

**Name:** Michael Blaylock

**Presentation title:** Phytoremediation of Arsenic: Benefits, Challenges and Techniques of Removing Arsenic from Contaminated Soils.

**Abstract:** Arsenic is a significant soil contaminant as a result of industrial applications, and its use in pesticides and herbicides in the United States and other countries, posing significant health risks to humans and animals. Because of its past wide-spread use, many large areas exist with elevated arsenic concentrations in the surface soil. Currently, there is no cost-effective method to clean large acreages of arsenic-contaminated soils. Phytoremediation has developed as a promising alternative to excavation and replacement of arsenic-contaminated soil to address some of these areas.

Selection of an appropriate plant species for arsenic phytoremediation is currently limited to ferns belonging to the *Pteris* genus. These ferns have shown a remarkable ability to tolerate and accumulate high concentrations of arsenic in their fronds. From 2004 to 2008 *Pteris* ferns were used to assist in removing arsenic from targeted residential soils in Washington DC and areas of central Virginia. As a result of these studies, improvements in the methods of application and assessment have been developed, including sampling approaches to improve confidence in the data, management practices to improve biomass production, and techniques for minimizing irrigation requirements. This presentation will discuss approaches, techniques and results obtained from different arsenic phytoremediation projects along with the benefits and challenges of implementing phytoremediation in these areas.

**Short Bio:** Dr. Michael Blaylock is Vice President and General Manager at Edenspace Systems Corporation where he leads the research and commercial development activities of environmental phytotechnologies. His work over the past fourteen years has focused on plant-based technology projects and applications including basic and applied research in phytoremediation and other phytotechnologies (plant biosensors, nutraceuticals, fortified foods, and biofuels).

Dr. Blaylock was previously Laboratory Head at Phytotech from 1997 to 1999, where he supervised a 14-member research team of laboratory, greenhouse and field personnel developing phytoremediation technologies. He joined Phytotech as a Research Scientist in 1996, having completed postdoctoral work at Rutgers University and at the University of Wyoming from 1992-1996. He received his Ph.D. in Soil Chemistry from the University of Maryland in 1992, and his M.S. and B.S. in Agronomy from Brigham Young University in 1988 and 1987.

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