

# **SOLUTION MINING RESEARCH INSTITUTE**

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**Meeting  
Paper**



## **Disposal of Mining Wastes by Slurry Fracture Injection**

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## **Disposal of Mining Wastes by Slurry Fracture Injection**

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### **Introduction**

A variety of solid and slurry wastes, including drill cuttings and drilling muds, tailings pond slimes, solution mining brines, and contaminated surface soils can be economically disposed of in an environmentally acceptable manner through slurry fracture injection (SFI). Solids are mixed into a slurry with fresh or produced water and injected at high pressure into suitable sand formations. The carrying fluid bleeds off rapidly, leaving behind a pod of solid wastes entombed by the natural earth stresses. High fluid leakoff allows more efficient creation and packing of short wide fractures.

At shallow to moderate depths, in-situ stresses may be sufficiently modified to establish horizontal fractures and allow periodic disposal of large quantities of waste slurries - on the order of hundreds of thousands of cubic yards. With proper process design and monitoring, fracture growth can be carefully controlled and contained within the target interval.

The slurry fracture injection process has been successfully applied to dispose of large quantities of waste slurries in the U.S. and Canada. The technique offers a number of economic and environmental advantages for disposal of mining wastes. By reinjecting produced material back underground, the material is essentially being returned to its place of origin. Wastes are placed below any useable sources of drinking water (USDWs) and the long term liability to the operator is virtually eliminated, in marked contrast to surface storage or landfill disposal. Finally, for moderate to large quantities of solid waste, fracture injection costs are less than typical transport and landfill disposal costs.