

Global BioSciences, Inc.

BIO-TECH TALK



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GBI TO PRESENT PAPER AT GRA CONFERENCE

GRA Presents the 9th Symposium in its *Series on Groundwater Contaminants*

1,4-DIOXANE & OTHER SOLVENT STABILIZER COMPOUNDS IN THE ENVIRONMENT

December 10, 2003 - DoubleTree Hotel, San Jose

Global BioSciences, Inc. (GBI) has been invited by the Groundwater Resources Association of California (GRA) to present a paper detailing the research of 1,4-dioxane degradation using Butane Biostimulation. According to the GRA, the widespread releases of chlorinated solvents to groundwater from vapor degreasing operations have been investigated and remediated on the basis of the primary solvent chemicals TCE, 1,1,1-TCA, PCE and carbon tetrachloride. At many sites, the likely presence of 1,4-dioxane and other stabilizer compounds have been largely overlooked. Recent testing has shown that 1,4-dioxane is found to be present at problematic concentrations at many solvent sites.

The GRA has noted that numerous additives are routinely included with most industrial solvents to ensure that the solvents perform as needed in their intended degreasing application. These additives are collectively known as solvent stabilizers, or inhibitors, and mitigate or prevent reactions with water, acids, and metals, and inhibit degradation from heat, light, and oxygen. Most of the several hundred compounds identified as solvent stabilizers are volumetrically insignificant, but a few are potentially problematic with respect to their toxicity, persistence, volume, and potential to get concentrated through partitioning in vapor degreasers and distillation in solvent recycling operations. For more information, please visit www.grac.org.

Recently, GBI was engaged to determine whether 1,4-dioxane was amenable to enhanced biological degradation using *Butane Biostimulation Technologies*[™]. GBI received a groundwater sample from a Brownfield location in Massachusetts. The Brownfield site had been impacted by various chemical releases in the past and low concentrations of 1,4-dioxane remained in the groundwater. GBI had conducted several site cleanups using butane injection for another ether compound, methyl tertiary butyl ether, or MTBE. According to published reports, the aqueous aerobic half-life of 1,4-dioxane is estimated between 672-4320 hours. The accelerated half-life of 1,4-dioxane, using butane and air injection dropped to 24 hours since a laboratory microcosm evaluation demonstrated complete degradation within a 48 hour period (while still taking into consideration the abiotic losses).