Work to Begin at the Garfield Groundwater Contamination Superfund Site

Garfield, New Jersey

Community Update **December 2017**

Site Information

The Garfield Groundwater Contamination Superfund Site consists of a plume of groundwater contaminated with chromium at concentrations at or greater than the NJ Groundwater Quality Standard of 70 micrograms per liter (µg/L). The source of groundwater contamination has been identified as the former EC Electroplating facility at 125 Clark Street in Garfield. The plume of contaminated groundwater originates at the EC Electroplating property and extends approximately ½ mile west to the Passaic River. Drinking water is not impacted by the chromium contamination.

Chromium – Chromium is an industrial metal used in diverse products and processes. Within the environment, chromium is found primarily in two oxidation states: hexavalent chromium and trivalent chromium. Hexavalent chromium is relatively mobile in the environment and is acutely toxic and a known human carcinogen. Trivalent chromium has relatively low toxicity and is immobile under moderately alkaline to slightly acidic conditions.

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Starting in early winter, the U.S. Environmental Protection Agency (EPA) will be doing more work to address contamination at the EC Electroplating property. The EPA will launch three pilot tests to try out different technologies that could reduce levels of chromium in soil and groundwater to speed up the EPA's cleanup work.

Over a four-month period, the EPA will bring in a trailer, connect utilities for site work, install additional groundwater monitoring wells, and sample existing and new wells to update information on the concentrations and location of chromium contamination.

The three pilot tests will begin next spring and continue for one to two years. Between March and June 2018, equipment will be used, including drill rigs, excavators, loaders and dump trucks. Plastic containers for liquids and others for dry materials for the pilot tests will be delivered and stored at the property. The preparation activities and pilot tests will require removal of sections of the asphalt and limited excavation of soils. Excavated soil and large metal containers used to store groundwater will also be temporarily stored in staging areas on site. Soil in staging areas will be covered, as needed, to control dust and prevent runoff of contaminated storm water.

Residents living near the site may hear noise or feel vibrations similar to those from other construction projects such as road work or building demolition and construction. Residents may also experience increased traffic. Some site workers might be dressed in protective clothing to keep contaminated soil and groundwater off their clothes, or wear dust masks, but this does not indicate a risk to residents. Air monitoring and dust suppression practices will be used to protect residents and businesses from the potential release of contaminants from the site. Existing fencing will be maintained.

Background

In December 1983, a partially-buried vertical storage tank at EC Electroplating failed, releasing an estimated 3,640 gallons of chromic acid directly into the shallow aquifer and deeper bedrock aquifer. In 2002, the New Jersey Department of Environmental Protection requested that the EPA investigate chromium contamination found in a number of basements located near the property and perform removal actions where needed. Since 2002, the EPA has inspected basements, removed waste and contaminated soil from the EC Electroplating property, and completed a comprehensive investigation at the site.

www.epa.gov/superfund/garfield-groundwater

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Pilot Tests at EC Electroplating Property

Starting in fall 2018, and continuing for approximately 18 months, the EPA will study three bioremediation technologies for treatment of chromium contaminated groundwater at the EC Electroplating property. Bioremediation is a natural process that uses microbes and other methods to reduce contaminants in groundwater. The three technologies are called overburden injection, Zero Valent Iron (ZVI) and Subgrade Biogeochemical Reactor (SBGR). These three technologies were selected for pilot studies because of their potential to reduce substantial amounts of the hexavalent chromium mass and remediation timeframes.

Overburden Injection

Wells will be installed at the EC Electroplating property and used to inject a solution containing vegetable oil and iron into the groundwater. The EPA is testing to see if the solution will convert hexavalent chromium to the less mobile and less toxic form called trivalent chromium. The test will be conducted in a controlled way that will protect residents and nearby business from potential exposure to contaminated groundwater. During the pilot test, residents should expect to see a drill rig, mixing tanks, and tanks of the solution to be injected into the wells on the property.

ZVI Trench Recirculation

Two trenches will be constructed and filled with Zero Valent Iron (ZVI)and gravel to create groundwater treatment "reactors" (Figure 1). Groundwater will be pumped from one trench to the other. Hexavalent chromium (Cr(VI)) will be converted to the less toxic trivalent chromium (Cr(III)) as groundwater comes into contact with the ZVI. The test will be conducted in a controlled way that will protect residents and nearby business from potential exposure to contaminated groundwater. During the pilot test, soil and ZVI media will be stored at the EC Electroplating property and managed to reduce dust and impacts to stormwater. Additionally, the public should expect to periodically see workers on site collecting data and sampling groundwater.

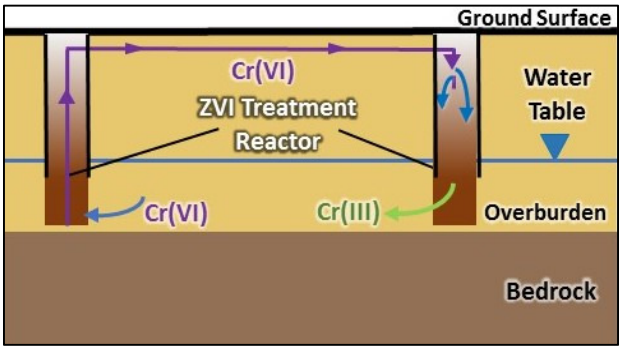

Figure 1. ZVI trench recirculation system

Subgrade Biogeochemical Reactor

The SBGR at the EC Electroplating property will be a trench filled with iron, sand and gravel, wood mulch, and vegetable oil to treat the contaminated groundwater (Figure 2). The SBGR system will pump contaminated groundwater through the SBGR. Hexavalent chromium will be converted to less toxic and more easily managed trivalent chromium. The test will be conducted in a controlled way that will protect residents and nearby business from potential exposure to contaminated groundwater. During the pilot test, the public should expect to periodically see workers on site collecting data and sampling groundwater.

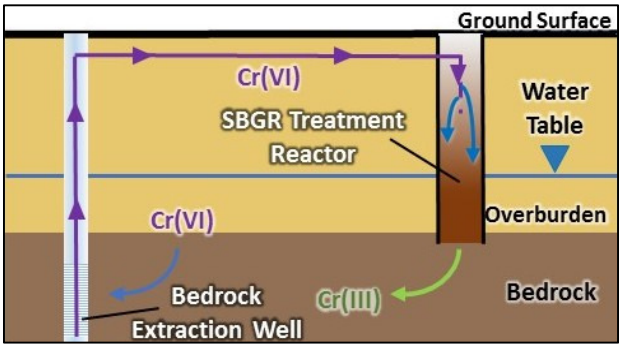

Figure 2. Subgrade Biogeochemical Reactor system