



Re-Solve, Inc. Superfund Site

Project Update

February 2007

Introduction

EPA has been working since 1983 to address contaminated groundwater and soils at the Re-Solve, Inc. Superfund Site in North Dartmouth, Massachusetts. Below is an update on site activities and the results from the 9th Annual Cornell Pond Fishing Derby which was held in September 2006.

Background

The Re-Solve Site is a former waste chemical reclamation facility situated on 6 acres of land on North Hixville Road along the Copicut River in North Dartmouth, MA. The river flows south into Cornell Pond, along Old Fall River Road.

While operating as a waste reclamation facility between 1956 and 1980, many different types of industrial and commercial solvents and oils were brought to the facility. As a result of the hazardous materials handled at the facility, the soil, sediment and groundwater at the site became contaminated with PCBs (polychlorinated biphenyls) and volatile organic compounds (VOCs), including trichloroethylene (TCE), tetrachloroethylene (PCE) and vinyl chloride.

EPA has been addressing the site since the mid 1980's through a combination of activities, including on-site treatment of contaminated soil, sediment and groundwater, and off-site disposal of soils and condensed PCB treated liquid waste.

Groundwater Treatment System

A groundwater treatment system has been operating at the site since 1998. The treatment system is designed to contain groundwater contamination within the facility's waste management area and is also designed to treat contamination downstream of the site.

The system extracts contaminated groundwater from beneath the site and treats the water through a combination of processes including filtration, precipitation, air stripping, activated carbon adsorption and a catalytic oxidation unit. Each step in the process is designed to remove specific contaminants from the groundwater before it is discharged to the Copicut River.

To date, over 200 million gallons of water have passed through the treatment system and more than 1,675 pounds of contaminants have been removed from the groundwater. As a result, the treatment system has reduced contamination in the groundwater and contained contamination on the site. The attached figures illustrate the progress of groundwater cleanup in the overburden (the saturated soils between the ground surface and the underlying bedrock) and the bedrock since 1987, before treatment began, until today.

The treatment system has been very successful at treating contaminated groundwater and, as figures 3-4 and 3-5 illustrate, has resulted in a substantial reductions in contamination in the overburden while also contributing to modest reduction in contaminants in the bedrock. The bedrock contamination is persistent and difficult to extract and treat. As a result, cleaning up the groundwater in the bedrock may take longer.

Discontinuation of the Catalytic Oxidation Unit

When the groundwater treatment system began operating in 1998, the concentration of contaminants in the extracted overburden and bedrock groundwater was lower than anticipated. Since that time, and as a result of treatment, these already low contaminant concentrations continue

to decline. Today, contaminant concentrations of extracted groundwater entering the treatment system are so low that one of the treatment processes, the catalytic oxidation unit, is no longer necessary and has been disconnected.

Before the catalytic oxidation unit was disconnected, two air modeling studies were conducted to assess the treatment system's ability to comply with the treatment standards and federal and state regulations including air emissions. Both air modeling studies demonstrated that the emissions from the treatment system would be well below all federal and state requirements, without the use of the catalytic oxidation unit. Based on these results, EPA, in consultation with Massachusetts Department of Environmental Protection (MassDEP), concluded that the catalytic oxidation unit could be disconnected from the treatment system.

Over the next few years, additional monitoring will be undertaken to further evaluate the performance of the treatment system without the catalytic oxidation unit. The catalytic oxidation unit will remain on-site and ready for use should future monitoring of the treatment system reveal a need to re-connect the unit.

Annual Fishing Derby

In 1988 the Massachusetts Department of Public Health established a fishing advisory for Cornell Pond and the Copicut River due to the presence of elevated levels of PCBs in the fish. The advisory prohibits the consumption of American Eels and limits the consumption of other species of fish due to the elevated levels of PCBs in the fish. EPA has been collecting fish from Cornell Pond as part of a fish monitoring program at the site since 1997.

EPA launched the annual Cornell Pond Fishing Derby in 1988 as a way to enlist the knowledge of the local fishing community in the monitoring effort. This year marks the ninth Annual Cornell Pond Fishing Derby.

The fish monitoring program evaluates the concentration of PCBs in various species of fish and compares them to the concentrations found in fish that were collected in 1986, before the cleanup began. With the completion of the clean-up activities, EPA expects the levels of PCBs in fish from Cornell Pond and the Copicut River to decline over time. The results of the annual monitoring program bear this out.

Overall, the concentrations of PCBs in fish at Cornell Pond are much lower than the concentrations observed in 1986. A comparison of the data from 1997 through 2006, including the most recent September 23, 2006 fishing derby results, reveals small fluctuations in PCB concentrations in fish. Most of these concentrations are well below the U.S. Food and Drug Administration's action level of 2 parts per million (ppm) for PCBs in fish. For additional details, please see the attached tables, Tables 1 and 2.

For Additional Information

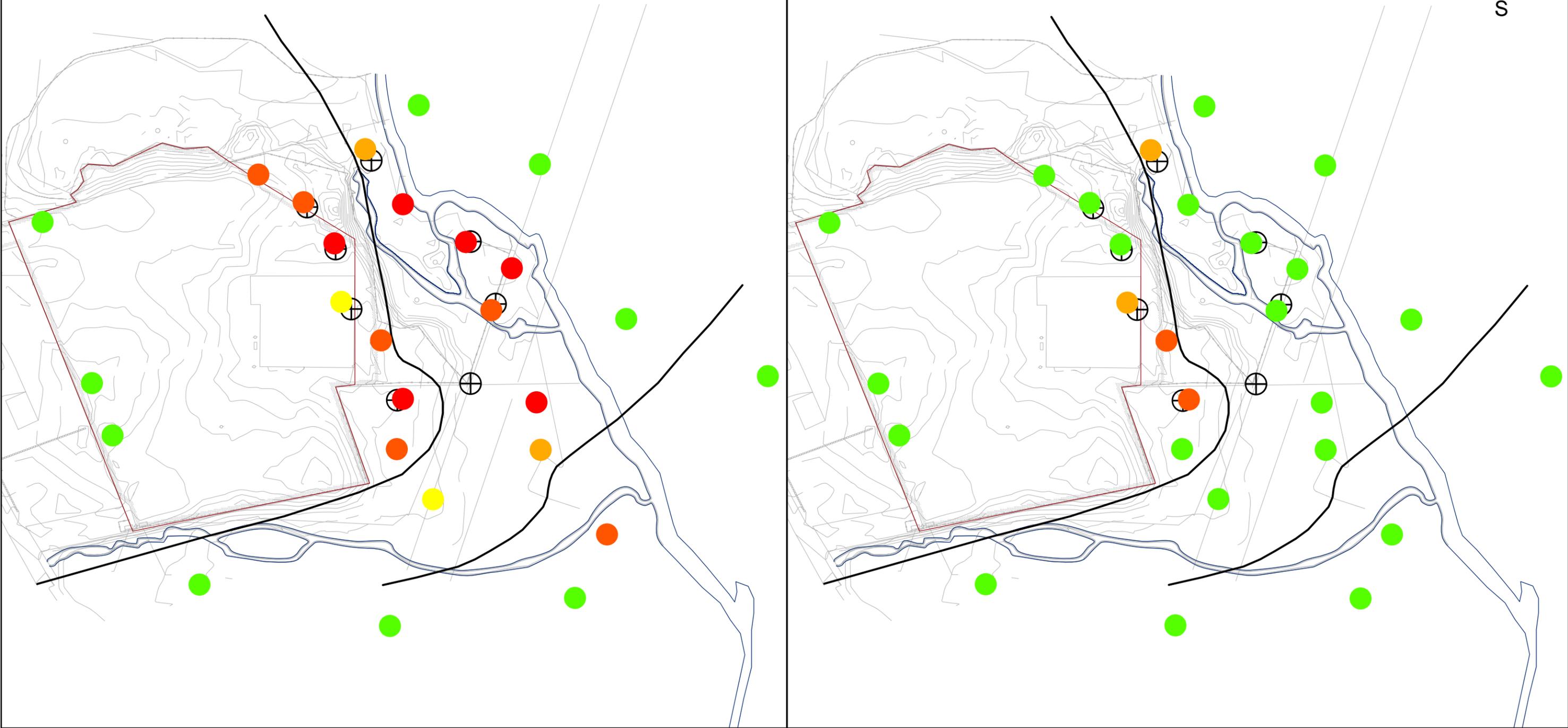
Joseph F. Lemay, EPA Project Manager
(617)918-1323

or

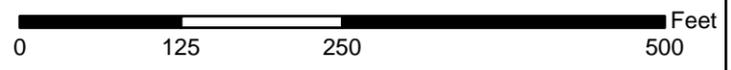
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Overburden - Baseline (1997)

Overburden - May 2006



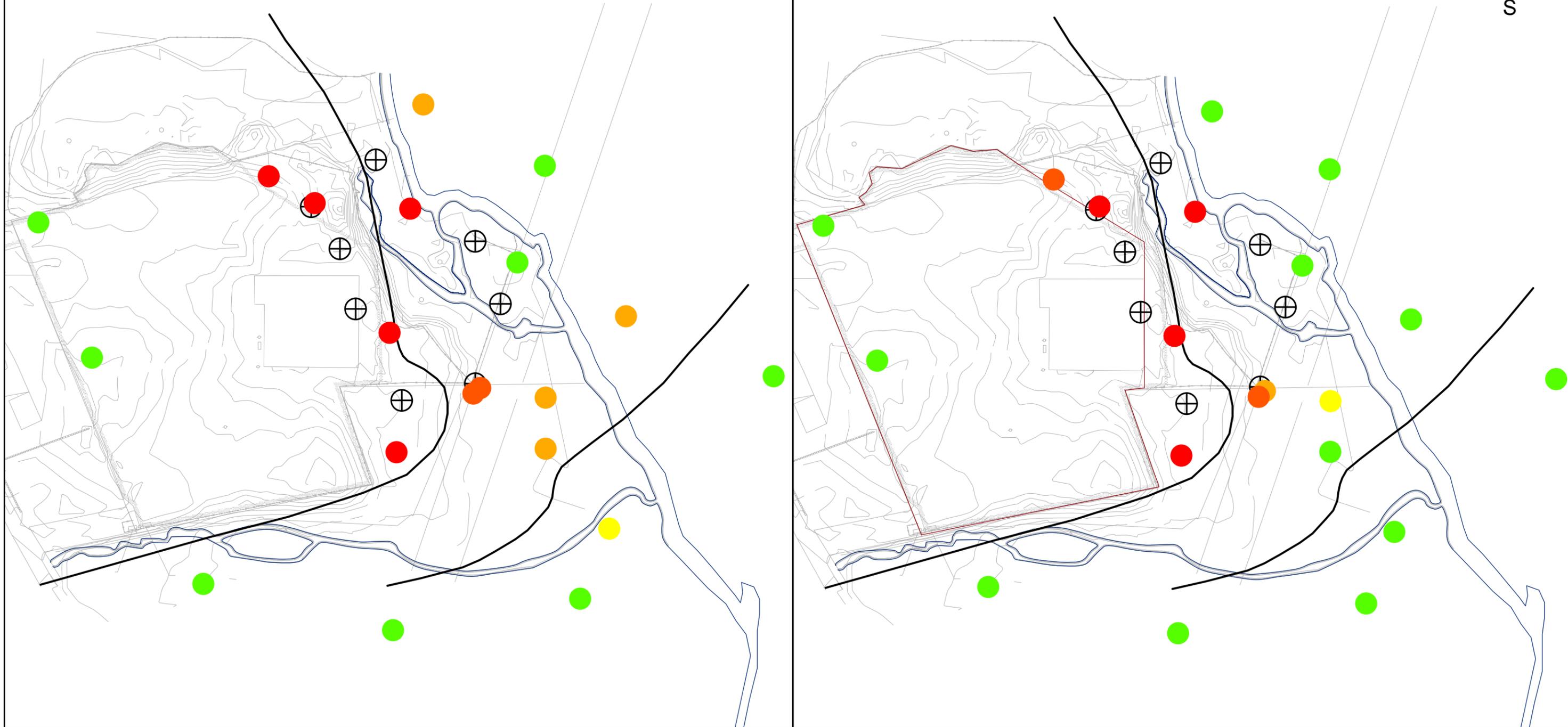
- LEGEND**
- River
 - WMA Outline
 - Base Map
 - Recovery Well
 - All VOCs are less than MCLs
 - Within 5 ppb of MCL
 - 5 - 100 ppb above MCL
 - 100 - 1,000 ppb above MCL
 - > 1,000 ppb above MCL



	<p>Figure 3-4</p> <p>VOC CONCENTRATIONS COMPARED TO MCLs IN GROUNDWATER BASELINE (1997) VS. MAY 2006</p> <p>RESOLVE DARTMOUTH, MA OCTOBER 2006</p>
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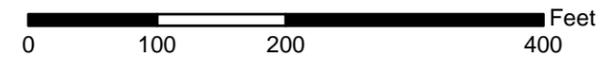
Bedrock - Baseline (1997)

Bedrock - May 2006



LEGEND

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Figure 3-5

VOC CONCENTRATIONS COMPARED TO MCLs IN GROUNDWATER BASELINE (1997) VS. MAY 2006

RESOLVE DARTMOUTH, MA
OCTOBER 2006

TABLE 1
Summary of 1986, and 1997 - 2006 Fish Tissue Samples (Ranges)

Fish Samples	Range of PCB Concentrations (ppm) in Fish										
	1986	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<u>Cornell Pond</u>											
American Eel	20	.42 - .84	.24 - .69	.51 - .76	.38 - .65	.49 - 2.09 ¹	.23 - .36	.14 - .32	ND⁵	.52 - 6.6 ⁶	.74 - .79
Brown Bullhead	1.1	NC	.08 - .12	.06 - .32	.12	.24	.06 - .08	.06	.08 - .1	.08 - .11	ND⁵ - .33
Lg-Mouth Bass	NC	.04 - .17	.03 - .11	.06 - .22	.02 - 2.20	.20 - 2.2 ²	.07 - .2	.06 - .09	.05 - .12	.13 - .25	ND⁵ - .15
Yellow Perch	.26 - 1.05	.04 - .08	.02 - .04	.11 - .47	.06 - .11	.2 - .37	.07 - .1	.05	.06 - .08	.054 - .097	ND⁵ - .15
Blue Gill						.1 - .15	.05 - .1	NC	.09 - .2	ND ⁵	ND⁵
<u>Copicut River</u>											
Brook Trout	NC	.15 - .3	.08 - .24	.16 - .59	.05 - .47	.11	.32	NC	NC	NC	NC

TABLE 2
Summary of 1986, and 1997 - 2006 Fish Tissue Samples (Averages)

Fish Samples	Average PCB Concentrations (ppm) in Fish										
	1986	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<u>Cornell Pond</u>											
American Eel	20	.656	.538	.616	.524	1.04 ³	.29	.24	ND⁵	3.05 ⁷	.765
Brown Bullhead	1.1	NC	.102	.190	.121	.24	.06	.06	.086	.092	.161
Lg-Mouth Bass	NC	.105	.054	.123	.474	.728 ⁴	.1	.07	.075	.23	.110
Yellow Perch	.26 - 1.05	.060	.028	.250	.069	.303	.08	.05	.074	.092	.120
Blue Gill						.12	.08	NC	.23	ND ⁵	ND⁵
<u>Copicut River</u>											
Brook Trout	NC	.218	.160	.278	.147	.11	.32	NC	NC	NC	NC

NOTES:

NC - none collected

¹ One of the three American Eels contained a total PCB concentration of 2.09 ppm. The two remaining eels contained PCB concentrations ranging from 0.49 - 0.548 ppm.

² One of the five large mouth bass collected contained a total PCB concentration of 2.2 ppm. The four remaining large mouth bass contained PCB concentrations ranging from 0.20 - 0.5 ppm.

³ Average PCB concentration in American Eel, excluding the high 2.09 ppm concentration, is .519 ppm.

⁴ Average PCB concentration in Bass, excluding the high 2.2 ppm concentration, is .328 ppm.

⁵ Samples analyzed but PCBs were not detected.

⁶ One of the five American Eels contained a total PCB concentration of 12.6 ppm. The four remaining eels contained PCB concentrations ranging from 0.52 - 0.77 ppm.

⁷ Average PCB concentration in American Eel, excluding the high 12.6 ppm concentration, is .658 ppm.

FDA action limit for PCBs = 2 mg/kg

A Brief History of the Re-Solve, Inc. Site

- 1980** Re-Solve, Inc. operates as a waste reclamation facility
- 1983** EPA lists Re-Solve, Inc., as a Superfund Site
- 1985** EPA removes 15,000 cubic yards of contaminated soils and sludges from four lagoons, a cooling pond and oil spreading area
- 1988** MA DPH establishes a Health Advisory for Cornell Pond and the Copicut River adjacent to the Site
- 1993** EPA completes first Five Year Review Report, which evaluates the protectiveness of the cleanup
- 1994** Re-Solve Site Group (parties responsible for the clean-up) completes the removal and treatment of 36,000 cubic yards of contaminated soils and sediments and restores 1 acre of wetlands at the site
- 1998** EPA completes second Five Year Review Report
- 1998** Re-Solve Site Group completes construction of a state-of-the-art groundwater treatment system to remove and treat contaminated groundwater
- 1998** EPA hosts first annual fishing derby
- 2003** EPA completes third Five Year Review Report
- 2006** Over 200 million gallons of contaminated groundwater have been treated and 1,675 pounds of contaminants removed since the groundwater treatment system began operations in 1998