

Beneficial Use of FGD By-products in Mine Land Reclamation

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ABSTRACT

FGD by-products (fixated sulfite rich FGD and sulfate rich FGD gypsum) can be used in mine reclamation applications for abatement of acid mine drainage (AMD), reduction of offsite sedimentation, subsidence control, and elimination of safety hazards (such as dangerous highwalls). Many coal-fired power plants are located in the vicinity of existing and abandoned underground as well as surface mines. In many instances, coal combustion by-products (especially FGD materials) can be used to reclaim these mined areas and improve significantly the environmental and safety problems caused by these unreclaimed sites.

The newer scrubbers currently being installed or planned to be installed across the US will produce a different type of FGD gypsum (sulfate) material than the older type of scrubbers (that produce a sulfite rich fixated by-product) that will have different engineering and chemical properties. The engineering and leachate characteristics of various mixes of FGD gypsum, Class F fly ash, and lime are presented so as to develop mixes suitable for various mine reclamation applications. The results of this laboratory study will be implemented in full-scale demonstration projects to be constructed and monitored in Ohio.