 Innovative Technology Application

Maryland Department of Environmental Services



In August 2006, Ambient Engineering installed an innovative groundwater remediation technology at a Site located in Havre De Grace, Maryland, for the Maryland Department of the Environment (MDE).

Through a prime contractor, MDE approved the implementation of a butane biosparging technology demonstration project at the Havre De Grace Site. *Butane Biosparging™* is a patented remedial technology. MDE is using the Site as a technology demonstration project to evaluate the effectiveness of the technology for remediating dissolved-phase petroleum and gasoline contamination in groundwater, including methyl tertiary butyl ether (MTBE) and other fuel oxygenates. This work was performed as a subcontractor to Maryland Environmental Service, Inc.

The Site operated as a retail gasoline station from approximately 1958 until 1997. In 1994, an underground storage tank (UST) failed a tightness test. MDE required that the Site owner conduct an environmental investigation at the Site. The Site owner conducted a limited

assessment that indicated petroleum hydrocarbons had been released in the soil and groundwater at the Site. The Site owner closed the gasoline station, filed for bankruptcy



protection, and abandoned the property.

MDE filed notice that they were going to assume control of the property for environmental cleanup. MDE has been responsible for remedial efforts at the Site. Remedial efforts to date include connection of impacted residences to the municipal water supply, monitoring of nearby residential wells, and monitoring of a nearby impacted stream. In response to the presence of elevated levels of petroleum hydrocarbons, MDE installed an air sparging/soil vapor extraction system at the Site. The soil vapor extraction system and the air sparging system were operated. Based on the results of the May 10, 2005 groundwater sampling event, the mass of dissolved-phase petroleum contamination is located in the former gasoline UST tank grave.

The *Butane Injector 2000™* was custom designed in cooperation with the Whitmor Company, Omni-Trol Industries, Inc. of Revere, Massachusetts.