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BioLuxing Case Studies

The Denver Federal Center

System Type:
Biological Reactive BioLuxing Enhanced Bioaugmentation. Installed with teaming partner, FRx, Inc.

Location:
Denver Federal Center, Lakewood, Colorado

Client:
General Services Administration –with EPA cooperation

Project Description:

In June 1995 in cooperation with the EPA, GSA, DOI and the State of Colorado, FES introduced the first enhanced in situ bioremediation system called BioLuxing™. Under the watchful eye and helpful hands of EPA and other government regulators, FES installed two BioNets™ with four and two BioLuxes™, respectively, to bioremediate cutting oil and associated total petroleum hydrocarbons (TPH) in tight clay and shale soils.

Because the soils were so tight and the contamination so deep, traditional treatment methods were not appropriate. The proposed "dig and haul remediation was estimated to have cost 7 times more than the BioLuxing™ and would have severely disrupted the construction of a loading ramp scheduled around the building and near a tall decorative wall adjacent to the building. The BioLux™ design was the chosen technology, and the installation required only three days.

The BioNets™ were installed as a series of horizontal subsurface disks using hydraulic fracturing techniques. Isolite®CG, a porous ceramic material made from diatomaceous earth, was inoculated with cultures of colonized microbes collected from the site and pumped into the BioLuxes. Aerobic and anaerobic microbes digested the TPH compounds and reduced the initial concentrations of up to 5700 ppm down to 475 ppm in seven months (92 percent reduction). Nutrients and oxygen were added periodically to the system from the surface mounted injection pipes.

The BioLux™ technology successfully resolved the environmental issues, and the site was declared by the regulators to require no further action, and was completed with no interruptions. EPA published and presented articles about the success of the project.