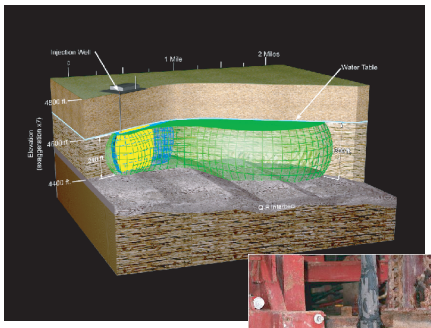
Test Area North Chloroethene Source Area Remediation Project

Background

- *A contaminant source area resulted from the injection of chlorinated solvent-containing liquid waste and sanitary sewage to the Snake River Plain Aquifer from the mid-1950s to 1972.*
- *The source is primarily an organic sludge containing up to 3% TCE. The sludge is present in the fractured basalt surrounding the former injection well.*
- *A plume of TCE in groundwater approximately 2 miles long exists from 200 – 400 ft below ground surface.*
- *The 1995 ROD selected pump & treat as the default remedy for source area remediation.*
- *Enhanced bioremediation was identified in the 1995 ROD as an innovative technology to be evaluated through a post-ROD treatability study to potentially replace pump & treat in the residual source area.*

TCE Plume at the DOE's Idaho National Engineering and Environmental Laboratory



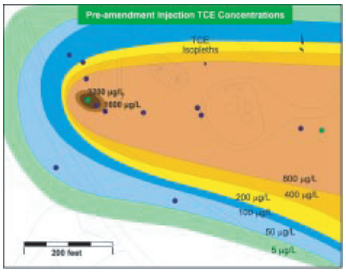
TCE Source Material

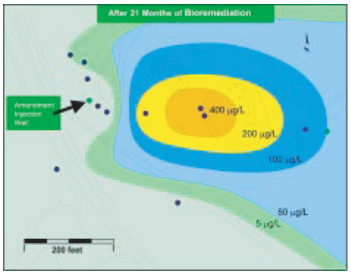
Project Status

Accomplishments

- *An enhanced bioremediation field test using WILCLEAR ™ Sodium Lactate to stimulate anaerobic reductive dechlorination (ARD) of a TCE source area began In 1998. Within 6 weeks, TCE in source area wells was dechlorinated to c-DCE and complete dechlorination to ethene was occuring in less than 4 months.*
- *Complete ARD of TCE to ethene has reduced dissolved phase concentrations of TCE below detection limits in source area wells.*
- *In addition to supporting complete and efficient ARD of TCE, injection of high concentrations of lactate also enhanced the bioavailability of TCE from the source material, thus accelerating clean up of the source term.*
- *A ROD Amendment selecting enhanced bioremediation for source area remediation was signed in September 2001; the estimated cost savings to DOE is $23 M over 30 years. The Remedial Design/Remedial Action Work Plan for the final remedy is in preparation.*
- *Analysis of field data will be used to optimize distribution of the selected electron donor, WILCLEAR™ Sodium Lactate, throughout the source area to favor the most efficient TCE-dechlorinating microbial community.*
- *The innovative source area remediation process developed at INEEL, Bioavailability Enhancement Technology (B.E.T.™, patent pending), has been commercialized and licensed to North Wind Environmental, Inc.*

Contaminant plume after 18 months pump & treat





Contaminant plume after 21 months ISB