

BUTANE BIOSPARGING™

BUTANE BIOVENTING™

- In-situ process to stimulate bacterial degradation (metabolism and cometabolism) of a variety of environmental pollutants such as chlorinated solvents, petroleum hydrocarbons, MTBE, PCB, pesticides, and PAHs in soil and groundwater.
- Contaminant degradation is in-situ thus no waste stream is generated that requires management and disposal.
- Technology involves stimulating the degradation of pollutants by microbes already acclimated to subsurface conditions using butane and oxygen. Inoculation methods are not employed at a site.
- Construction is similar to standard air sparging/soil vapor extraction system except butane is added to injected air at low concentrations and flow rates utilizing our specialized gas delivery system (the Butane Injector 2000™). The Butane Bioventing™ system allows for vapor control while reducing the overall operation and maintenance (O & M) costs by eliminating the need for carbon replacement or regeneration and by recycling the butane gas back into the butane biotreatment zone.
- The Butane Injector 2000™ has been designed to be intrinsically safe and very compact (requires little space).
- Butane Biosparging™ and Butane Bioventing™ technologies require minimal O & M and do not produce a waste stream. These technologies greatly shorten remediation time, are easy to manage, and reduce costs by up to 50% compared to conventional technologies (i.e. pump and treat, air sparging , soil vapor extraction with activated carbon, etc.)



Butane Biostimulation Technologies™ under construction at petroleum cleanup site in Salem, Massachusetts. The site was formerly treated with Soil Vapor Extraction utilizing carbon which required expensive replacement and regeneration. In August 2002, the Massachusetts DEP approved implementation of Butane Biosparging™ with Butane Bioventing™ to treat the site located in a residential area with buildings in close proximity. Effluent gas is reinjected back into the biotreatment zone, increasing both safety and efficiency of the butane treatment system.