commercial Area; the Solid Waste and Debris Area (SWDA), which includes the former lagoon and fills areas; the Marsh and Creek Bed Areas, and the Groundwater (See Figure 2). The Site includes property owned by the Atlas Tack Corporation (Atlas Tack), unimproved property adjacent to the Atlas Tack facility owned by the Hathaway-Braleley Wharf Company (Hathaway-Braleley), and portions of Boys Creek and the adjacent saltwater tidal marsh extending to Buzzards Bay. The marsh and creek parcels located south of the dike are owned by Atlas Tack, the Town of Fairhaven, and the Commonwealth Electric Company.

#### **Land and Resource Use**

The historic use of Atlas Tack property was the manufacture of a variety of metal products including wire tacks, steel nails, rivets, bolts, shoe eyelets. Wastes from these operations (solid and liquid) were disposed of at the Site, as discussed in greater detail below. The Hathaway-Braleley property was undeveloped land that was utilized for storage of commercial fishing equipment and waste disposal.

The current land use for the area surrounding the Site is residential, industrial and commercial. The Atlas Tack property is currently zoned industrial, but remains vacant. A dilapidated two-story brick building currently remains on the western portion of the property. A small metal shed is located along the southern boundary of the Commercial Area. Cleanup goals at the Site are based on the expectation that the future use of the Site would be industrial/commercial.

The Hathaway-Braleley property is currently zoned for residential use, but the property is predominantly wetland. Accordingly, EPA did not consider there to be any possibility of residential development on this property. Further, in a settlement with the Natural Resource Damage Trustees, Hathaway-Braleley has agreed to keep the property undeveloped by means of a

Conservation Restriction (easement) to maintain the property in its “natural, scenic, and open condition; to protect and conserve wetland and upland areas of the Property; and to preserve the Property as habitat for those species known to occur in such ecosystems in Bristol County, Massachusetts, in perpetuity.”

Boys Creek and the associated wetlands and the salt water marsh are habitats for plants, fish, and wildlife. The area is mapped as rare species and habitat by the Massachusetts National Heritage Program.

The groundwater underlying the Site is not currently used as a drinking water source. As documented in a March 1998 Memorandum of Agreement between EPA and the Commonwealth, the Groundwater Use and Value Determination for the Site is deemed “low.”

### **History of Contamination**

The Atlas Tack facility operated from approximately 1901 until 1985. In the course of operation, process wastes containing acids, cyanide, metals such as copper and nickel, and solvents were discharged into drains in the floor of the main factory building. As a result, contaminants permeated the floors and timbers of the building and migrated to the soils below and adjacent to the manufacturing buildings, and ultimately to the groundwater. Hazardous liquid waste and sludge from the manufacturing processes were also discharged directly to an unlined lagoon on the site. Also, industrial fill was deposited into wetlands to the east of facility. A 3.2-acre portion of the Hathaway-Brale property also received waste from a number of sources. Soil, surface water, sediment, and groundwater at the Site have been contaminated. The major contaminants of concern at the Site include heavy metals, including arsenic, antimony, lead, copper, chromium, zinc, nickel, and cadmium; volatile organic compounds (VOCs), mainly toluene; semi-volatiles organic compounds (SVOCs), mainly polycyclic aromatic hydrocarbons (PAHs); and polychlorinated biphenyls (PCBs); cyanide; and pesticides.

### **Initial Response**

In 1985, the Massachusetts Department of Environmental Quality Engineering (“DEQE” and now known as the Massachusetts Department of Environmental Protection) supervised the removal of drums of hazardous waste from the facility (which was by that time inactive). Subsequently, DEQE supervised the partial excavation of the on-site lagoon. Containerized chemicals remaining at the facility were removed in November 1986. In January 1987, DEQE placed the Site on the Massachusetts Hazardous Waste Site List.

In 1988, the Site was proposed for inclusion on EPA’s National Priorities List (NPL) and it was placed on the NPL in February 1990. In 1992, EPA issued an order to erect a fence around the Site. The Remedial Investigation (RI) and Feasibility Study (FS) were completed in 1995 and 1998, respectively. From September 1999 to February 2000, EPA conducted a removal

action at the Site to remove asbestos-containing materials from the dilapidated, inactive facility buildings. The Record of Decision (ROD) was signed on March 10, 2000.

### **Basis for Taking Action**

The baseline human health risk assessment (as updated in 1998) identified the following chemicals, which posed an unacceptable risk in soils and sediments in the Commercial Area and Boys Creek:

- Arsenic
- Benzo(a)pyrene
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- 3,3-dichlorobenzidene
- Polychlorinated biphenyls (Aroclor 1260)
- Lead

The ecological risk characterization concluded contaminant levels detected in soils and sediments in Boys Creek and the surrounding marsh and upland area posed a substantial risk to invertebrates, fish, and wildlife:

- Copper
- Lead
- Mercury
- Nickel
- Silver
- Zinc
- Cyanide

In addition, the following chemicals posed the greatest risk to the survival, reproduction and growth of the benthic community:

- Endosulfan sulfate
- Anthracene
- DDT (total)
- Cadmium
- Copper
- Cyanide
- Lead
- Zinc

In summary, contaminant levels in soils and sediments throughout Boys Creek and the surrounding marsh area (including the tidal creek proper and the tidal marsh surface) and adjacent upland areas were sufficiently elevated to pose a substantial risk to invertebrates, fish and wildlife through direct contact and dietary exposure to a variety of organic chemicals and metals.

#### **IV REMEDIAL ACTION**

##### **Remedy Selection**

The ROD for the Site was signed on March 10, 2000. Remedial Action Objectives (RAOs) were developed as a result of data collected during the RI to aid in the development and screening of remedial alternatives to be considered for the ROD. They are:

1. Attain Commercial Area surface (0 to 2 feet) soil/sludge contaminant concentrations which are protective of human health, assuming commercial exposure for human receptors.
2. Attain Solid Waste and Debris Area surface (0 to 2 feet) soil and sediment contaminant concentrations which are protective of aquatic and terrestrial organisms.
3. Attain Marsh and Creek Bed Area surface (0 to 2 feet) soil and sediment contaminant concentrations which are protective of human health (shellfish ingestion) and aquatic and terrestrial organisms.
4. Attain surface water contaminant concentrations which are protective of human health and aquatic and terrestrial receptors.
5. Protect surface water and sediments from contaminant migration from Commercial Area, SWD Area, and Marsh and Creek Bed Area soils and sediments.
6. Prevent unacceptable risk to humans due to exposure to contaminants that may migrate from the groundwater via vapor intrusion into buildings.
7. Protect the surface water in Boys Creek and its tributaries from contaminant migration from groundwater.
8. Comply with applicable chemical-, location-, and action-specific ARARs.

The major components of the selected remedy included the excavation, treatment, and off-site disposal of contaminated soil, debris and sediment, demolition of contaminated buildings, marsh mitigation, and restoration of the affected areas. Monitored natural attenuation (MNA), with phytoremediation (planting of specific types of trees to lower the level of residually contaminated groundwater) as an enhancement component, was chosen to address the groundwater beneath the Site.

The Interim Groundwater Cleanup Levels (IGCLs) established in the ROD are ecologically based, four out of the five IGCL parameters (copper, nickel, zinc, and cyanide) are based on the Ambient Water Quality Criteria [now the National Recommended Water Quality Criteria (NRWQC)] subject to a dilution factor. There is no NRWQC standard for toluene. Therefore, the Massachusetts Contingency Plan (MCP), Upper Concentration Limit (UCL) for toluene was used.

The ROD required that a more extensive bioavailability study be performed to determine the extent of sediment removal in the marsh area. Cleanup levels were developed based on the correlation between the level of contamination (principally metals) and associated toxicity data for each sampling location (EPA, 2009; Weston, 2008, Appendix K).

An ESD was issued on September 16, 2009. The primary remedy changes are:

1. Rather than restore the freshwater wetland and salt water marsh areas to the precise contours that existed in 1901, the area of saltwater marsh north of the hurricane dike was designed with a smaller footprint because the maximum tidal flow through the dike was believed to be insufficient to sustain a larger area of saltwater marsh.
2. Elimination of the phytoremediation component of the remedy because EPA determined that lowering the groundwater table would not allow for enough groundwater flow into the freshwater wetland area, which would substantially frustrate a key feature in the design of the wetland, i.e., sustaining sufficient standing water to minimize the growth of the common reed (*Phragmites australis* or *Phragmites a.*), an invasive species.

Institutional controls (ICs) are required on the Atlas Tack property north of the hurricane dike and on the Hathaway-Braley property. These will be required to limit uses of the Site property by all future owners to those uses that are consistent with the risk assessment. Specifically the ICs will prohibit withdrawal, consumption, exposure or utilization of groundwater for any purpose and cultivation of plants or crops for human consumption. Restrictions on activities such as excavation and drilling that might disturb the soil would also be required.

### **Remedy Implementation**

A three-phase cleanup approach was planned and executed.

Phase I, the Commercial Area Remediation, included: demolition of the three-story manufacturing building, the power plant building and smokestack; demolition and excavation of the concrete slabs remaining from the previously demolished, former one-story building, and from other buildings demolished in this phase; and excavation and off-site disposal of contaminated soil, sludge and debris. 5,480 cy of contaminated soil and 775 cy of plating sludge (RCRA listed waste F009) were excavated and disposed of at appropriate off-site licensed

landfills in Phase I. Following demolition and excavation, the area was backfilled and graded to facilitate proper site drainage.

Phase II, the Solid Waste and Debris Area Remediation, involved excavation and off-site disposal of 36,600 cy of contaminated soil and debris from the solid waste disposal (fill) areas on the Atlas Tack property and the Former Lagoon Area (east of the Commercial Area), and the Commercial and Industrial Debris Area located on the Hathaway-Brale property (see Figure 2). Most of the fill areas remediated in this phase were originally wetland. As the remedy called for these areas to be restored as wetland, restoration of this area, including final grading, occurred in conjunction with the marsh restoration activities during Phase III.

Phase III, the Boys Creek Marsh and Boys Creek Remediation and Site Restoration, entailed excavation of contaminated marsh sediment and creek bed sediment and restoration of the site. 36,430 cy marsh and creek bed sediment was removed. Site restoration activities included: installation of a security fence and boulder barricade; regrading, placement of loam, and seeding with a wildflower seed mix; planting of salt marsh vegetation; installation of coir fiber logs and biodegradable erosion control blankets along Boys Creek to prevent erosion; *Phragmites a.*, also known as common reed, growing near the restored area was controlled with herbicide to deter it from spreading into the restored area; and adjacent upland areas were planted with trees and shrubs, and were seeded with native plant seed mixes. Temporary fencing was installed to deter grazing on herbaceous plantings by waterfowl.

During the remedial action, fencing around the Site served to control access. At the start of Phase II, some of the existing chain link fence was replaced along the toe of the hurricane barrier.

The Site achieved construction completion status when the Preliminary Close Out Report was signed on September 28, 2007.

The ROD states EPA's expectation that groundwater clean up levels will be attained in approximately ten years, and that monitoring will continue for 30 years. The groundwater monitoring will be conducted by EPA until 2018, when the Massachusetts Department of Environmental Protection will assume that responsibility.

### **Operation and Maintenance and Long Term Remedial Action (LTRA)**

The primary cleanup of the Site took place during the construction phase of the RA (i.e., excavation and off-site disposal of contaminated soil and sediment). As the source of groundwater contamination in soil and sediment has been removed, the other remaining component of the cleanup is MNA for groundwater. Following the completion of construction in September 2007, operation and maintenance activities were performed by EPA until the remedy was determined to be Operational and Functional (O&F) and the Massachusetts Department of Environmental Protection assumed responsibility for O&M for the source control component of

the remedy in September 2008. Long-Term Remedial Action includes groundwater monitoring, which will be conducted by EPA for 11 years, until 2018. Following that, the Massachusetts Department of Environmental Protection will assume responsibility for groundwater monitoring also.

The Final Operation and Maintenance Plan, dated April 2009, describes the short and long-term O&M monitoring goals for groundwater, surface water, and sediment monitoring. The primary O&M activities include:

- Groundwater monitoring on a quarterly basis.
- Surface water and sediment sampling to monitor the effectiveness of the source removal remedy, and in conjunction with the results of the groundwater monitoring program to assess the effectiveness of the natural attenuation remedy. Future sampling will occur every five years for a period of thirty years.
- Periodic inspections of the perimeter fence and gates for integrity, and of ditches, swales, dikes, spillways, slopes and banks for hydrologic conditions, erosion and sedimentation.
- An “adaptive management program,” including monthly qualitative assessments during the growing season, quantitative vegetative monitoring, and annual invasive species control.

As previously noted, final restoration and planting of restored wetlands and adjacent areas was completed at the end of September 2007. The O&M plan describes an “adaptive management program,” which was implemented for the first year (2008) and will be used for monitoring through year five (2012). Components include monthly assessments/monitoring of vegetation, invasive species, wildlife use, photo documentation, and inspection of the perimeter fence and gates. Quantitative (plot based) assessments of plant communities were conducted in 2008 and 2009, and another assessment is scheduled for 2012.

There have been some unanticipated problems in the freshwater wetland, including dense growth of filamentous algae during the first growing season. Corrective actions taken under the adaptive management program include replanting of both tidal and non-tidal areas, algae control in freshwater wetlands, and lowering wetland spillway elevations to promote vegetation growth and survival in the emergent wetland area.

Also of some concern is the presence of mute swans (*Cygnus olor*) a non-native invasive bird species and muskrat (*Ondatra zibethicus*), which have posed a risk to planted aquatic vegetation. Muskrats have colonized the freshwater wetland and have burrowed into the berm. Failure of the berm would dewater the freshwater wetland and could result in the undesirable recolonization of the area by *Phragmites*. A trapping program removed the muskrats in 2009, and continues in 2010, but they may be endemic to the area and will likely be ongoing concern. This is considered an on-going maintenance issue.

O&M costs for 2006-2010 are summarized in Table 2.

**Table 2 - Operations & Maintenance and Long Term Remedial Action Costs**

	2008*	2009	2010	TOTAL
LTRA		\$168,488	\$80,015 (est.)	\$248,503 (est.)
O&M	\$404,865	\$10,500	\$10,500 (est.)	\$425,865 (est.)

\* Year 2008 includes applicable effort between October 1 – December 31, 2007.

\*\* Massachusetts Department of Environmental Protection costs.

**V PROGRESS SINCE THE LAST FIVE-YEAR REVIEW**

This is the first five-year review for the Site.

**VI FIVE YEAR REVIEW PROCESS**

**Administrative Components**

The complete list of personnel involved in conducting the review is presented in Table 3.

**Table 3 - Personnel Participating in the Five-Year Review**

Name	Organization	Title/Discipline	Contact Information	
			Email	Phone number
Joe Coyne*	Massachusetts Department of Environmental Protection	Project Manager	Joseph.Coyne@ma.state.us	617/348-4066
Ken Finkelstein*	NOAA	Project Manager	Ken.Finkelstein@noaa.gov	617/918-1499
Cynthia Hanna	USACE	Risk Assessor/Lead Author	<u>Cynthia.A.Hanna@usace.army.mil/</u>	978/318-8042
Peter Hugh**	USACE	Project Manager	<u>Peter.Hugh@usace.army.mil/</u>	978/318-8452
Forest Lyford*	USACE	Hydrogeologist	<u>Forest.P.Lyford@usace.army.mil/</u>	978/318-8046

Name	Organization	Title/Discipline	Contact Information	
			Email	Phone number
Mike Penko*	USACE	Ecologist & Ecological Risk Assessor	<a href="mailto:Michael.Penko@usace.army.mil/">Michael.Penko@usace.army.mil/</a>	978/318-8139
Elaine Stanley*	USEPA	Remedial Project Manager	<a href="mailto:Stanley.elainet@epa.gov">Stanley.elainet@epa.gov</a>	617/918-1332
Chris Turek**	USACE	Project Engineer	<a href="mailto:Christopher.J.Turek@usace.army.mil/">Christopher.J.Turek@usace.army.mil/</a>	978/318-8234

\* Participated in Site inspection and interview.

\*\* Participated in Site inspection only.

The review team performed the following tasks:

- Document Review
- Data Review
- Site Inspection
- Interviews
- Community Involvement
- Five-Year Report Development and Review

### Community Involvement

Community involvement in the Five-Year Review was initiated by EPA via a public notice in the New Bedford Standard Times on February 14, 2010 (see Appendix E). Various members of the public were also interviewed. Once the Five-Year Review Report has been finalized, a public notice will be published in the local paper, and the document will be available on the EPA website at <http://www.epa.gov/region1/superfund/index.html> and will be placed in the local repository located in the Millicent Public Library in Fairhaven, Massachusetts.

### Document Review

Site-related documents reviewed as part of this effort include the following:

- Remedial Investigation (Weston, 1995)
- Feasibility Study (Weston, 1998)
- Record of Decision (EPA, 2000)
- Interim Remedial Action Report (Weston, 2008)
- Operation and Maintenance Plan (April, 2009)

- Operation and Maintenance Plan Addendum No. 001, Mute Swan and Muskrat Management Plan (June, 2009)
- Sampling and Analysis Plan Addendum No. 006
- ESD
- State draft O&M September and October 2009 monitoring reports
- Final Restoration Plan (EPA 2007)
- Weston Qualitative and Quantitative Monitoring Reports, 2008-2009
- Weston quarterly, semi-annual and annual monitoring reports for groundwater, surface water and sediment, 2008-2009

### **Review of ARARs**

ARARs for the Atlas Tack Superfund Site were identified in the ROD and are attached hereto as Appendix D. Changes in standards that were identified as ARARs in the ROD, newly promulgated standards for COCs, and TBCs identified in the ROD are discussed in the Technical Assessment, to the extent they may bear on the protectiveness of the remedy.

### **Data Review**

#### Groundwater Monitoring

Long term groundwater monitoring began in December 2007. Groundwater monitoring was conducted quarterly for the years 2008 and 2009. Semi-annual monitoring is being conducted in 2010.

Groundwater flow direction in the overburden is generally from the west to the northeast across the Site with groundwater eventually discharging into Boys Creek. Groundwater flow direction in the overburden has remained unchanged following completion of Site remediation and restoration activities.

In 2009, another well was added to the monitoring well network, bringing the total number of wells from fourteen to fifteen (See Figure 3).

In general, monitoring results show that concentrations of Site groundwater contaminants have decreased over the past two years. Toluene has remained essentially non-detect in all monitoring wells. In fact, over the course of seven sampling rounds to date, there have been two detections of toluene in MW AT-8, 0.5 ug/l on 06/23/08 and 1.8 ug/l on 09-08-08. Also, there was a detection of 1.3 ug/l for MW-4R on 10-27-09 (well installed in 2009). Copper concentrations have displayed a generally decreasing trend in all monitoring wells except for AT-8 where concentrations have fluctuated over the past two years. Nickel concentrations have exhibited a fluctuating or decreasing trend in all wells except MW-3. Similarly, zinc concentrations have shown a fluctuating or decreasing trend in all wells. The highest

concentration of zinc was found in MW-7 at the beginning of the LTGM program but has shown to be decreasing and was detected below the IGCL of 810 mg/l during the latest sampling event. The second highest observed concentration of zinc was found in AT-8 at the beginning of the monitoring program and has fluctuated but does not appear to be approaching the IGCL.

Concentrations of cyanide in the former lagoon source area (MW-12) have declined since the monitoring program began. Cyanide concentration in this well was below the IGCL during the last round of sampling. For MW-14, concentrations of cyanide were not detected until 2009, where it was detected above the IGCL twice in 2009, but not detected during the last round in October 2009. In addition, increasing levels of cyanide were observed in MW-13 until the final sampling round in 2009. It should be noted that prior to the final sampling round in 2009, a significant amount of rainfall occurred.

Figures 5 through 8 show contaminant trends for copper, zinc, nickel and cyanide in groundwater for selected wells.

EPA has estimated that the IGCLs will be attained within approximately ten years after completion of the source control component. However, groundwater monitoring shall be conducted for 30 years or until it is shown that contaminant levels in the groundwater either meet or approach the IGCL consistently over a three year period. At that time, a risk assessment shall be performed on the residual groundwater contaminants to determine whether the remedial action is protective. The risk assessment shall follow EPA procedures and will assess the risks to the environmental receptors from groundwater discharge into Boys Creek.

### Surface Water Monitoring

The ROD does not provide cleanup levels for surface water, but requires that this media be monitored. Surface water sample results are compared to the EPA NRWQCs. Although these are not performance standards, comparison of monitoring results to these criteria enables progress of the natural attenuation process to be evaluated and measured against a standard reference.

Surface water samples were collected during low tide to maximize the potential groundwater influence on surface water. Although there is some area of fresh water wetland, the ultimate receiving water body is a marine coastal salt marsh, which was the principle focus of the remediation. Accordingly, results of the sampling were compared with the salt water chronic criteria (if present for a constituent) which are considered more appropriate for this Site.

During 2009, three sampling events took place on January 13, 2009, April 17, 2009 and October 28, 2009, and included two fresh water locations and four salt marsh locations (See Figure 4). Surface water was analyzed for cyanide, VOCs (benzene, toluene, ethyl benzene and xylene (BTEX)), total metals, PAHs and pesticides.

Surface water results show that there were slight exceedences of the copper chronic saltwater criteria of 3.1 µg/l at all six locations. Copper concentrations ranged from 2 µg/l to 16.1 µg/l.

Zinc was detected at concentrations exceeding saltwater chronic criteria 81 µg/l during all three events at sampling locations AT-SW-01 and AT-SW-02. At location AT-SW-01 concentrations ranged from 81.8 µg/l to 130 µg/l. At location AT-SW-02 concentrations ranged from 40.8 µg/l (duplicate result of the October 97.5 µg/l result) to 123 µg/l. At location AT-SW-03 concentrations were below the criteria ranging from 51.1 µg/l to 60.9 µg/l. At location AT-SW-04 the criteria was exceeded in January and April at 169 and 232 respectively. In October the concentration was 73.3. At locations AT-SW-05 and AT-SW-06 the concentrations exceeded the criteria at 114 and 96.8 µg/l respectively. For the April and October events, concentrations were less than the criteria with a range of 31.8 µg/l to 72.8 µg/l for AT-SW-05 and with a range of 26.3 µg/l to 42.9 µg/l for AT-SW-06.

Concentrations for lead were below the criteria of 8.1 µg/l with the exception of location AT-SW-06 for January event with a concentration of 23.7 µg/l.

Cadmium, chromium and nickel were not detected at any location at any time.

BTEX and PAH compounds were not detected in any sample.

With respect to cyanide and pesticides, this review notes that the monitoring plan sought to utilize the lowest, most practicable detection limits in order to allow for a useful comparison of the sample data against the established criteria. For cyanide and nine pesticides, however, the practical quantitation limit (PQL) of the analytical methods selected were higher than the chronic saltwater NRWQCs established for surface water. For example, the saltwater chronic criteria for cyanide, is 1 µg/l. Cyanide was not detected at any location with a PQL of 5 µg/l. Similarly, as to those of the pesticides that do have saltwater chronic criteria, there were no detections at the PQLs. As with cyanide, the PQL for all these pesticides was above the criteria. Although the reported concentrations are still considered to be of value in monitoring the effectiveness of the remedy, it is now recommended that a further consideration be made with regard to whether there may be other EPA accepted analytical methods that would report results below the NRWQCs and still be cost effective and practicable.

### Sediment Monitoring

The ROD does not provide cleanup levels for surface water and sediment but requires that these media be monitored. For sediment sample results, the NOAA's Effects Range-Median (ERM) screening values and the ER-MQ values are used for comparison. The ER-MQ is a risk assessment method developed by Dr. Kenneth Finkelstein of NOAA. During the bioavailability study a strong correlation between the ER-MQ value and toxicity was observed. The ER-MQ in a particular sample is the average of the sum of six metal concentrations (cadmium, chromium, copper, lead, nickel and zinc), divided by their respective ERMs. In general, ER-MQ values

greater than 1.0 displayed toxicity and values below 1.0 displayed no toxicity. ER-MQs were used during confirmation sampling in the marsh and creek bed remediation.

Sediment monitoring locations are located in the tidally influenced saltwater Boys Creek and within the freshwater wetland. These locations are the same as the surface water locations and were taken on the same three sampling dates. Sediment samples were analyzed for cyanide, VOCs (BTEX), total metals and pesticides. Analytical results for sediment samples collected during the three 2009 sampling events indicate the lack of site COCs detected at concentrations exceeding the monitoring criteria in all but one location during the April 2009 event.

At this location, copper, nickel, and zinc were detected at concentrations of 832 mg/kg, 92.2 mg/kg, and 741 mg/kg, respectively. These concentrations exceed the copper, nickel, and zinc monitoring criteria of 270 mg/kg, 52, mg/kg, and 410 mg/kg, respectively. The ER-MQ for this location was 1.23, indicating possible toxicity. The ER-MQ values for the remaining locations ranged from 0.2 to 0.37, indicating no toxicity.

The ROD also stated that toxicity testing would be completed as part of the sediment monitoring program. Initially, toxicity testing was not conducted, because the majority of source material was removed and clean fill was used to restore the areas excavated. Accordingly, Site sediment was not expected to contain contaminants at unacceptable levels. As noted above, results of the sediment monitoring have shown that all but one location on one date had an ER-MQ of slightly over 1.0 with a value of 1.23. This result suggests that there may be toxicity associated with this location. Therefore, it is recommended that toxicity testing be conducted in the Fall of 2010 and the Spring of 2011.

### **Site Inspection**

A Site inspection was conducted January 13, 2010, which included visual inspection of the former source areas, fencing, and on-Site groundwater monitoring wells. (Wells on adjoining properties were not inspected.) No major concerns were identified during the Site visit. The chain link fence around the Site was in good condition and the signs were prominently displayed. The soil cover appeared to be in good condition.

Provisions of the two applicable consent decrees (CDs) concerning this Site restrict the current Site property owners' uses of their property to those uses that are consistent with the risk assessment. These CDs also specifically prohibit withdrawal, consumption, exposure or utilization of groundwater for any purpose and cultivation of plants or crops for human consumption. It is expected that ICs will be implemented to make these restrictions and limitations applicable to all future owners of the Site property. No use of groundwater or other activities that would have violated the land use restrictions were observed.

## Interviews

Interviews were conducted with the following agencies and parties:

- Massachusetts Department of Environmental Protection
- United States Environmental Protection Agency
- National Oceanic and Atmospheric Association
- U.S. Army Corps of Engineers
- Weston Solution, Inc. Contractor
- Fairhaven Executive Secretary (Mr. Jeffrey Osuch)
- Fairhaven Selectman (Mr. Brian Bowcock)
- Community Activist (Ms. Patti Estrella)

Interview Record forms are attached in Appendix B. No significant issues or concerns with respect to implementation of the selected remedy were reported in the interviews.

## VII TECHNICAL ASSESSMENT

### Question A: Is the remedy functioning as intended by the decision documents?

Yes. The review of the documents, ARARs, risk assumptions and results of the Site inspection indicates that the remedy is functioning as intended by the ROD, as modified by the ESD. The excavation and off-site disposal of contaminated sludge, debris, soil (including marsh soil) and creek bed sediment has achieved the remedial objectives, i.e., to prevent direct contact with, or ingestion of, contaminants in soil and sediment, and to minimize the migration of contaminants to groundwater and surface water.

Insufficient time has elapsed since implementation of the monitored natural attenuation groundwater to define trends and reassess cleanup times. The cleanup goals for groundwater remain reasonable, given that there are no known consumers of the groundwater for drinking.

With respect to the restoration component of the remedy, vegetation in the freshwater wetland and salt marsh south of the barrier appears to be developing well, but more slowly in the salt marsh north of the barrier. There have been some unanticipated problems in the freshwater wetland, including dense growth of filamentous algae during the first growing season and damage to the berm caused by a sizable muskrat population. These problems, however, have been addressed by adaptive management measures. Overall, plant communities are progressing well, but is expected that full development of vegetation will take approximately five years from the initial restoration effort. None of these ecological concerns are likely to affect the current or future protectiveness of the remedy.

Institutional controls (ICs) are required on the Atlas Tack property north of the hurricane dike and the Hathaway-Brale property. These will be required to limit uses of the Site property by all future owners to those uses that are consistent with the risk assessment. Specifically the ICs will prohibit withdrawal, consumption, exposure or utilization of groundwater for any purpose and cultivation of plants or crops for human consumption. Restrictions on activities such as excavation and drilling that might disturb the soil would also be required. Although permanent institutional controls are not in place, the current owners of the Site properties are required by applicable consent decrees to comply with these requirements. A fence is currently in place around much of the Commercial Area and a portion of the Marsh Area north of the dike, which serves to deter trespassers (including possibly children) from entry to most of the upland area of the Site.

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

Yes, the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of remedy selection are still valid.

#### Changes in Standards and TBCs

As the remedial construction work as been completed, action specific ARARs implicated by the demolition, excavation, and wetland restoration activities have been met. Similarly, soil and sediment cleanup levels derived from the Clean Water Act, Ambient Water Quality Criteria (now known as National Recommended Water Quality Criteria (NRWQCs)) have been attained. A list of ARARs is included in Appendix D.

As discussed above, surface water at the Site is monitored in order to assess the effectiveness of the remedy over the long term. Also, a remedial action objective for the Site is to attain surface water contaminant concentrations that are protective of human health and aquatic and terrestrial receptors. Accordingly, consideration in this review has been given to changes with respect to surface water quality criteria. Specifically, in 2007 the EPA published a Biotic Ligand Model (BLM) that uses receiving water body characteristics to develop site-specific water quality criteria for copper in freshwater surface waters.

The monitoring criteria for surface water and sediment at the Site, however, are the saltwater criteria, which are considered to be the more appropriate for this Site. Notwithstanding that there are some areas of freshwater wetlands at the Site, ultimately the receiving water body is the marine coastal salt marsh that was a principal focus of this remediation. The 2007 revision states "the BLM is not to be used in the saltwater criteria derivation because further development is required before it will be suitable for use to evaluate saltwater data." Finally, it is noted that the saltwater CCC for copper equals 3.1 µg/L Cu and is protective of both freshwater and saltwater.

With the exception of a small number of changes with respect to cancer slope factors and reference doses (these are listed in the ROD as TBCs), which will be addressed below) there are no changes in these ARARs, and no new standards or TBCs affecting the protectiveness of the remedy.

### Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

The two exposure scenarios used to develop the Human Health Risk Assessment included (1) the future maintenance worker in the Commercial Area and (2) the adult trespasser. For the maintenance worker, the exposure pathways evaluated were ingestion and dermal contact with commercial soils. With respect to the adult trespasser the evaluated exposure pathways were (1) ingestion and dermal contact with commercial soils; (2) ingestion and dermal contact with Boys' Creek sediments; and (3) ingestion of hard-shelled clams. Since residential development of the Site was not planned, residential exposure scenarios initially considered in 1995, were not updated in the April 23, 1998, "Update of Baseline Human Health Risk Assessment and Development of Risk-Based Cleanup Levels" (Weston 1998a).

In the RI/FS, the potential for migration of toluene in the groundwater to indoor air was also evaluated. Although an interim groundwater cleanup level for toluene was included in the Proposed Plan, upon further examination of this exposure point, EPA determined (as documented in the 2000 ROD) that toluene did not represent a potential future threat to human health. In November 2002, however, EPA issued the "OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)." The draft guidance recommends that reevaluation of a screened-out site be carried out if site conditions or building/facility uses change in a way that might change the screening-out decision or other new information suggests greater conservatism is warranted in assessing this exposure pathway. While there are no active buildings onsite, there are residential buildings located adjacent to the Site, primarily to the south and north. Accordingly, this issue has been considered in this five-year review.

Between April 2008 and October 2009 there were six rounds of sampling data with analyses for toluene. Over that period, the highest detected toluene concentration was 1.8 ug/L during the September 2008 monitoring round at well AT-8. This concentration is much lower than the corresponding screening level for vapor intrusion (1,500 ug/L) provided in the 2002 Draft EPA Guidance on Vapor Intrusion, and suggests that no further evaluation of the potential for toluene vapor intrusion into indoor air is necessary.

However, there is insufficient groundwater VOC data at this time (with the exception of toluene as noted above), to conduct an appropriate screening of future risks from the vapor intrusion pathway for the VOCs believed to have been present at the Site. Accordingly, a recommendation is made to modify the groundwater sampling program so as to analyze samples collected from the Site wells using the SW-846 Method 8260B until sufficient data is obtained to complete a proper screening of the vapor intrusion exposure pathway. This preliminary evaluation, however, does not impact current protectiveness because the site is currently not in use and no habitable structures exist on Site or in any area of groundwater contamination.

Although there have been small number of other changes in exposure assumptions and toxicity data that were used in the original human health risk assessment, these changes are not considered to call into question the protectiveness of the remedy. In 2004 EPA published RAGS E: Supplemental Guidance for Dermal Risk Assessment, which updates the recommended dermal absorption fraction from the soil. The absorption factors for VOCs and metals were updated by RAGS E such that currently there now is no default dermal absorption value for either VOCs or inorganic classes of compounds. Based on the updated dermal absorption factors provided for VOCs and metals in RAGS E, the risk associated with dermal exposure to contaminated soils is considered reduced, and therefore the total risk associated with VOCs and metals as calculated in the ROD is also reduced.

RAGS E also updated the activity specific-surface area weighted soil adherence factors. The updated activity specific-surface area weighted soil adherence factors values published in RAGS E approximate the value used in Weston 1998 (0.08 mg/cm<sup>2</sup>), and the change is therefore believed unlikely to have a significant affect on the calculated risk values.

Changes in the toxicity values used to develop the cleanup standards set forth in the ROD were identified and evaluated to determine whether the protectiveness of the remedy would be called into question. For example, chromium (VI) also did not have an associated cancer slope factor at the time of the risk assessment. The selected remedy did not include any soil or sediment cleanup levels for chromium, and there was no confirmatory sampling for chromium during the RA. On September 28, 2009, OSWER endorsed the use of an oral slope factor of 0.5 (mg/kg/d)<sup>-1</sup> for chromium (VI). In light of this change, a conservative analysis of the risk associated with a commercial area worker's exposure to chromium (VI) in surface soils from the Commercial Area was performed for this review. Although it is possible (and maybe even likely) that chromium (VI) would have been collocated with other COCs in the contaminated soils (much of which have been removed during the cleanup), this conservative risk assessment was based on the maximum concentration of total chromium thought to have been present in the Commercial Area soil prior to the RA (i.e., an assumption that none of the total chromium detected in the Commercial Area soil, out side of the building, was removed from the Site during the RA). Utilizing the updated exposure information from RAGS E, and conservatively assuming all chromium at the Site to be chromium (VI), the cancer risk associated with chromium (VI), is calculated to be 1.63E-05, which is within the range of risks EPA generally considers acceptable.

At the time of the Updated Baseline Risk Assessment, butyl benzyl phthalate also did not have an associated cancer slope factor. The current cancer slope factor is 1.90E-03 (mg/kg-d)<sup>-1</sup>. Even assuming none of the butyl benzyl phthalate has been removed from the Site in the course of the RA, this contaminant, based on the newly adopted slope factor, would not result in an unacceptable cancer risk.

Similarly, the newly-adopted cancer slope factors for chromium (VI) and butyl benzyl phthalate were utilized to calculate the cancer risk associated with the shellfish ingestion

pathway by an adult trespasser. The calculated risks were considered to be within the acceptable risk range.

Finally, the reference doses (RfDs) for the following COCs have changed: dibenzofuran; beryllium; cobalt; vanadium; benzyl alcohol; 2-methylnaphthalene; naphthalene; and, chromium (VI). These have decreased so that the non-cancer hazard index would be higher than originally calculated for the ROD. Additionally, 1,4-dichlorobenzene has an RfD that has been established since the 2000 ROD. These changes in non-cancer toxicity values were reviewed and are considered to not call the protectiveness of the remedy into question.

In sum, no changes have occurred since the time of the ROD that would call the protectiveness of the remedy into question.

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

No, no other information come to light that could call into question the protectiveness of the remedy.

#### Technical Assessment Summary

According to the data reviewed, the Site inspection, and the interviews, the remedy is functioning as intended by the ROD, as modified by the ESD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. The soil contamination cleanup standards cited in the ROD have been met. The changes to toxicity factors for COCs that were used in the baseline risk assessment have been evaluated, as have been changes in the standardized risk assessment methodology, and these are not considered to affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

## VIII ISSUES

**Table 4 - Issues**

<b>Issues</b>	<b>Affects Current Protectiveness (Y/N)</b>	<b>Affects Future Protectiveness (Y/N)</b>
Permanent institutional controls are not in place.	N	Y
Characterization of VOCs in groundwater is not sufficient to rule out the possibility of future vapor intrusion for future use.	N	Y
Some analytical methods for surface water sampling are not sufficiently sensitive to achieve monitoring criteria levels as currently set.	N	N
Post-remediation toxicity testing has not been conducted.	N	Y

**IX RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

**Table 5 - Recommendations and Follow-up Actions**

Issue	Recommendation and Follow-up Action	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Permanent institutional controls are not in place.	Establish schedule with representatives of property owners for submission of proposed grant of easement to the Department of Justice for approval.	EPA/ Massachusetts Department of Environmental Protection	EPA	April 2011	N	Y
Characterization of VOCs in groundwater is not sufficient to rule out the possibility of future vapor intrusion.	Sample and analyze for total VOCs in groundwater Fall 2010 and Spring 2011.	EPA	EPA	Sept. 2011	N	Y
Some analytical methods for surface water sampling are not sufficiently sensitive to achieve NRWQC levels.	Investigate practicability and cost efficiency of alternative analytical methods for cyanide and nine pesticides.	EPA/ Massachusetts Department of Environmental Protection	EPA	Sept. 2011	N	N
Post-remediation toxicity testing has not been conducted.	Conduct post-remediation toxicity testing.	EPA	EPA	April 2011	N	Y

**X PROTECTIVENESS STATEMENT**

The remedy at the Site is expected to be protective of human health and the environment upon completion of the monitored natural attenuation of the groundwater. In the interim, soil and sediment at the Site no longer present an unacceptable risk to environmental receptors via ingestion of contaminated vegetation or biota, or incidental ingestion of contaminated soil and sediment. In addition, the soil will no longer act as a source of surface water and sediment contamination in Boys Creek, thereby providing suitable habitat for environmental receptors. Also, as the contaminated soil and sediment in the Commercial Area and Boys Creek have been remediated, they no longer present an unacceptable risk to human health. Additionally, court

ordered restrictions limit the current Site property owners' uses of the property to those that are consistent with the risk assessment, and specifically prohibit withdrawal, consumption, exposure or utilization of groundwater for any purpose and cultivation of plants or crops for human consumption. Similarly, activities such as excavation and drilling that might disturb the soil are limited by the order.

However, in order for the remedy to be protective in the long-term, certain follow-up actions need to be completed. Institutional Controls enforceable against all future Site property owners must be put in place to restrict certain land and groundwater uses. EPA must also evaluate potential adjustments to the surface water monitoring program, complete post-remediation toxicity testing, and perform additional evaluation of any potential vapor intrusion risks to future site users.

## **XI NEXT REVIEW**

The next five-year review is scheduled for completion five years from the date of the signature of this report.

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Weston, 2008h. Final Field Sampling and Analysis Plan, Long-Term Groundwater Monitoring, Atlas Tack Corporation Superfund Site, Fairhaven, Massachusetts.

Weston, 2009a. Final Operation and Maintenance Plan, Atlas Tack Corporation, Fairhaven, Massachusetts. April.

Weston, 2009b. Final Sampling and Analysis Plan, Addendum No. 006, Surface Water and Sediment Monitoring, Atlas Tack Corporation Superfund Site, Fairhaven, Massachusetts.

Weston, 2009c. Long-Term Groundwater Monitoring – January 2009, Atlas Tack Superfund Site, 83 Pleasant St., Fairhaven, Massachusetts.

Weston, 2009d. Long-Term Groundwater Monitoring – 2008 Annual Summary Report, Atlas Tack Corporation Superfund Site, 83 Pleasant St., Fairhaven, Massachusetts.

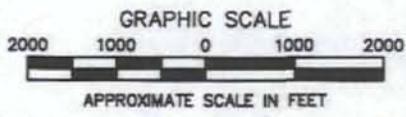
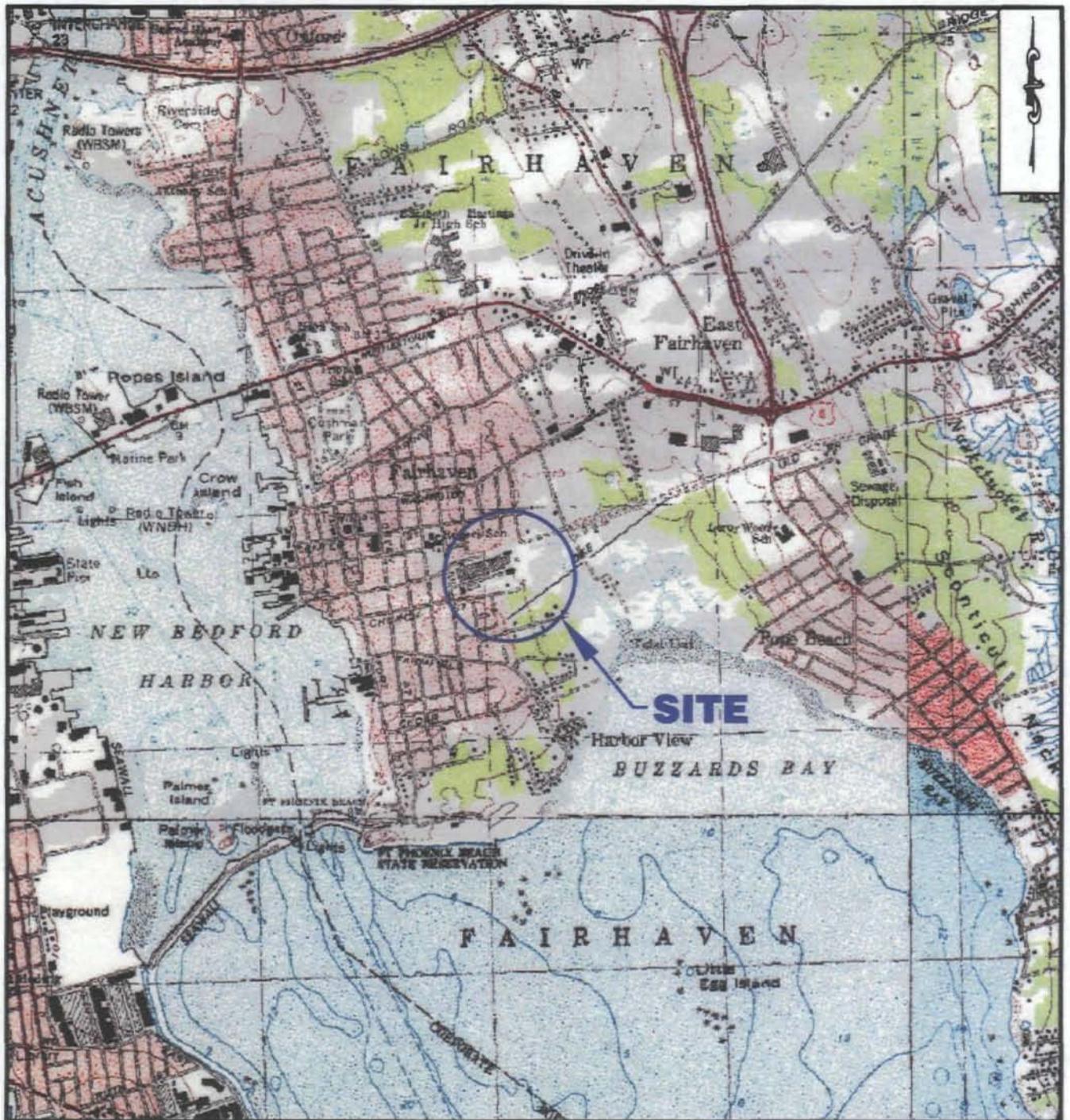
Weston, 2009e. Long-Term Groundwater Monitoring – April 2009, Atlas Tack Superfund Site, 83 Pleasant St., Fairhaven, Massachusetts.

Weston, 2010. Long-Term Groundwater Monitoring – October 2009, Atlas Tack Superfund Site, 83 Pleasant St., Fairhaven, Massachusetts.

## **APPENDIX A**

### **FIGURES**

M:\Design\DWG\ATLAS\2010\LONG-TERM GW MONITORING REPORTS\OCT 2009\FIG 1-1.dwg, Layout1, 1/13/2010 3:10:15 PM, GIRARDEB, 1:1



**NOTE:**  
 MAP FROM DELORME XMAP 4.0 SOFTWARE -  
 MASSACHUSETTS, CONNECTICUT, AND RHODE  
 ISLAND TOPO QUAD CD.



LONG-TERM GROUNDWATER MONITORING  
 ATLAS TACK SUPERFUND SITE  
 FAIRHAVEN, MASSACHUSETTS

DEPARTMENT OF THE ARMY  
 NEW ENGLAND DISTRICT  
 CORPS OF ENGINEERS  
 CONCORD, MASSACHUSETTS



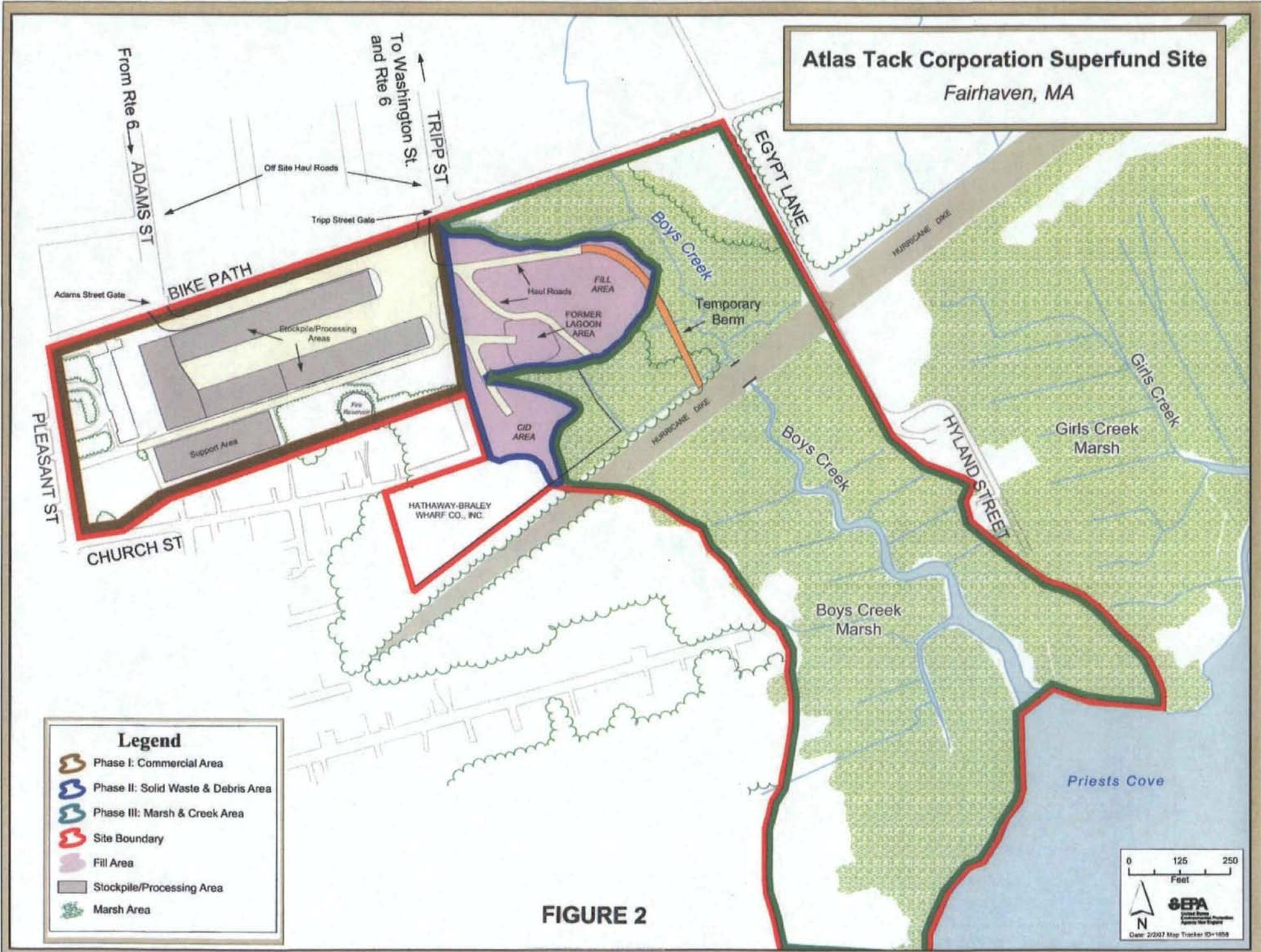
**SITE LOCATION MAP**



MANCHESTER NEW HAMPSHIRE

DRAWN	BEG
DATE	JAN 2010
FIGURE NO.	1

**Atlas Tack Corporation Superfund Site**  
Fairhaven, MA



**Legend**

- Phase I: Commercial Area
- Phase II: Solid Waste & Debris Area
- Phase III: Marsh & Creek Area
- Site Boundary
- Fill Area
- Stockpile/Processing Area
- Marsh Area

**FIGURE 2**

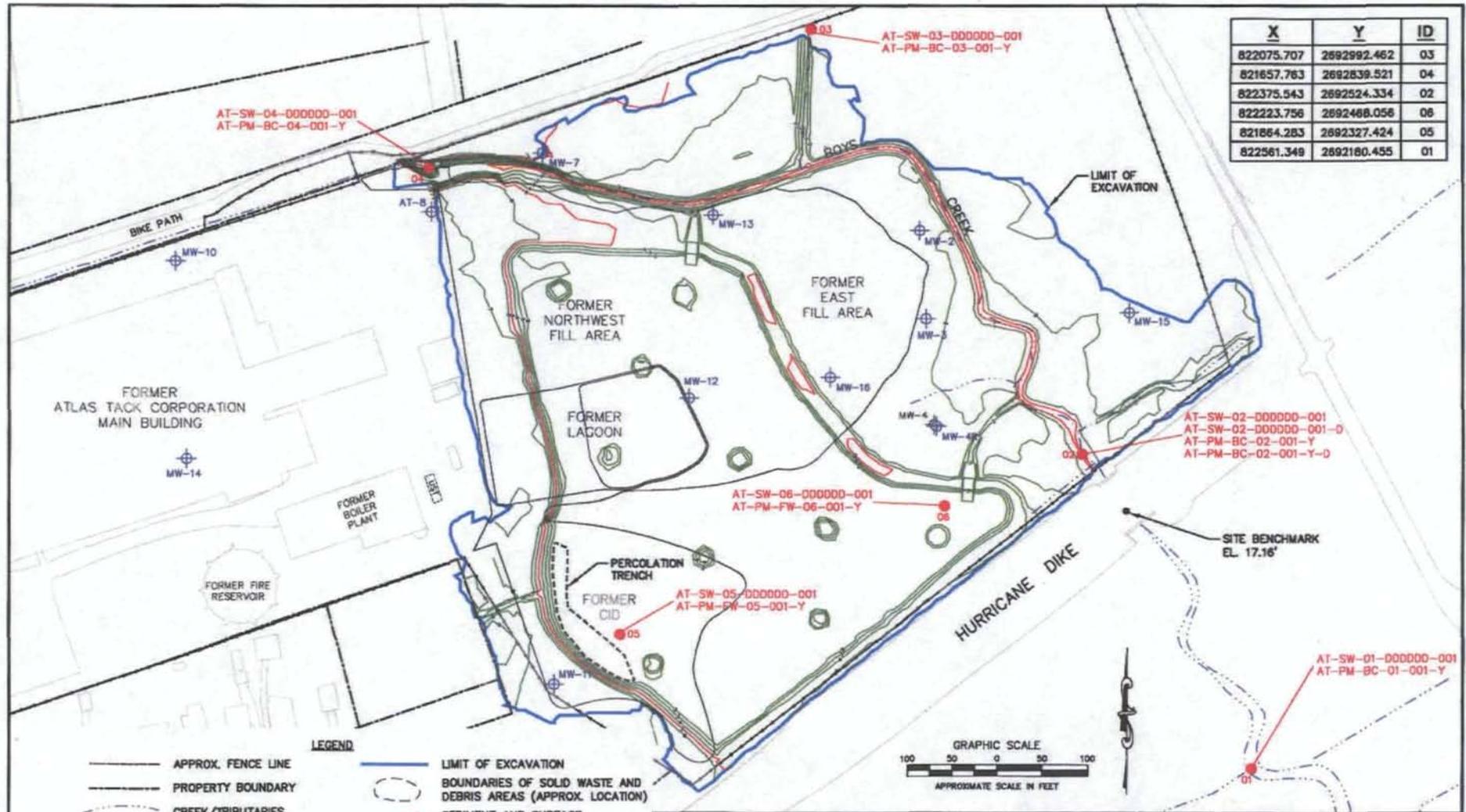
0 125 250  
Feet

N

**SEPA**  
State Environmental Planning Agency  
Date: 2/20/7 Map Tracker ID-1858



I:\Projects\060141\060141\060141\LONG-TERM GW MONITORING REPORTS\060141\060141\060141\_1-4.dwg, Layer: 1, 1/15/2010 1:32:21 PM, ORADISE, 1:1



X	Y	ID
822075.707	2892992.462	03
821657.763	2892639.521	04
822375.543	2892524.334	02
822223.756	2892468.056	06
821864.283	2892327.424	05
822561.349	2892180.455	01

- LEGEND**
- APPROX. FENCE LINE
  - PROPERTY BOUNDARY
  - - - CREEK/TRIBUTARIES
  - LIMIT OF EXCAVATION
  - BOUNDARIES OF SOLID WASTE AND DEBRIS AREAS (APPROX. LOCATION)
  - SEDIMENT AND SURFACE WATER SAMPLE LOCATION

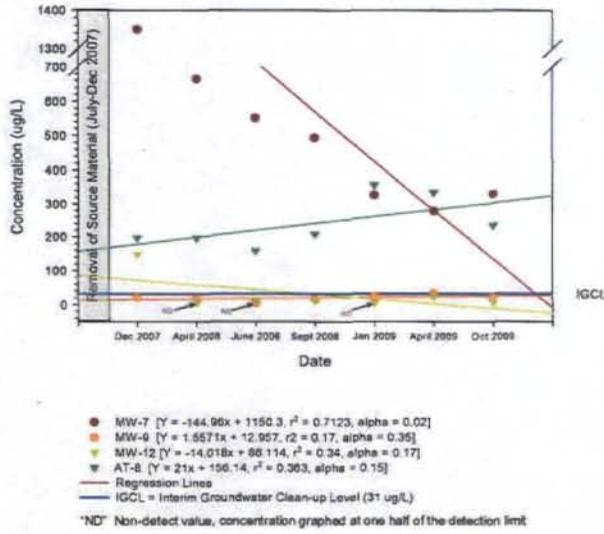
AT-SW-05-000000-001 SW - SURFACE WATER SAMPLE ID  
 AT-PM-FW-05-001-Y DDDDDD - SAMPLE DATE (MONTH/DAY/YEAR)  
 PM - SEDIMENT SAMPLE ID

**NOTES:**  
 HORIZONTAL CONTROL: MASSACHUSETTS STATE PLANE, NORTH AMERICAN DATUM 1983 - NAD83 (1996), FEET  
 VERTICAL CONTROL: NORTH AMERICAN VERTICAL DATUM 1988 - NAVD88, FEET  
 SITE BENCHMARK IS SET ABOVE CULVERT ON TOP OF DIKE, IT IS A 3"X3" SQUARE WITH DRILLED HOLE AT ITS CENTER, CUT INTO THE CONCRETE STRUCTURE (NORTHING-2892462.83, EASTING-822425.27, ELEVATION-17.16)

<b>SEDIMENT AND SURFACE WATER SAMPLE LOCATION MAP</b>				DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS CONCORD, MASSACHUSETTS	
LONGTERM GROUNDWATER MONITORING ATLAS TACK CORPORATION SUPERFUND SITE FAIRHAVEN, MASSACHUSETTS		DRAWN: BEG CHECKED: DATE	DATE: JAN 2010 SCALE: AS SHOWN	DES. ENG.: REVISION:	DATE: FIGURE NO.: 4

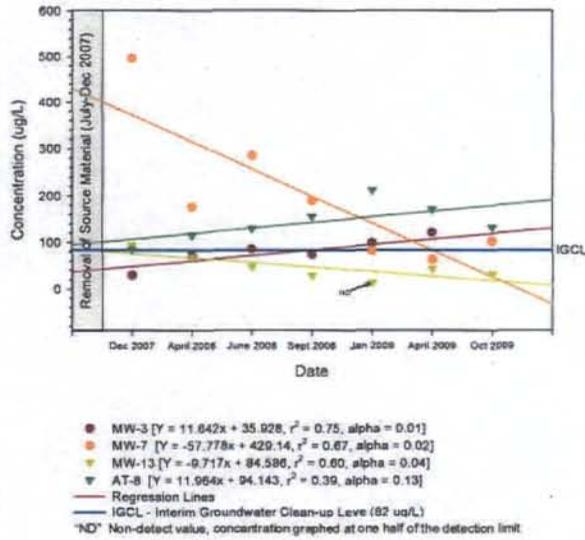
### FIGURE 5

Concentration of Copper in Groundwater



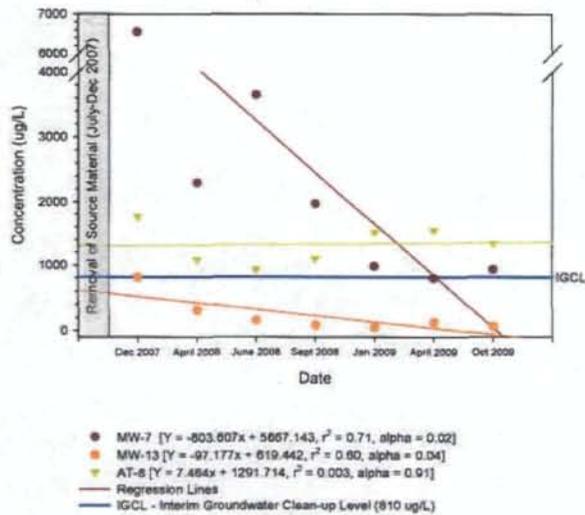
### FIGURE 6

Concentrations of Nickel in Groundwater



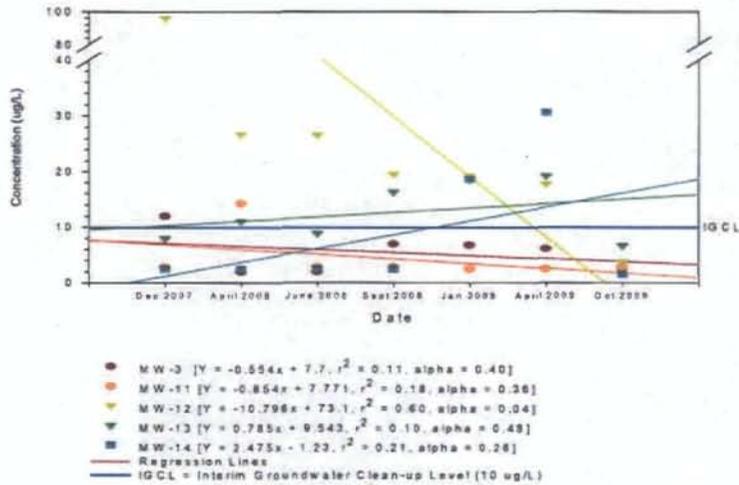
### FIGURE 7

Concentrations of Zinc in Groundwater



### FIGURE 8

Concentrations of Cyanide in Groundwater



## **APPENDIX B**

### **Interview Forms**

**INTERVIEW DOCUMENTATION FORM**

The following is a list of individual interviewed for this five-year review. See the attached contact record(s) for a detailed summary of the interviews.

Name	Title/Position	Organization	Date
Elaine Stanley	Remedial Project Manager	U.S. Environmental Protection Agency	1/13/10
Joe Coyne	Project Manager	Massachusetts Department of Environmental Protection	1/13/10
Ken Finkelstein	Environmental Scientist	National Oceanic and Atmospheric Administration	1/13/10
Ryan Jendrasiak	Quality Assurance Engineer	Weston Solutions, Inc.	1/13/10
Jeffrey Osuch	Executive Sectary	Town of Fairhaven	3/23/10
Dr. Brian Bowcock	Selectman	Town of Fairhaven	3/23/10
Patti Estrella	Community Activist	Community Member	3/23/10

## INTERVIEW RECORD

Site Name: Atlas Tack Corp.	EPA ID No.: MA001026319	
Subject: First Five-Year Review	Time:	Date: January 13, 2010
	10:00AM/PM	
Type: Telephone . <u>Visit</u> . Other	Incoming . Outgoing	
Location of Visit: Town of Fairhaven, MA		

### CONTACT MADE BY

Name: Cynthia Hanna	Title: Risk Assessor	Organization: USACE
---------------------	----------------------	---------------------

### INDIVIDUAL CONTACTED:

Name: Joe Coyne	Title: Project Manager	Organization: MassDep
Telephone No: 617/348-4066	Street Address: 1 Winter St.	
Fax No:	City, State, Zip: Boston, MA 02110	
E-Mail Address: Joseph.Coyne@state.ma.us		

### SUMMARY OF CONVERSATION

- Q1: What is your overall impression of the project and Site?  
A1: The Project was done safely, effectively, on-time, under budget, and was well regarded with the public. All parties involved are doing good work.
- Q2: Are you aware of any issues the five-year review should focus on?  
A2: Tidal marsh growth is slow and banks are eroding, particularly along Boys Creek. Monitoring is needed for tidal flushing.
- Q3: Who should USACE speak to in the community to solicit local input?  
A3: Town Hall
- Q4: Is the remedy functioning as expected?  
A4: Yes
- Q5: Is the Town actively involved in the Site or do they show an active interest?  
A5: Yes. Coyne affirmed response by Elaine Stanley to this question.
- Q6: Do you have any comments or suggestions regarding the Site's management or operation?  
A6: No
- Q7: Are you aware of any community concerns regarding the Site or its operation and administration?  
A7: No

Q8: Have there been any changes in the Site or surrounding property in the last 5 years, or are changes planned?

A8: No

Q9: Has there been any unusual or unexpected activity at the Site?

A9: Possible trespassing by people in canoes. Muskrat activity is greater than expected. Trash is minimal.

Q10: What is the frequency of O&M activities?

A10: Activities are in accordance with the O&M plan. Activities include monthly visual inspections, semi-annual groundwater sampling, and periodic (five-year?) counting of plants.

Q11: Have there been unexpected O&M difficulties since in the last 5 years?

A11: No

Q12: Have there been opportunities to optimize O&M or sampling efforts?

A12: No. There are few wells. Most of O&M is observation. It might be appropriate to add a Spring quantitation.

Q13: Have there been any complaints or incidents that required a response by your office?

A13: Only the incident of excessive muskrat activity.

Q14: Do you have specific concerns about the ecological restoration? If so, what are they?

A14: Restoration progress is good considering the short time frame. Photographs are available.

Q15: Are there any issues with the UST program response which affect the remedy?

A15: The response is not as fast as desired but has not affected the remedy. The deadline has passed for a Phase II report.

Q15: Who is the UST program contact & what is their contact information?

A15: Joe Coyne can provide a contact, if needed.

Q16: Do you have any other concerns?

A16: There was a group discussion about removing fencing from the wetland, but that topic did not appear to be a major concern.

Note: Julia Fisk, NEE (413-256-0202), and Tony Rodelakis (781-213-5654), MACTEC, provided input for responses by Joe Coyne.

## INTERVIEW RECORD

Site Name: Atlas Tack Corp.	EPA ID No.: MA001026319	
<b>Subject:</b> First Five-Year Review	Time: 10:00	Date: January 13, 2010
	AM/PM	
<b>Type:</b> Telephone <u>Visit</u> Other	Incoming    Outgoing	
Location of Visit: Town of Fairhaven, MA		

### CONTACT MADE BY

Name: Cynthia Hanna	Title: Risk Assessor	Organization: USACE
---------------------	----------------------	---------------------

### INDIVIDUAL CONTACTED:

Name: Ken Finkelstein	Title: Environmental Scientist	Organization: NOAA
-----------------------	--------------------------------	--------------------

Telephone No: 617/918-1499	Street Address: c/o EPA, Region 1 5 Post Office Square City, State, Zip: Boston, MA 02109-3912
Fax No: 617-918-0499	
E-Mail Address: <a href="mailto:ken.finkelstein@noaa.gov">ken.finkelstein@noaa.gov</a>	

### SUMMARY OF CONVERSATION

- Q1: What is your overall impression of the project and Site?  
A1: The project has worked well. Some "babysitting" was required for wetlands. Restoration has been good. No comment on the building demolition.
- Q2: Are you aware of any issues the five-year review should focus on?  
A2: Continue monitoring as is, but need to "keep an eye" on the site. Continued observations are important.
- Q3: Who should USACE speak to in the community to solicit local input?  
A3: No suggestions.
- Q4: Is the remedy functioning as expected?  
A4: Yes
- Q5: Is the Town actively involved in the Site or do they show an active interest?  
A5: UMass, Dartmouth, has shown interest in the site for education and research.
- Q6: Do you have any comments or suggestions regarding the Site's management or operation?  
A6: No
- Q7: Are you aware of any community concerns regarding the Site or its operation and administration?

A7: No

Q8: Have there been any changes in the Site or surrounding property in the last 5 years, or are changes planned?

A8: NA

Q9: Has there been any unusual or unexpected activity at the Site?

A9: No

Q10: What is the frequency of O&M activities?

A10: NA

Q11: Have there been unexpected O&M difficulties since in the last 5 years?

A11: Parts of the salt marsh have settled, but that is not necessarily a bad thing.

Q12: Have there been opportunities to optimize O&M or sampling efforts?

A12: No

Q13: Have there been any complaints or incidents that required a response by your office?

A13: NA

Q14: Do you have specific concerns about the ecological restoration? If so, what are they?

A14: There is a continuous concern about regeneration of vegetation.

Q15: Are there any issues with the UST program response which affect the remedy?

A15: NA

Q15: Who is the UST program contact & what is their contact information?

A15: NA

Q16: Do you have any other concerns?

A16: No

## INTERVIEW RECORD

Site Name: Atlas Tack Corp.		EPA ID No.: MA001026319	
Subject: First Five-Year Review		Time: AM/PM	Date: January 13, 2010
Type: Telephone <u>Visit</u> Other	Incoming    Outgoing		
Location of Visit: Town of Fairhaven, MA			

### CONTACT MADE BY

Name: Cynthia Hanna	Title: Risk Assessor	Organization: USACE
---------------------	----------------------	---------------------

### INDIVIDUAL CONTACTED:

Name: Ryan Jendrasiak	Title: Senior Construction Engineer	Organization: Weston Solutions, Inc.
Telephone No: 518-512-3717	Street Address: 518 Park Ave #2	
Fax No:	City, State, Zip: Albany, NY 12208	
E-Mail Address: <a href="mailto:Ryan.Jendrasiak@westonsolutions.com">Ryan.Jendrasiak@westonsolutions.com</a>		

### SUMMARY OF CONVERSATION

- Q1: What is your overall impression of the project and Site?  
A1: The work was accomplished by a good team working together. Construction work went smoothly. The work was completed ahead of schedule. The solution is working; there is a good O&M program in place.
- Q2: Are you aware of any issues the five-year review should focus on?  
A2: None. Continue as is but be vigilant.
- Q3: Who should USACE speak to in the community to solicit local input?  
A3: Those who have participated in public meetings.
- Q4: Is the remedy functioning as expected?  
A4: Yes
- Q5: Is the Town actively involved in the Site or do they show an active interest?  
A5: NA
- Q6: Do you have any comments or suggestions regarding the Site's management or operation?  
A6: NA
- Q7: Are you aware of any community concerns regarding the Site or its operation and administration?  
A7: No

Q8: Have there been any changes in the Site or surrounding property in the last 5 years, or are changes planned?

A8: NA

Q9: Has there been any unusual or unexpected activity at the Site?

A9: No

Q10: What is the frequency of O&M activities?

A10: NA

Q11: Have there been unexpected O&M difficulties since in the last 5 years?

A11: Yes: erosion, algal blooms, swans, muskrats, some settling in the salt marsh. The settling may not actually be a problem.

Q12: Have there been opportunities to optimize O&M or sampling efforts?

A12: Program is too new to consider optimization.

Q13: Have there been any complaints or incidents that required a response by your office?

A13: NA

Q14: Do you have specific concerns about the ecological restoration? If so, what are they?

A14: Invasives and muskrats will be a continuing problem. The area may eventually be underwater with global warming.

Q15: Are there any issues with the UST program response which affect the remedy?

A15: NA

Q15: Who is the UST program contact & what is their contact information?

A15: NA

Q16: Do you have any other concerns?

A16: No

Note: Barry Dubinski, Restoration Specialist, Weston Solutions, also contributed to this interview. His number is 610-701-3137.

**Interview Record**  
**Town of Fairhaven**  
**March 23, 2010**

Elaine Stanley, EPA Project Manager  
Stacy Greendlinger, EPA Community Involvement Coordinator

**Interviewees:**

**Jeffrey Osuch, Executive Secretary**  
**Dr. Brian Bowcock, Chair, Board of Selectmen**  
**Pat Fowle, Health Agent, Health Department --Invited but did not attend**  
**Patti Estrella, Community Advocate – Interviewed separately**

**Questions:**

**1. What is your overall impression of the project (general sentiment)?**

**BB:** I'm elated with way this has turned out. Naturalist are photographing wild life [at the site which has been] documented in the local paper and in articles. It has turned into a bird watching site.

**JO:** The cleanup went much smoother than anticipated. People feared airborne contamination and the [trucking] impact to community. Most of the time you didn't know the project was going on. There were no major issues and anything that came up EPA addressed. It was non-invasive.

**PE:** The start of the project presented a lot of struggles. To look at the life cycle of the project, I'm very happy. I was an activist at the beginning. Then being an activist took a back seat because you folks stepped up --particularly Stacy [the Community Involvement Coordinator]. With the level of communication [that was established] I was able to sit back and keep an eye on the project. The beginning years were very tough. Funding came in waves depending on which Administration. At the end I was very happy. It has been a long road. It is not over until it is paid for and the property is free.

**2. What effects have site operations had on the surrounding community?**

**JO:** Little or no impact.

**BB:** Enhancement of the local area. People are walking on the bike path. The [cleaned up site] enhances the neighborhood.

**PE:** There are no site operations.

**3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.**

**BB:** Patti expressed concern about it [the wetland] not coming back as quickly.

**JO:** There are a couple of places in the chain link fence are in need of repair.

**PE:** The fire pitwell –where did the water go and what was it filled with? Seemingly higher flooding in nearby houses since the well was filled. Plantings are not coming in too well in the saltmarsh.

**4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.**

**BB & JO:** Nothing. No emergency response. No fishing or quohogging [is happening].

**PE:** Signs are not up at Girls Creek in the water. I'm concerned that summer residents don't know about the quohog restrictions. There may be some fences pushed in.

**5. Do you feel well informed about the site's activities and progress?**

**BB:** Yes. Communication has been very good.

**JO:** Yes.

**PE:** Yeah, most definitely.

**6. Now that the site is in monitoring mode, what type of communication and how often would be helpful?**

**JO:** One time a year, plus or minus a couple of months, issue an update to the community. It can be read at the selectmen's meeting and send extras for town hall and the library.

**PE:** One time a year issue a site update. Neighborhoods are changing over and there are now neighbors who know nothing about the site.

**7. Do you have any comments, suggestions or recommendations regarding the site's management or operation?**

**JO:** No. It is probably the model EPA is using because there has been so little reaction. The process has been developed and gone through and has worked well. Any issues have quickly been dissipated.

**PE:** No. We've evolved to where we are at and it is good.

**8. Have you had any interested parties approach you about the site's future reuse? Have you heard from Atlas Tack Corp. or Hathaway Brawley?**

**JO:** Once and a while citizens ask about the front building. No developers have inquired.

**BB:** Other sites in town have developers with approved plans and they have dropped away because of the economy in the past two years. Two subdivision plans have collapsed.

**JO:** UMass hasn't approached the town in about a year.

**PE:** Community folks are wondering. Neighborhood people are wondering about the site's future reuse.

**9. Has the Town had to close the hurricane barrier's gate valve?**

**JO:** We test it once a year with the US Army Corps present. The Fire Chief is in charge of the valve.

**PE:** No, not aware of it.

**General Parting Comment:**

**BB:** This [site's communication approach] is the standard model that should be used because it has been so successful.

## **APPENDIX C**

### **Site Inspection Checklist**





**III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)**

1.	<b>O&amp;M Documents</b> <input type="checkbox"/> O&M manual <input type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs Remarks: Documents are located at respective federal and state offices and with their contractors.	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	Up to date Up to date Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
2.	<b>Site-Specific Health and Safety Plan</b> Contingency plan/emergency response plan Remarks: Did not review Site-specific health and safety plan.	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available	Up to date Up to date	N/A <input checked="" type="checkbox"/> N/A
3.	<b>O&amp;M and OSHA Training Records</b> Remarks:	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
4.	<b>Permits and Service Agreements</b> Air discharge permit Effluent discharge Waste disposal, POTW Other permits Remarks: Not reviewed	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5.	<b>Gas Generation Records</b> Remarks: Not collected	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
6.	<b>Settlement Monument Records</b> Remarks: Not monitored	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
7.	<b>Groundwater Monitoring Records</b> Remarks: See text	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	N/A
8.	<b>Leachate Extraction Records</b> Remarks: See text	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
9.	<b>Discharge Compliance Records</b> Air Water (effluent) Remarks:	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
10.	<b>Daily Access/Security Logs</b> Remarks:	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A



<b>C. Institutional Controls (ICs)</b>				
1.	<b>Implementation and enforcement</b>			
	Site conditions imply ICs not properly implemented	Yes	No	<input checked="" type="checkbox"/> N/A
	Site conditions imply ICs not being fully enforced	Yes	No	<input type="checkbox"/> N/A
	Type of monitoring (e.g., self-reporting, drive by) _____			
	Frequency _____			
	Responsible party/agency _____			
	Contact <u>Ralph Larimore, Republic Services</u> _____			
	Name	Title	Date	Phone no.
	Reporting is up-to-date	Yes	No	<input checked="" type="checkbox"/> N/A
	Reports are verified by the lead agency	Yes	No	<input checked="" type="checkbox"/> N/A
	Specific requirements in deed or decision documents have been met	Yes	No	<input checked="" type="checkbox"/> N/A
	Violations have been reported	Yes	No	<input checked="" type="checkbox"/> N/A
	Other problems or suggestions:    Report attached			
	_____			
	_____			
	_____			
2.	<b>Adequacy</b>	ICs are adequate	<input type="checkbox"/> ICs are inadequate	<input checked="" type="checkbox"/> N/A
	Remarks _____			
	_____			
<b>D. General</b>				
1.	<b>Vandalism/trespassing</b>	<input type="checkbox"/> Location shown on Site map	<input checked="" type="checkbox"/> No vandalism evident	
	Remarks _____			
	_____			
2.	<b>Land use changes on Site</b>	<input type="checkbox"/> N/A		
	Remarks: None _____			
	_____			
3.	<b>Land use changes off Site</b>	<input checked="" type="checkbox"/> N/A		
	Remarks: None _____			
	_____			
<b>VI. GENERAL SITE CONDITIONS</b>				
<b>A. Roads</b>				
	Applicable	N/A		
1.	<b>Roads damaged</b>	Location shown on Site map	<input checked="" type="checkbox"/> Roads adequate	<input type="checkbox"/> N/A
	Remarks _____			
	_____			

<b>B. Other Site Conditions</b>			
Remarks : No problems _____			
_____			
_____			
_____			
_____			
<b>VII. LANDFILL COVERS</b> Applicable    N/A			
<b>A. Landfill Surface</b>			
1.	<b>Settlement</b> (Low spots) Areal extent _____ Remarks: _____	Location shown on Site map Depth _____	Settlement not evident
2.	<b>Cracks</b> Lengths _____    Widths _____ Remarks _____	Location shown on Site map Depths _____	Cracking not evident
3.	<b>Erosion</b> Areal extent _____ Remarks _____	Location shown on Site map Depth _____	Erosion not evident
4.	<b>Holes</b> Areal extent _____ Remarks _____	Location shown on Site map Depth _____	Holes not evident
5.	<b>Vegetative Cover</b> Grass    /    Cover properly established    No signs of stress Trees/Shrubs (indicate size and locations on a diagram) Remarks: _____		
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b> N/A Remarks _____		
7.	<b>Bulges</b> Areal extent _____ Remarks _____	Location shown on Site map Height _____	Bulges not evident

8.	<b>Wet Areas/Water Damage</b> Wet areas Ponding Seeps Soft subgrade Remarks _____	Wet areas/water damage not evident Location shown on Site map Location shown on Site map Location shown on Site map Location shown on Site map	Areal extent _____ Areal extent _____ Areal extent _____ Areal extent _____
9.	<b>Slope Instability</b> Areal extent _____ Remarks _____	Slides Location shown on Site map	No evidence of slope instability
<b>B. Benches</b> Applicable                      N/A			
1.	<b>Flows Bypass Bench</b> Remarks _____	Location shown on Site map	N/A or okay
2.	<b>Bench Breached</b> Remarks _____	Location shown on Site map	N/A or okay
3.	<b>Bench Overtopped</b> Remarks _____	Location shown on Site map	N/A or okay
<b>C. Letdown Channels</b> Applicable                      N/A			
1.	<b>Settlement</b> Areal extent _____ Remarks _____	Location shown on Site map Depth _____	No evidence of settlement
2.	<b>Material Degradation</b> Material type _____ Remarks _____	Location shown on Site map Areal extent _____	No evidence of degradation
3.	<b>Erosion</b> Areal extent _____ Remarks _____	Location shown on Site map Depth _____	No evidence of erosion

4.	<b>Undercutting</b>	Location shown on Site map	No evidence of undercutting
	Areal extent _____	Depth _____	
	Remarks _____		
5.	<b>Obstructions</b>	Type _____	No obstructions
	Location shown on Site map	Areal extent _____	
	Size _____		
	Remarks _____		
6.	<b>Excessive Vegetative Growth</b>	Type _____	
	Location shown on Site map	Areal extent _____	
	Remarks _____		
<b>D. Cover Penetrations</b> Applicable    N/A			
1.	<b>Gas Vents</b>	N/A    Active    Passive	
	Properly secured/locked	N/A	
	Evidence of leakage at penetration	N/A	
	Remarks: _____		
2.	<b>Gas Monitoring Probes</b>	Functioning    Routinely sampled    Good condition	
	Properly secured/locked	Needs Maintenance    N/A	
	Evidence of leakage at penetration		
	Remarks _____		
3.	<b>Monitoring Wells (within surface area of landfill)</b>	Functioning    Routinely sampled    Good condition	
	Properly secured/locked	Needs Maintenance    N/A	
	Evidence of leakage at penetration		
	Remarks _____		
4.	<b>Leachate Extraction Wells</b>	Functioning    Routinely sampled    Good condition	
	Properly secured/locked	Needs Maintenance    N/A	
	Evidence of leakage at penetration		
	Remarks _____		
5.	<b>Settlement Monuments</b>	Located    Routinely surveyed    N/A	
	Remarks: No recent surveys _____		



<b>H. Retaining Walls</b>		Applicable	N/A
1.	<b>Deformations</b> Horizontal displacement _____ Rotational displacement _____ Remarks: _____	Location shown on Site map	Deformation not evident Vertical displacement _____
2.	<b>Degradation</b> Remarks: _____	Location shown on Site map	Degradation not evident
<b>I. Perimeter Ditches/Off-Site Discharge</b>		Applicable	N/A
1.	<b>Siltation</b> Areal extent _____ Remarks: _____	Location shown on Site map	Siltation not evident Depth _____
2.	<b>Vegetative Growth</b> Vegetation does not impede flow Areal extent _____ Remarks: _____	Location shown on Site map	N/A Type _____
3.	<b>Erosion</b> Areal extent _____ Remarks: _____	Location shown on Site map	Erosion not evident Depth _____
4.	<b>Discharge Structure</b> Remarks: _____	Functioning	N/A
<b>VIII. VERTICAL BARRIER WALLS</b>		Applicable	X N/A
1.	<b>Settlement</b> Areal extent _____ Remarks: _____	Location shown on Site map	X Settlement not evident Depth _____
2.	<b>Performance Monitoring</b> Performance not monitored Frequency _____ Remarks: _____	Type of monitoring: visual observation.	Evidence of breaching _____

<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>				<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
<b>A. Groundwater Extraction Wells, Pumps, and Pipelines</b>			Applicable	<input checked="" type="checkbox"/> N/A	
1.	<b>Pumps, Wellhead Plumbing, and Electrical</b>	Good condition			
Remarks: _____					
2.	<b>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b>	Good condition	Needs Maintenance		
Remarks: _____					
3.	<b>Spare Parts and Equipment</b>	Readily available	Good condition	Requires upgrade	Needs to be provided
Remarks: _____					
<b>B. Surface Water Collection Structures, Pumps, and Pipelines</b>			Applicable	<input checked="" type="checkbox"/> N/A	
1.	<b>Collection Structures, Pumps, and Electrical</b>	Good condition	Needs Maintenance		
Remarks: Flood storage area in good condition					
2.	<b>Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b>	Good condition	Needs Maintenance		
Remarks: N/A					
3.	<b>Spare Parts and Equipment</b>	Readily available	Good condition	Requires upgrade	Needs to be provided
Remarks: N/A					

<b>C. Treatment System</b>		Applicable	X N/A
1.	<b>Treatment Train</b> (Check components that apply) Metals removal                      Oil/water separation                      Bioremediation Air stripping                                      Carbon adsorbers Filters _____ Additive (e.g., chelation agent, flocculent) _____ Others _____ Good condition                      Needs Maintenance Sampling ports properly marked and functional Sampling/maintenance log displayed and up to date Equipment properly identified Quantity of groundwater treated annually _____ Quantity of surface water treated annually _____ Remarks _____ _____		
2.	<b>Electrical Enclosures and Panels</b> (properly rated and functional) N/A                      Good condition      Needs Maintenance Remarks _____ _____		
3.	<b>Tanks, Vaults, Storage Vessels</b> N/A                      Good condition      Proper secondary containment                      Needs Maintenance Remarks _____ _____		
4.	<b>Discharge Structure and Appurtenances</b> N/A                      Good condition      Needs Maintenance Remarks _____ _____		
5.	<b>Treatment Building(s)</b> N/A                      Good condition (esp. roof and doorways)                      Needs repair Chemicals and equipment properly stored Remarks: . _____ _____		
6.	<b>Monitoring Wells</b> (pump and treatment remedy) Properly secured/locked      Functioning                      Routinely sampled                      Good condition All required wells located      Needs Maintenance                      N/A Remarks _____ _____		
<b>D. Monitoring Data (For treatment system)</b>			
1.	Monitoring Data Is routinely submitted on time		Is of acceptable quality
2.	Monitoring data suggests: Groundwater plume is effectively contained		Contaminant concentrations are declining

**D. Monitored Natural Attenuation**

1. **Monitoring Wells** (natural attenuation remedy)  
X Properly secured/locked      X Functioning      X Routinely sampled      X Good condition  
X All required wells located      \_\_\_ Needs Maintenance      \_\_\_ N/A  
Remarks\_   
wells secured.

**X. OTHER REMEDIES**

If there are remedies applied at the Site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy for groundwater contamination is monitored natural attenuation. The remedy appears to be working based on the Site inspection.

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**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

See text of report.

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**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, which suggest that the protectiveness of the remedy may be compromised in the future.

None.

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

No opportunities for optimization observed during Site visits.

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## **APPENDIX D**

### **ARARS Tables**

**CHEMICAL-SPECIFIC ARARs and TBCs**

Requirement	Requirement Synopsis	Actions to be Taken to Attain Requirement	Status
Clean Water Act, Ambient Water Quality Criteria, 33 USC 1313, 1314; 64 Fed. Reg. 19781	Establishes national recommended surface water quality criteria for the protection of human health and aquatic life for approximately 150 pollutants, and requires state water quality standards for the same protective purposes. These criteria have been incorporated into the Massachusetts Surface Water Quality Standards.	The Ambient Water Quality Criteria (AWQC) were used to establish interim groundwater cleanup levels and soil and sediment cleanup levels. Contaminated soils and sediments will be excavated (and disposed of off-site) and the contaminants in the groundwater will naturally attenuate (with the assistance of phytoremediation) to attain these ARARs.	Relevant and Appropriate
Cancer Slope Factors (CSFs)	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	Cleanup action will minimize exposure to potential receptors	TBC
Reference Doses (RfDs)	These are guidance values used to evaluate the potential non-carcinogenic hazard caused by exposure to contaminants.	Cleanup action will minimize exposure to potential receptors	TBC
The Potential of Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and Trends Program, NOAA Technical Memorandum NOS OMA 52 (Long & Morgan, 1990) and Incidence of Adverse Biological Effects Within Range of Chemical Concentrations in Marine and Estuarine Sediments (Long, et al., 1995)	These reports identify contaminant concentrations in sediments associated with deleterious effects on fish and invertebrates in estuarine and marine environments.	This TBC was used to establish the cleanup levels for sediments. The selected remedy's excavation of sediments (0-2 feet deep) within Boys Creek and adjacent marsh will be consistent with this TBC.	TBC
Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil (EPA, December 1996)	This report describes a methodology for assessing risks associated with non-residential adult exposures to lead in soil. This methodology focuses on estimating fetal blood lead concentrations in women exposed to lead contaminated soils.	The soil cleanup level for lead in the Commercial Area was established based upon this TBC.	TBC

**LOCATION-SPECIFIC ARARs and TBCs**

<b>Media</b>	<b>Requirement</b>	<b>Requirement Synopsis</b>	<b>Actions to be Taken to Attain Requirement</b>	<b>Status</b>
Wetlands	Clean Water Act § 404 (40 CFR 230)	No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the discharge which would have a less adverse impact to the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. Discharge cannot cause or contribute to violations of any state water quality standard or toxic effluent standard or jeopardize threatened or endangered species. Discharge cannot cause or contribute to significant degradation of the waters of U.S. Appropriate and practicable steps must be taken which will minimize the potential adverse impacts of the discharge of the dredged material on the aquatic ecosystem.	These requirements will be attained because there is no practicable alternative with less adverse impact and all practicable measure will be taken to minimize and mitigate any adverse impacts. Excavated materials will be dewatered or solidified/stabilized. Dredged materials will not be discharged to the aquatic system. Excavated areas will be filled with clean materials from off-site, in accordance with 40 CFR 230. The performance of the selected remedy will not result in any discharge that will cause or contribute to exceedances of state water quality standards or toxic effluent standards or to degradation of water quality.	Applicable
Wetlands Floodplains	Procedures on Floodplain Management and Wetlands Protection (40 CFR 6, App. A)	Federal agencies shall avoid, whenever possible, the long and short term impacts associated with the destruction of wetlands and the occupancy and modifications of floodplains and wetlands development wherever there is a practicable alternative in accordance with Executive Orders 11990 and 11988. The agency shall promote the preservation and restoration of floodplains so that their natural and beneficial values can be realized. Any plans for actions in wetlands or floodplains must be submitted for public review.	These requirements will be attained because there is no practicable alternative with less adverse impact to work in the wetlands and floodplains with less adverse impact, and all practicable measure will be taken to minimize and mitigate any adverse impacts. Wetlands and floodplains disturbed by excavation will be restored to their original conditions. Temporary fill placed in wetlands for access roads and staging area will not have a significant impact on the extent of flooding.	Applicable
Wetlands	Fish and Wildlife Coordination Act, 16 USC 661 et. seq. (50 CFR Part 81, 225, 402, 226, and 227)	Requires federal agencies to take into consideration the effect that water-related projects will have on fish and wildlife. Requires consultation with the Fish and Wildlife Service and the state to develop measures to prevent, mitigate, or compensate for project-related losses to fish and wildlife.	Consultation with the Fish and Wildlife Services to develop plan to controlling affects on wildlife during remediation activities. This plan will include sampling and analysis of the creek water to ensure minimal impact.	Applicable
Wetlands	Massachusetts Wetlands Protection Act (310 CMR 10.00)	These regulations are promulgated under Wetlands Protection Laws, which regulate dredging, filling, altering, or polluting of wetlands. Work within 100 feet of a wetland is regulated under this requirement. The requirement also defines wetlands based on vegetation type and requires that efforts on wetlands be mitigated. These regulations also contain wildlife habitat evaluation provisions.	If the remedial action activities involve removing, filling, dredging, or altering a DEP-defined wetland, or conducting work within 100 feet of a wetland, these regulations will be met. Whenever possible, remedial actions will be conducted so that impacts to wetlands and habitats will be minimized or mitigated.	Applicable

**LOCATION-SPECIFIC ARARs and TBCs (Continued)**

Media	Requirement	Requirement Synopsis	Actions to be Taken to Attain Requirement	Status
Wetlands	River Protection Act Amendments to the Massachusetts Wetlands Protection Act (310 CMR 10.58).	These requirements added a new resource area and accompanying performance standards to the Wetlands Protection Act. The resource area is called the "riverfront area," which extends 200 feet (25 feet in municipalities with large populations and in densely developed areas) on each side of perennial rivers and streams. Projects must not have significant adverse impacts on the riverfront area, in order to protect public and private water supplies, wildlife habitat, fisheries, shellfish, groundwater, and to prevent flooding, storm damage and pollution. It must also be demonstrated that there are no practicable and substantially equivalent economic alternatives to the proposal work with less adverse effects on these public interests.	Work at the Site will be within 25 feet of the edge of Boys Creek. The project will have no long-term significant adverse impact; instead, the removal of contaminated sediments and soils will have a significant positive impact. Also, these requirements will be attained because there are no practicable and substantially equivalent economic alternatives to the proposed work with less adverse effects.	Applicable
Dredged Materials	Massachusetts Clean Waters Act Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters of the United States within the Commonwealth (314 CMR 9.00)	The substantive portions of these regulations establish criteria and standards for the dredging, handling and disposal of fill material and dredged material.	Excavation and filling operations will meet substantive criteria and standards in these regulations. The remedial alternative will be designed to ensure the maintenance or attainment of the MA Water Quality Standards in the affected water and to minimize the impact on the environment.	Applicable
Coastal Zone	Coastal Zone Management Act, 16 USC 1451, et. seq., as implemented by 15 CFR 930, Federal Consistency With Approved Coastal Management Programs	The general provisions of 15 CFR 930 are intended to insure that all federally conducted or supported activities including development projects, directly affecting the coastal zone are undertaken in a manner consistent to the maximum extent practicable with approved State coastal location of the Site makes this act, and related state coastal zone policies, applicable to potential remedial actions at the Site.	All practicable measure will be taken to ensure compliance with substantive requirements of the State coastal management programs.	Applicable
Coastal Zone	Commonwealth of MA - Coastal Zone Management (CZM) Water Quality Policy 1 and Water Quality Policy 3	Requires federal agencies to ensure that point-source discharges in or affecting the coastal zone are consistent with federally approved state effluent limitations and water quality standards. Requires that activities in or affecting the coastal zone conform to applicable state and federal requirements governing surface water discharges.	The selected remedy will not result in any discharge; but, if there is a point source discharge, it will meet AWQC for protection of marine aquatic life from chronic effects.	TBC

**LOCATION-SPECIFIC ARARs and TBCs (Continued)**

<b>Media</b>	<b>Requirement</b>	<b>Requirement Synopsis</b>	<b>Actions to be Taken to Attain Requirement</b>	<b>Status</b>
Coastal Zone	Commonwealth of MA - CZM Water Quality Policy 2	Requires protection of coastal resource areas including salt marshes, shellfish beds, dunes, beaches, barrier beaches, salt ponds, eelgrass beds, and freshwater wetlands for their important role as natural habitats.	Erosion controls will be implemented as necessary to prevent runoff of surface water containing soils or site contaminants. Implemented through Waterways and Wetland Protection Regulations.	TBC
Coastal Zone	Commonwealth of MA - CZM Habitat Policy 1	Requires protection of coastal resource areas including salt marshes, shellfish beds, dunes, beaches, barrier beaches, salt ponds, eelgrass beds, and freshwater wetlands for their important role as natural habitats.	All practicable measures will be taken to ensure the coastal resource areas adjacent to the Atlas Tack site will be protected during remediation activities. Disturbed wetlands will be restored as part of the site activities.	TBC
Coastal Zone	Commonwealth of MA - CZM Habitat Policy 2	Requires restoration of degraded or former wetland resources in coastal areas and ensure that activities in coastal areas do not further wetland degradation but instead take advantage of opportunities to engage in wetland restoration.	Areas disturbed by excavation will be restored. This will include construction of ditches to promote flooding by tides to promote the establishment of high marsh plant species where appropriate.	TBC
Coastal Zone	Commonwealth of MA - CZM Coastal Hazard Policy 1	Preserve, protect, restore and enhance the beneficial functions of storm damage prevention and flood control provided by natural coastal landforms such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under the ocean.	Adjacent marshes and wetlands will be restored if disturbed during remedial site activities. If creek flow is diverted during site activities, care will be taken to protect downstream coastal resources.	TBC
Coastal Zone	Commonwealth of MA - CZM Coastal Hazard Policy 2	Ensure construction in water bodies and contiguous land areas will minimize interference with water circulation and sediment transport. Approve flood or erosion control projects only when it has been determined that there will be no significant adverse effects on the project site or adjacent or downcoast areas.	Assure the excavation procedures, flood control, and erosion control will protect downstream and adjacent wetlands and coastal resources.	TBC
Rare Species	Massachusetts Wetlands Protection Program Policy 90-2; Standards and Procedures for Determining Adverse Impacts to Rare Species	This policy clarifies the rules regarding rare species habitat contained at 310 CMR 10.37 and 10.59.	Habitats of rare species as determined by the Massachusetts Natural Heritage Program will be considered in the mitigation plans.	TBC

**ACTION-SPECIFIC ARARs and TBCs**

<b>Media</b>	<b>Requirement</b>	<b>Requirement Synopsis</b>	<b>Actions to be Taken to Attain Requirement</b>	<b>Status</b>
Dewatering Water	Massachusetts Ground Water Discharge Permit Program 314 CMR 5.00	Any discharge shall not result in a violation of Massachusetts Surface Water Quality Standards (314 CMR 4.00) or Massachusetts Ground Water Quality Standards (314 CMR 6.00).	Water from dewatering excavated soils and sediments may be discharged onto the land surface within the wetland buffer. The discharge shall not result in a violation of these requirements.	Applicable if there are discharges to groundwater
Surface Water	Clean Water Act: National Pollution Discharge Elimination System (NPDES) 40 CFR Part 122	Regulates the discharge of water into public surface waters. Among other things, major requirements are: <ul style="list-style-type: none"> <li>• Use of best available technology (BAT) economically achievable is required to control toxic and non-conventional pollutants. Use of best conventional pollutant control technology (BCT) is required to control conventional pollutants. Technology-based limitations may be determined on a case-by-case basis.</li> <li>• Applicable Federally approved State water quality standards must be complied with. These standards may be in addition to or more stringent than other Federal standards under the CWA.</li> </ul>	Any point source discharge will comply with all substantive NPDES requirements.	Applicable if there are discharges to surface water
Surface Water	Massachusetts Surface Water Quality Standards 314 CMR 4.00	These standards designate the most sensitive uses for which the various waters of the Commonwealth shall be enhanced, maintained and protected. Minimum water quality criteria required to sustain the designated uses are established. Massachusetts surface water quality standards incorporate federal AWQC as standards for the surface waters of the State. Any on-site water treatment and discharge is subject to these requirements.	Any point source discharge will comply with these requirements.	Applicable if there are discharges to surface water
Hazardous Waste	RCRA Hazardous Waste Regulations (Identification and Listing of Hazardous Wastes) 40 CFR Part 261	These regulations define wastes that are subject to regulation as hazardous wastes.	Wastes and contaminated media (debris, soils and sediments) excavated at the Site will be analyzed to determine if they are listed hazardous waste, "contain" listed hazardous waste or exhibit a characteristic of hazardous waste; in compliance with these regulations.	Applicable

**ACTION-SPECIFIC ARARs and TBCs (Continued)**

Media	Requirement	Requirement Synopsis	Actions to be Taken to Attain Requirement	Status
Hazardous Waste	RCRA Hazardous Waste Regulations (Storage of Hazardous Waste) 40 CFR Part 264, Subparts I, J & L 40 CFR 262.34(a)	Subparts I, J and L of Part 264 identify design, operating, monitoring, closure, and post-closure care requirements for long-term storage of RCRA hazardous waste in containers, tanks and waste piles, respectively. However, 262.34(a) allows accumulation of RCRA hazardous wastes for up to 90 days in or on containers, tanks or drip pads, provided that the generator complies with Part 265.	During remediation, remediation wastes will be stored in containers, tanks and/or waste piles (or on drip pads) in compliance with these requirements	Applicable
Excavated/Dredged Materials; Treatment Residuals	TSCA, Subpart D (Storage and Decontamination) 40 CFR 761.65 & 761.79	These regulations establish requirements for the storage for disposal of PCBs and PCB items with concentrations of 50 ppm or greater. These various requirements include requirements for roof, flooring, curbing, and location outside 100-year floodplain. They also establish decontamination standards and procedures for removing PCBs from non-porous surfaces.	Storage of PCB materials will be conducted in compliance with these requirements. Solid debris, excluding trees and bushes, which have been contaminated with regulated PCB materials will be decontaminated prior to off-site transport and disposal in accordance with these requirements; in addition, equipment will be cleaned in accordance with these regulations.	Applicable
Ambient Air	Massachusetts Ambient Air Quality Standards and Massachusetts Air Pollution Control Regulations 301.CMR 7.00	The applicable portions of these regulations prohibit burning or emissions that cause or contribute to a condition of air pollution, including dust from excavation activities.	Control measures will be implemented to ensure compliance with state regulations.	Applicable
Wastewater	Massachusetts Supplemental Requirements for Hazardous Waste Management Facilities 314 CMR 8:00	Water treatment units which are exempted from M.G.L.a.21C and which treat, store, or dispose of hazardous wastes generated at the same site are regulated to ensure that such activities are conducted in a manner which protects public health and safety and the environment.	If on-site treatment of wastewater is performed, all processes will comply with all substantive Massachusetts requirements regarding location, technical standards, closure and post-closure, and management standards.	Applicable
Soil/Sediment	A Guide on Remedial Actions at Superfund Sites With PCB Contamination (EPA, August 1990)	Describes various scenarios and considerations pertinent to determining the appropriate level of PCBs that can be left in each contaminated media to achieve protection of human health and the environment.	This guidance was considered in determining the appropriate level of PCBs that will be left in the soils. Management of PCB-contaminated residuals will be designed in accordance with the guidance.	TBC

# **APPENDIX E**

## **Public Notice**

## **EPA Evaluates Cleanup Activities at Atlas Tack Corp. Superfund Site**

The U.S. Environmental Protection Agency (EPA) is beginning its first Five-Year Review of the Atlas Tack Corporation Superfund Site in Fairhaven, MA. This review evaluates the site's cleanup activities to ensure the continued protection of human health and the environment and occurs every five years until a site is deemed suitable for unrestricted use and unlimited access. The Five-Year Review will be completed by June 2010. The results of the review will be publicly available.

The groundwater is contaminated with cyanide and heavy metals used by the former Atlas Tack Corporation in the manufacturing of tacks, steel nails, and similar items. Soil and debris were contaminated with volatile organic compounds, heavy metals, pesticides, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). Between 2005 and 2007, EPA excavated and disposed off-site approximately 108,000 tons of contaminated soil, debris, and sediment. The site now meets commercial/industrial cleanup standards and is privately owned. More site information can be found on-line at [www.epa.gov/region1/superfund/sites/atlas](http://www.epa.gov/region1/superfund/sites/atlas) or at Fairhaven's Millicent Library.

The Mass. Department of Environmental Protection (MassDEP) is overseeing the maintenance of the site's restoration and in 2018 will assume from EPA the groundwater monitoring responsibilities. MassDEP will continue this groundwater monitoring until the ecologically based groundwater cleanup levels are met.

Public participation in the Five-Year Review process is welcomed.



United States  
Environmental Protection  
Agency New England

If you are interested in participating or if you would like more information, contact:  
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617-918-1403  
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