

Bozeman Solvent Site Update

State Superfund

June 2015

For More Information

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The Montana Department of Environmental Quality (DEQ) is informing you about the cleanup progress at the Bozeman Solvent Site (BSS) State Superfund facility. In August 2011, DEQ issued the Record of Decision (ROD) selecting the final remedy for the BSS. Groundwater, saturated soils, and soil vapors at the BSS are contaminated with tetrachloroethene (PCE), a dry cleaning chemical, and its breakdown products.

The major elements of the selected remedy identified in the ROD include:

- institutional controls such as land use and groundwater restrictions;
- removing and treating contaminated vapors out of the ground using an soil vapor extraction (SVE) system;



Inside the SVE equipment shed for the soil vapor extraction enhanced bioremediation system.



Equipment shed for the soil vapor extraction enhanced bioremediation system.

- providing a food source to the microorganisms in the soil and groundwater that then break down the contaminants into less harmful compounds (enhanced bioremediation);
- monitoring the groundwater to demonstrate that the contamination is decreasing; and
- connecting contaminated well owners to city water or installing new or deeper replacement wells.

Cleanup at the BSS is regulated under Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA), also known as State Superfund.

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What's Been Happening at the BSS?

The City of Bozeman (City) and CVS Pharmacy (CVS) are responsible for implementing the ROD. As required by the ROD:

- The existing controlled groundwater area order previously issued by the Montana Department of Natural Resources and Conservation remains in effect.
- In February 2012, the City implemented a trench/excavation permit system that ensures the protection of construction and utility workers at the former Buttrey's Shopping Center (BSC) and nearby properties until contaminants are cleaned up.
- In June 2012, the City and CVS implemented water connection and new well installation protocols for drinking water wells should PCE concentrations exceed the U.S. Environmental Protection Agency maximum contaminant levels (MCLs).

- In November 2013 and December 2014, the City and CVS replaced two drinking water wells approaching MCLs using the above protocols.
- In February 2014, the City and CVS implemented enhanced bioremediation by injecting an emulsified vegetable oil into the groundwater in the residual source area to stimulate microorganisms that will breakdown the PCE and reduce PCE concentrations in the groundwater and saturated soils.



Horizontal SVE well testing



Installation of horizontal SVE wells.

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- In May 2014, the City and CVS installed soil vapor probes in the former BSC to measure soil vapor concentrations during the operation of the sub-slab SVE system.
- In May 2014, the City and CVS installed the SVE system equipment to capture vapors during the enhanced bioremediation treatment.
- In June 2014, the City and CVS installed horizontal SVE wells beneath the former BSC as part of the sub-slab SVE system to reduce PCE concentrations in soil vapors beneath the building.
- Since June 2014, the City and CVS completed pilot testing of the horizontal sub-slab SVE to determine the final equipment needed for the SVE system.
- The City and CVS continue to monitor groundwater at the BSS.



Vacuum influence monitoring equipment set up on soil vapor probe during SVE well testing.

What Does It Mean?

- Six months after the first enhanced bioremediation injection, PCE groundwater concentrations decreased in 11 of 16 monitoring wells. PCE is less than the cleanup level (5 µg/L) in 5 of these 11 monitoring wells.
- During the 2014 SVE pilot testing, PCE soil vapor concentrations decreased by up to 10%.

What's Next?

- In June 2015, the City and CVS will conduct a second enhanced bioremediation injection to further stimulate the microorganisms that breakdown the PCE.
- The City and CVS expect to complete the final design of the sub-slab SVE system and finalize the SVE equipment installation by fall 2015.
- The City and CVS will modify the groundwater sampling frequency of some of the wells and continue to monitor groundwater.



Soil vapor probe installation in the Hastings Shopping Center.