

SUPERFUND

W.R. Grace (Acton Plant) Superfund Site

U.S. EPA | HAZARDOUS WASTE PROGRAM AT EPA NEW ENGLAND



THE SUPERFUND PROGRAM protects human health and the environment by investigating and cleaning up often-abandoned hazardous waste sites and engaging communities throughout the process. Many of these sites are complex and need long-term cleanup actions. Those responsible for contamination are held liable for cleanup costs. EPA strives to return previously contaminated land and groundwater to productive use.

SITE DESCRIPTION:

The W. R. Grace (Acton Plant) Superfund site is located in the towns of Acton and Concord, Massachusetts and has been used for industrial purposes since the 1800's. The W. R. Grace property is comprised of approximately 260 acres of land in both towns and includes several surface water bodies and wetlands. Grace acquired the property in 1954 and produced materials used to make concrete additives, organic chemicals, container sealing compounds, latex products, and paper and plastic battery separators. In 1982, all production of organic chemicals ceased at the Grace (Acton Plant) facility. The site was listed on the National Priorities List (NPL) in 1983.

IS THE DRINKING WATER SAFE?

Yes. The Acton Water District (AWD) continues to closely monitor, sample and treat the town's drinking water to ensure that safe drinking water standards are maintained, and to ensure that clean drinking water continues to be provided to all residents. The AWD will continue to provide oversight at the site until safe and appropriate cleanup levels are achieved.

WHERE WE ARE NOW:

There are four main areas at which the recent cleanup activities at the Grace site were performed: the Northeast Area, the Landfill Area, Sinking Pond and the North Lagoon Wetlands. See Figure 1. Contaminated groundwater continues to be extracted and treated from both the Landfill Area and the Northeast Area of the site. Contaminated sediments from both the North Lagoon Wetland and Sinking Pond that posed unacceptable risks were excavated and properly disposed of at an approved offsite disposal facility. The below section provides a summary of the construction and cleanup activities that have recently been completed. The Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MassDEP), the town of Acton, the AWD, and the Acton Citizens for Environmental Safety (ACES) will continue to provide oversight at the site.

NORTHEAST AREA:

Construction of the Northeast Area groundwater treatment system began in June 2009 and was completed in March 2010. This system consists of 1) an extraction well, from which approximately 20 gallons per minute (GPM) of contaminated groundwater are withdrawn from 211 feet below the ground surface (fbgs); a treatment system that removes Volatile Organic Compounds (VOCs) from the groundwater; and two injection wells, in which the treated groundwater is re-injected back into the aquifer at 70 fbgs. This system began operating on April 5, 2010. One objective of this treatment system is to protect the municipal water supply by reducing the mass of contamination in the most concentrated part of the plume. It was assumed that this treatment system would operate for approximately three years. At the end of this three-year period, an evaluation will be conducted to determine if pumping can be discontinued. This evaluation will include the following factors: 1) input from the AWD regarding yield and draw-down; 2.) contaminant concentrations at each of the three School Street Wells and whether they are meeting, and are expected to continue to meet, MCLs; and 3) the effectiveness of the extraction and treatment system. As of September 2012, the Northeast Area treatment system had pumped over 25.2 million gallons of contaminated groundwater and had removed approximately 13.5 pounds or 1.3 gallons of total VOCs. Figure 1 depicts the location of the Northeast Area treatment system at the site. *continued >*

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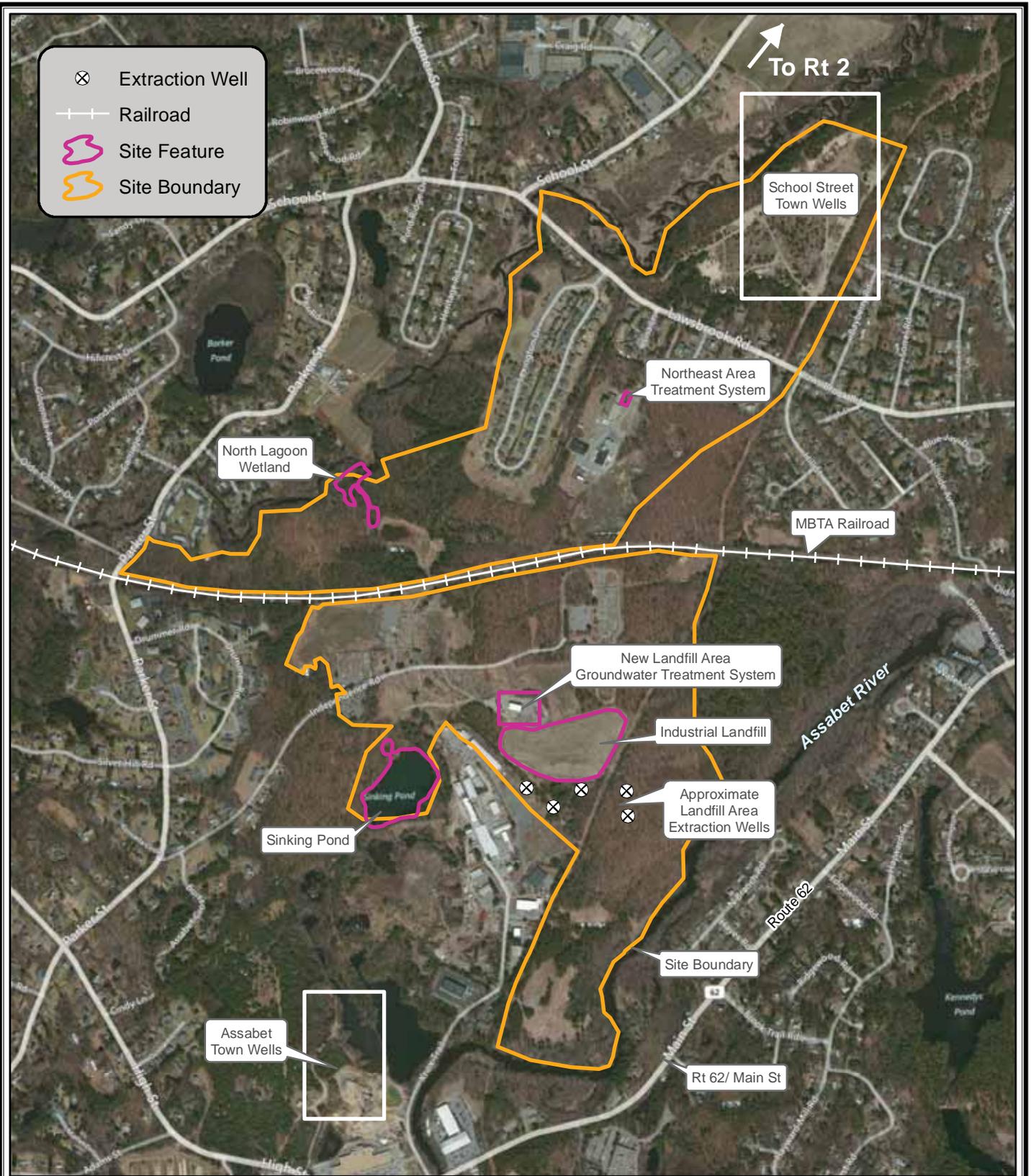


Figure 1
W.R. Grace Superfund Site
 Acton, Massachusetts



Map created by EPA Region 1 GIS
 Map Tracker 7616 January 2, 2013
 Data Sources: Aerial
 Photo / Base Map - Bing Maps;

LANDFILL AREA:

Construction of the foundation and building for the Landfill Area groundwater treatment system began in September 2010, and the installation of the treatment system equipment was complete by April 2011. This treatment system began operation on May 2, 2011, and will continue to operate until cleanup levels are met and groundwater no longer presents an unacceptable risk. This treatment system extracts 50-55 GPM of contaminated groundwater from five extraction wells located in the vicinity of the Industrial Landfill at various depths. Contaminated groundwater is treated to remove inorganics (metals), VOCs and 1,4 Dioxane. The treated effluent is then discharged into Sinking Pond and is sampled on a periodic basis to ensure continued compliance with discharge standards. Figure 1 depicts the location of the Landfill Area treatment system at the site. As of September 2012, the former Aquifer Restoration System and the new Landfill Area treatment system had pumped over 4,866 million gallons of contaminated groundwater and removed approximately 5,961 pounds or 589 gallons of total VOCs.

PROGRESS OF GROUNDWATER TREATMENT AND SEDIMENT CLEANUP:

Figure 2 depicts the decrease of groundwater contaminated with Vinylidene Chloride (VDC) from 2007 to 2011. This figure shows that the extent of VDC contamination greater than 30 parts per billion has notably decreased since 2007.

Numerous studies and sampling determined that there were unacceptable human health and ecological risks from continued exposure to arsenic- and manganese contaminated sediment. The contaminated sediments were located within the perimeter of Sinking Pond and within the North Lagoon Wetland. The cleanup actions were implemented between June and November 2011 and included the removal and proper offsite disposal of contaminated sediment. Results from the post excavation confirmation sampling determined that the appropriate and protective cleanup levels were achieved within the remaining sediment. A total of 8,100 cubic yards of contaminated sediment was removed from Sinking Pond and properly disposed off site. A total of 2,040 cubic yards of contaminated sediment was removed from the North Lagoon Wetland and properly disposed off site. Certified clean fill was sampled and then brought in to replace the removed contaminated sediment. Various native trees, vegetation and



Sinking Pond before remediation

Sinking Pond after Remediation

North Lagoon Wetlands before remediation

North Lagoon wetlands after remediation

grasses were planted in wetland and upland locations in order to restore these areas to their natural condition over time. Spring and fall inspections of these replanted areas began in 2012 and will continue until 2017. This will ensure that the replanted trees, vegetation and grasses will survive and become established. See above photographs that show these areas before and after the cleanup activities.

NEXT STEPS:

Although construction of the final clean up actions has been completed, EPA & MassDEP will continue to oversee the following site activities:

- Continued operation and proper maintenance of both the Landfill and Northeast Area treatment systems,
- Continued oversight of the annual ground water monitoring and sampling programs,
- Bi-annual inspection of the restored wetlands and uplands,
- A thorough review of clean up actions every five years to ensure that the clean up actions remain protective of both

human health and the environment, and

- Continued operation and proper maintenance of the capped Industrial Landfill.

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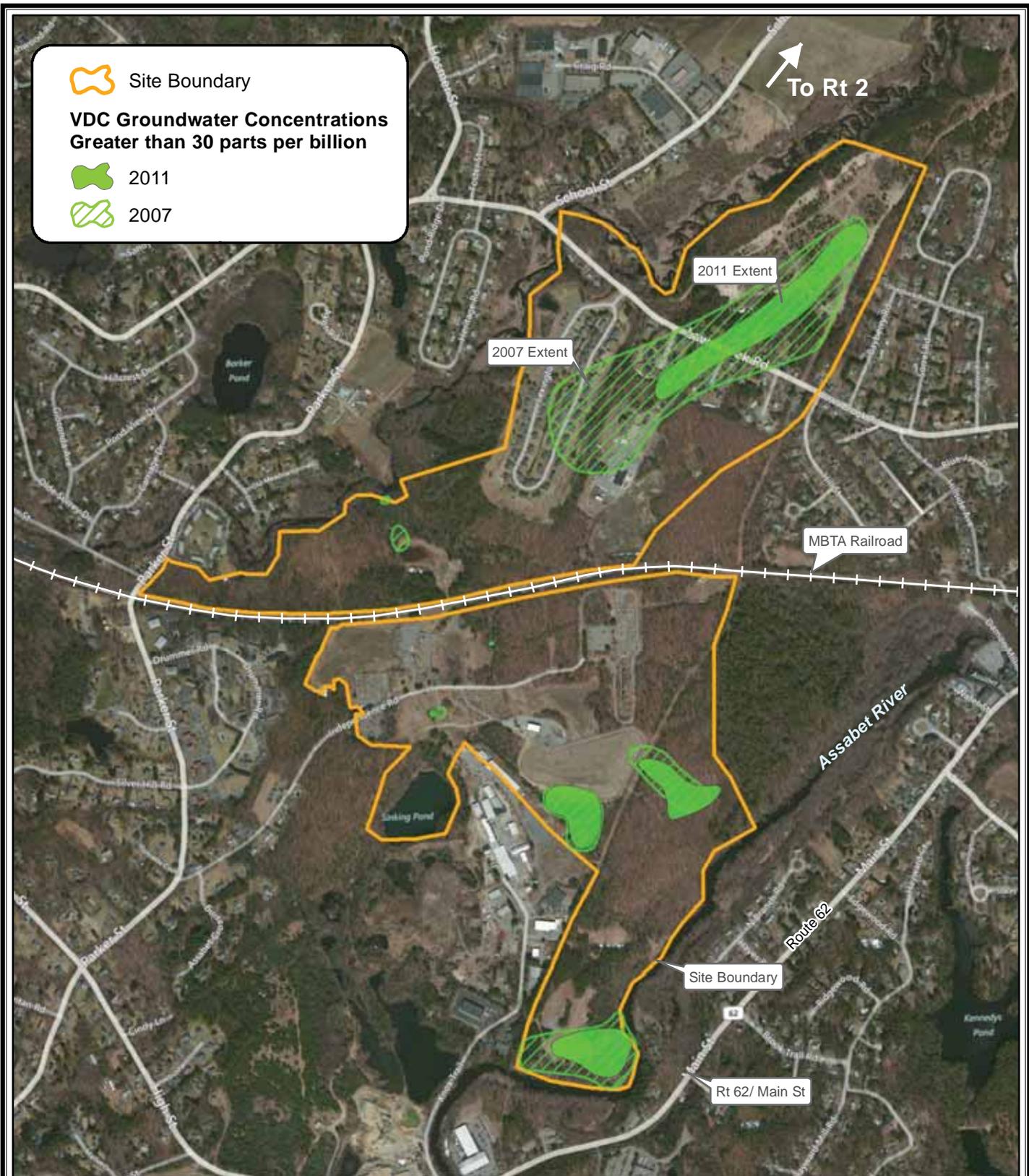


Figure 2

**Decrease of VDC Concentrations
from 2007 to 2011
W.R. Grace Superfund Site
Acton, Massachusetts**



Map created by EPA Region 1 GIS
Map Tracker 8938 December 5, 2012
Data Sources: Aerial Photo / Base Map -
(c) 2010 Microsoft Corporation and its data
suppliers; Groundwater Data - TetraTech;



0 0.25 Miles



Exterior photo of Landfill Area treatment system



Interior Photo of Landfill Area treatment system



Exterior photo of Northeast Area treatment system



Interior photo of Northeast Area treatment system

W.R. GRACE (ACTON PLANT) SITE HISTORY

- 1945-1954:** Dewey & Almy Chemical Company manufactures various products at the Acton site at various times including latex, resins, plasticizers, and paper battery separators
- 1954-1991:** W. R. Grace acquires Dewey & Almy and continues various chemical manufacturing processes at the Acton site
- 1978:** Organic contaminants (vinylidene chloride, vinyl chloride, ethylbenzene, and benzene) detected in municipal wells (Assabet #1 and #2)
- 1980:** W. R. Grace and EPA enter into a Consent Decree to cleanup waste disposal areas and restore groundwater to a fully useable condition
- 1983:** Site added to the Superfund National Priorities List (NPL)
- 1984:** As part of an agreement between the AWD and W.R. Grace, a treatment system to remove VOC's was added to the public water supply system.
- 1985:** As required by the Consent Decree, an Aquifer Restoration System (ARS) is constructed and begins cleaning up contaminated groundwater
- 1989:** EPA signs first Record of Decision for the site; this Record of Decision included a frame work to address all areas of the s site by dividing the site into three Operable Units: Operable Unit 1 soil contamination; Operable Unit 2 residual soil contamination; and Operable Unit 3 groundwater contamination focusing on an evaluation of the existing ARS; this first Record of Decision also included a cleanup plan to address soil and residual soil contamination at the site (Operable Units 1 and 2)
- 1994:** Soil cleanup begins
- 1997:** Soil cleanup completed
- 1998:** Remedial Investigation/Feasibility study (RI/FS), ecological and human health risk assessments initiated for Operable Unit 3
- 1999:** EPA prepares first 5-year clean up review; finds past clean up is protective
- 2004:** EPA prepares second 5-year clean up review; finds past clean up is protective
- 2005:** RI/FS and human health and ecological risk assessment reports released, EPA issues a Record of Decision and proposes the cleanup plans for Operable Unit 3
- 2005-2010:** Numerous studies and engineering designs were conducted under the review and oversight of the Environmental Protection Agency, the Massachusetts Department of Environmental Protection (MassDEP), the Town of Acton, the Acton Water District, the Acton Citizens for Environmental Safety and AECOM.
- 2011-2012:** Construction and operation of the Northeast and Landfill Area treatment systems and the removal and offsite disposal of sediment from Sinking Pond and the North Lagoon Wetland.
- 2012-present:** Continued groundwater pumping and treatment