



This is one in a series of Fact Sheets on the remedies selected in the Records of Decision (ROD) for the Main Installation (2001) and Dunn Field (2004).

ZERO-VALENT IRON (ZVI)

Zero-Valent Iron (ZVI) is one of the approved technologies being used to clean up solvents in the groundwater on the western side of Dunn Field.

ZVI is a natural material Similar to iron filings or powder. It acts as a catalyst to breakdown the chemicals in groundwater – such as the solvents known as chlorinated volatile organic compounds (CVOCs) that are present in the groundwater at the Depot – into safe compounds. This chemical reaction is called reductive dechlorination.

ZVI will be used in two cleanup remedies: it will be injected directly into areas at Dunn Field with the highest concentrations of solvents and used in a Permeable Reactive Barrier (PRB) to treat groundwater with lower concentrations of solvents that is flowing from Dunn Field.

A PRB is a barrier formed by injecting ZVI encased in gel through a series of boreholes spaced approximately five to 15 feet apart. The draft design indicates the Depot's environmental team will create a 1,000-foot PRB parallel to the railroad tracks south of the MLGW property.

The Depot's environmental team conducted a Treatability Study at Dunn Field to test the effectiveness of ZVI injections for the groundwater cleanup. The results of the study showed a significant reduction in the concentrations of CVOCs in the groundwater within the test area. ZVI has recently been used in an early remedy implementation to treat off-site impacts of solvents in groundwater beneath Memphis, Light, Gas and Water (MLGW) property northwest of Dunn Field.

The Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) will review the effectiveness of this remedy at five-year intervals to ensure the site continues to be safe for community reuse.

For more information on zero-valent iron injection, or any of the cleanup remedies and technologies that are being used at the former Memphis Depot, call our Community Relations Office at (901) 774-3683. The RODs for the Main Installation and Dunn Field are available for reference in the Depot's three Information Repositories located at the Depot, the Cherokee Branch Library and the Memphis/Shelby County Health Department.