ISCO Pilot Studies Conducted in Karst Bedrock at Letterkenny Army Depot (LEAD), Chambersburg, Pennsylvania

Paul R. Stone III & Friends

Several ISCO Pilot studies were conducted in the highly folded and fractured karst bedrock underlying the Industrial Area at LEAD. The bedrock was the main source of VOCs contaminating the Groundwater. Three different in-situ technologies were successfully demonstrated (two ISCO), one enhanced Biological Treatment.

Disposal Area: Fenton's Reagent: The well developed epikarst allowed for the even spread/dosing of the Fenton's into the underlying VOC bedrock source. Very high pressures were obtained; that could be controlled; directionally, by venting. Pilot study resulted in first recorded change in DA groundwater quality.

Lagoon Area: Pressurized Ozone: Despite highly porous bedrock media, injection zone pressure could be maintained. This allowed a larger than normal amount of ozone to be injected that enhanced destruction of VOCs. Pilot study resulted in first recorded change in Lagoon Area groundwater quality.

South East Industrial Area: Enhanced Biological Treatment over a period of years remediated the groundwater On and Off post.

Conclusion: In a four mile continuous section of karst valley three separate technologies were required for three separate Operable Units.