

Fact Sheet

SOIL REMEDIATION DEMONSTRATION PROJECT: BIODEGRADATION OF HEAVY FUEL OILS

PROBLEM

Numerous small releases of petroleum products, including heavier grades such as #6 fuel oil and bunker C, have occurred in cold regions. Many of these releases have occurred in remote sites where alternatives for cleanup are few, and mobilization of heavy equipment is difficult to justify. Because of the large number of these sites, low-cost, low-input systems are needed to remediate these soils.

SOLUTION

Two low-cost bioremediation systems—landfarming and pile-bioventing—are being compared and demonstrated on a small scale at a field site in Fairbanks, Alaska. Field demonstrations are being conducted on both diesel and heavy fuel oil-contaminated soils. During winter 1994–95, laboratory treatability studies were conducted to provide input for nutrient additions and to estimate treatment time. From these studies and demonstrations, we will develop low-cost, low-input, easily implemented bioremediation methods applicable to remote sites and cold regions. A cost-effective bioremediation strategy applicable to remote sites would both address the need for soil cleanup at these sites and allow limited resources to be used to treat a larger number of sites. The trade-off for the cost savings from using low-input biotreatment options will be an increase in treatment time. For some sites, especially remote locations often found in cold regions, the trade-off is acceptable. Similar bioremediation technologies are in use, but their success when used as a low-input option is not well documented. The costs for initial setup will be similar to existing systems, but the cost of operation will be lower and the costs of noncompliance will be eliminated. This project is a Corps of Engineers Construction Productivity Advancement Research (CPAR) project, which is a cost-shared, cooperative research program designed to enhance the competitiveness of the United States construction industry. U.S. Army Cold Regions Research and Engineering Laboratory (USACRREL) and Alaska Science and Technology Foundation (ASTF) researchers are working with Weston and Sampson Engineering Inc., AGRA Earth & Environmental, Inc., and the University of Alaska, Fairbanks, to solve this problem.

STATUS OF PROJECT

The treatment cells are constructed and the initial soil conditions have been characterized. Site instrumentation is being designed and procured. Field treatment operations will begin in the summer of 1995.

CONTACT

Dr. Mike Reynolds
603-646-4394
reynolds@crrel.usace.army.mil

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