

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



New Mexico State Highway, Continental Divide, NM

System Type:

Original in situ BioLuxing™ converted to enhanced Soil Vapor Extraction System. Installed with teaming partner FRx

Location:

NM State Highway and Transportation Department, Indian Village Site, Continental Divide, NM

Client:

Agra Earth Environmental, Inc.

Project Description:

In August 1998, FES installed six BioNets™ with a total of 31 BioLuxes™ on a site owned by the New Mexico State Highway and Transportation Department. The BioLuxes™ were installed in the vadose zones between 22 and 52 feet below ground surface during a nine day period using hydraulic fracturing techniques. This Foremost X-PeRT™ (Permeable Reactive Treatment System) biodegraded BTEX compounds with aerobic microbes, using the Isolite®CG as the carrier and proppant material. The next most appropriate technology proposed was soil venting at over three times the cost because of the problems associated with very tight soils. Decreased concentrations of BTEX compounds were measured down-gradient of the treatment system. However, after installation, the project was turned over to the client for periodic recharging of the system with oxygen and nutrients, and on-going O & M. Later the client converted the in situ bioremediation system to a greatly enhanced Soil Vapor Extraction (SVE) system by utilizing the permeable reactive sheets created by the hydraulic fracturing and Isolite®CG. The treatment lenses of the installed BioLuxes™ increased the radius of influence for vapor extraction by a factor of 300.

On this project, the installation pipes in the bore holes were PVC, and only one pipe was used per BioNet™. By use of two packers, all of the individual fractures, or BioLuxes™, were initiated from the same bore hole at different levels. High pressure water jets were used between packers to cut through the PVC pipe at designated depths and initiate each fracture. The treatment slurry was pumped through the openings, creating BioLuxes™ that had diameters of up to 35 feet. The BioNets™ ranged from 2 to 11 BioLuxes™, stacked in the single bore holes. This technique reduced the cost and time required to install the BioLuxes™ but required the use of packers to separate or retrofit the individual fractures. However, when used as an enhanced SVE system, as contemplated and later converted to for this site, this construction method was fully adequate. The supervisor for the New Mexico Highway Department was very pleased with the ultimate results and is a strong supporter of BioLuxing™ and its versatility.