Bioremediation and Sustainable Environmental Technologies—2017. Fourth International Symposium on Bioremediation and Sustainable Environmental Technologies (Miami, FL; May 2017). ©2017 Battelle Memorial Institute, Columbus, OH, www.battelle.org/biosymp. A. Barton and S. Rosansky (Chairs)

Looking Back at Sites Treated with Electrical Resistance Heating

John Sankey (john.sankey@trueblueclean.com) (True Blue Technologies, Inc., Long Beach, CA, USA)

Background/Objectives. Site owners and consultants often wonder what happened years later at sites that were treated with electrical resistance heating (ERH). This presentation brings together data and status updates from several sites in California that were treated using ERH. Often, bioremediation and other remedies were used to treat the less contaminated downgradient plume. The lessons learned should help site owners and consultants plan future in situ thermal applications.

Approach/Activities. ERH thermal technology was used to treat soil and groundwater, reducing the time to clean up volatile and semi-volatile organic compounds (VOCs and SVOCs) from years to months. The technology rapidly remediated the soil and groundwater impacted by chlorinated solvents and petroleum hydrocarbons, regardless of lithology.

On several sites using ERH remediation, there was in situ contaminant destruction through both biotic and/or abiotic mechanisms. The contaminant concentrations continued decline for years after ERH treatment due to these enhanced mechanisms. In addition, ERH was combined at some sites with other treatment technologies (bioremediation and chemical oxidation) to optimize and enhance their performance for remediation of recalcitrant compounds in groundwater, including pentachlorophenol (PCP).

Results/Lessons Learned. After looking at several sites in California that were treated with Electrical Resistance Heating, the contamination was reduced by several orders of magnitude and continued to be reduced for years after with naturally enhanced bio-remediation. Many sites received a No Further Action letter while others have not completed cleaning the entire site. The lessons learned will help site owners and consultants plan future in situ thermal applications.