

Beneficial Applications of Circulating Fluidized Bed (CFB) Ash at Mississippi Lignite Mining Company's Red Hills Mine

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ABSTRACT

Mississippi Lignite Mining Company (MLMC) operates the Red Hills Mine, an open pit, multiple seam, lignite mine. The Red Hills Power Plant utilizes modern circulating fluidized bed (CFB) boiler technology. Fuel conversion produces 670,000 tons of dry CFB ash annually.

Mine production is directly related to haul road conditions. Roads must support haulage trucks weighing 275 tons at speeds up to 34 mph. Construction of all-weather roads is difficult because of a lack of locally available and suitable, sub-base soils and surfacing materials. Costs associated with trucking in aggregate from distant Mississippi and Alabama quarries make this option too costly for use on most primary haulage roads.

MLMC received approvals from the Mississippi Department of Environmental Quality (MDEQ) to use 70,000 tons and 349,000 tons, of dry CFB ash, respectively, for the construction of primary earth moving and coal haulage equipment roads, dragline walkways, pit ramps, parking areas, and other minor construction purposes. The use of ash, as a mine road building material, has improved haulage production, reduced diesel fuel consumption, reduced road maintenance, conserved natural aggregates, and lengthened the life span of primary ash disposal facilities.

This paper will describe the ash handling methods utilized in various applications at the mine including: (1) environmental considerations in planning the ash applications; (2) the permitting and monitoring requirements of MDEQ; (3) the ash handling methods utilized by the mine in various applications; and (4) the results to-date of the ash utilization and its environmental impact.

Submitted for presentation in the OSM Forum in the 2005 World of Coal Ash, April 11-15, 2005, Lexington, Kentucky, USA.