

Sundine Enterprises Strategic Partner

Foremost Environmental Solutions



Office: 303.985.0609

Cell: 720.363.0548

www.foremostsolutions.com

isolite@ix.netcom.com

BioLuxing Case Studies



Shadow Mountain Mustang Gas Station: Grand Lake, CO

System Type:

Biological Reactive BioLuxing™ and BioWall™ (in situ bioaugmentation). Installed with teaming partner FRx

Location:

Shadow Mountain Mustang Gas Station, Grand Lake, Colorado

Client:

Hunt4 Solutions, Inc., Lakewood, CO

Project Description:

In September 1997 at a former retail gasoline station site in the Colorado mountains, FES installed three BioNets™ containing three BioLuxes™, each to remediate BTEX contaminated soils and groundwater in the source area. As part of this X-PeRT™ (Permeable Reactive Treatment System), Foremost also installed a 6-foot deep trenched BioWall™ in September 1998 to prevent off-site migration of contamination. Shadow Mountain Reservoir, a major Colorado drinking water source, was immediately down-gradient.

The design and remediation was performed under a State of Colorado approved Corrective Action Plan. The BioNets™ were installed using hydraulic fracturing techniques, and the shallow trench was installed by traditional methods. The Isolite®CG carrier used in both the BioNets™ and the BioWall™ trench installation was inoculated with BTEX degrading microbes. After one year of remediation, BTEX concentrations in the source area had been reduced 66 percent. After three years, only one source well exceeded benzene standards, and all three compliance wells were below the standards for BTEX. New residential construction has been completed between the site and reservoir.

In 2005, the State of Colorado established regulatory standards for the gasoline additive MTBE. Since MTBE had been used at this site, the Colorado Oil Inspector required sampling to be completed in 2005-06 to determine if MTBE was present. MTBE was detected at levels below the state standards so no additional cleanup was necessary. The speculated reason for the low presence of MTBE was that existing indigenous microbes which degrade MTBE also utilized the enhanced treatment zones installed for the BTEX and were simultaneously biostimulated to remediate the MTBE as well.

Pictured above is the equipment used to inoculate Isolite®CG on site and to simultaneously fracture and inject the microbe-laden pellets into the contaminated zone. Recessed pipes allowed for surface access in order to provide oxygen and nutrients to the BioLuxes™ if necessary. The well caps that cover the recessed pipes were the only signs left behind to indicate that remediation had been conducted at the site. The installation took two days.