

federal Maximum Contaminant Limit (MCL) for benzene<sup>1</sup>. The MCL and VT Groundwater Enforcement Standard for benzene is 5 µg/L, or parts per billion (ppb). In the fall of 2007, the highest concentration of benzene that had ever been detected in wells outside the Class IV boundary was 1 ppb. Since then, the data has shown a sharply increasing trend: 11 ppb (spring 2008), 110 ppb (fall 2008), 270 ppb (spring 2009), 390 ppb (fall 2009), 530 ppb (spring 2010) and 1100 ppb (fall 2010).

The 1998 ROD's groundwater performance standard included the following condition: "A statistically significant increase in the mass flux [of contaminants across the Class IV boundary] shall trigger a detailed data review to determine the cause, significance and additional measures or monitoring that should be implemented." This ESD calls for additional measures and monitoring to be implemented.

NAPL has also been found in wells very close to, but not outside, the Class IV boundary. However, without additional containment, NAPL may continue to migrate laterally, with the potential to reach Lake Champlain which is a source of drinking water for the City of Burlington.

#### IV. DESCRIPTION OF SIGNIFICANT DIFFERENCES

This ESD provides for the following enhancements to the containment remedy set forth in the 1998 ROD:

- installation of a 200–300 foot long vertical barrier below the ground surface to contain NAPL and prevent the off-site migration of the groundwater plume,
- installation of NAPL recovery wells and NAPL removal, as necessary, to ensure that coal tar and oil does not migrate around or below the vertical barrier, and
- groundwater monitoring on both sides of the vertical barrier to track the flow and extent of contaminants in groundwater (in the dissolved phase).

The conceptual alignment of the barrier is along the train tracks between the canal and bike path (*Subsurface Investigation and Evaluation, Northern Well Area, Pine Street Canal Superfund Site, Burlington, Vermont*, The Johnson Company, December 2010). The final placement and type of vertical barrier will be determined during design.

The remaining components of the original remedy are unchanged.

#### Change in Expected Outcomes

It is expected that the vertical barrier and NAPL recovery wells will meet the performance standard for isolation of contamination. Consistent with EPA's February 2, 2002 guidance entitled *Principles for Managing Contaminated Sediments at Hazardous Waste Sites*, OSWER directive 9285.6-08, which was issued after the Pine Street ROD, this ESD is part of an iterative

---

<sup>1</sup> Deed restrictions and state regulations prevent the groundwater within the Class IV boundary at the Site from being used for drinking water purposes.



**DECLARATION FOR THE  
EXPLANATION OF SIGNIFICANT DIFFERENCES  
PINE STREET CANAL SUPERFUND SITE  
BURLINGTON, VERMONT  
September 2011**

**Site Name and Location**

Pine Street Canal Superfund Site, Burlington, Vermont

**Superfund Records Center**  
SITE: PINE ST. CANAL  
BREAK: 5.4  
OTHER: 493729

**Lead Agency**

United States Environmental Protection Agency (EPA)

**Support Agency**

Vermont Department of Environmental Conservation (VT DEC)

**Statement of Purpose**

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the Pine Street Canal Superfund Site (VTD980523062). EPA developed this decision document after consulting with VT DEC. The State of Vermont's letter of concurrence is provided as Attachment B.

**Statutory Basis for Issuance of the ESD**

Pursuant to Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9617(c), and the National Contingency Plan, 40 C.F.R. § 300.435(c)(2)(i), if EPA determines that the remedial action to be undertaken at a site differs significantly from the Record of Decision (ROD) for that site, EPA shall publish an explanation of the significant differences and the reasons such changes are being made. According to 40 C.F.R. § 300.435(c)(2)(i), and EPA guidance (OSWER Directive 9200.1-23-P, July 1999), an ESD, rather than a ROD amendment, is appropriate where the adjustments being made to the ROD are significant but do not fundamentally alter the remedy with respect to scope, performance or cost.

EPA has determined that the adjustments to the ROD provided in this ESD are significant but do not fundamentally alter the overall remedy for the Pine Street Canal Superfund Site with respect to scope, performance, or cost. Therefore, this ESD is being properly issued.

In accordance with Section 117(d) of CERCLA, 42 U.S.C. § 9617(d), and the rules at 40 C.F.R. §§ 300.435(c)(2)(i)(A) and 300.825(a)(2), this ESD will be available for public review at the EPA Records Center in Boston, Massachusetts and the public information repositories located at the Fletcher Free Public Library and Bailey-Howe Library at the University of