Efficient Coal Combustion Product Disposal for Existing Power Plants

Don W. Fuller II[1], Kenneth O. Hardin[1], and John S. Montgomery[2]

[1]Fuller, Mossbarger, Scott & May Engineers, Inc., 1409 North Forbes Road, Lexington, Kentucky 40511; [2]Fuller, Mossbarger, Scott & May Engineers, Inc., 11687 Lebanon Road, Cincinnati, Ohio 45241

KEYWORDS: CCP Disposal, Planning, Regulations, Permitting, Design, GIS, Feasibility, Quality Control Plans, Maintenance Costs.

ABSTRACT

The United States is continuing the established tradition of relying on coal as a trusted power source for the nation. As demand and scrubber use increases, CCP volumes will increase. CCP management for aging facilities is a significant factor in maintaining viability. Successful management plans are developed using a phased approach which progresses from feasibility evaluation to concept, then final design with permitting considered throughout.

CCP management plans involve accurate assessment of associated plant logistics and operational elements including volume, remaining capacity, future plant operations, regulatory classification, environmental risk, and plant viability. CCP transport should consider topography, distance, and water balance. Planning is streamlined by maintaining plant logistics within a GIS.

Primary design challenges include addressing the alternatives associated with a matrix of parameters including: disposal method, transportation infrastructure, regulatory controls, surface water management, structural integrity, maintenance costs, and closure systems. Permitting is initiated during engineering design. A recommended regulatory strategy involves initiating open communications early within the design schedule with regulators. Where regulatory challenges exist, conceptual designs and alternatives should be discussed. Successful facility designs include construction and operational quality control (QC) plans.

Disposal system maintenance expenditures are often driven by the effectiveness of engineered controls. Typical maintenance elements include: cover repairs, revegetation, sediment removal, drainage controls, roadways, fugitive dust controls, and sluicing systems. Additional savings for many plants gained through incremental closure integrated closely with phased operations. This method provides clear advantages in reducing risk and financial requirements.

Submitted for consideration in the 2007 World of Coal Ash Conference, May 7-10, 2007.