

# **Kinetics of Fly Ash Beneficiation By Carbon Burnout**

**Quarterly Report  
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For  
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## I. ABSTRACT

### OBJECTIVE

To investigate the kinetics of beneficiation of fly ash by carbon burnout. The project is a joint venture between Delmarva Power, a power generating company on the eastern shore of Maryland, and the University of Maryland Eastern Shore. The studies have focused on the beneficiation of fly ash by carbon burnout.

### WORK DONE AND CONCLUSIONS

Measurement of reactions at different concentrations of oxidizing medium were commenced. It is intended to study the oxidation of the fly ash at different relative pressure and temperature using oxidizing media at 10%, 15%, 20% and 25%. Earlier on during this quarter we had some difficulty with equipment outage. The problem has now been resolved and data collection has commenced. During the Christmas break a seminar session was offered to one graduate student to acquaint him on the operation of the mass spectrometer and thermogravimetric analyzer.

### SIGNIFICANCE TO FOSSIL ENERGY PROGRAM

Project is related to Advanced Environmental Control Technology for Coal and coal residue.

### PLANS FOR NEXT QUARTER

We will continue with our investigation of the carbon burnout of the fly ash. We are on the verge of establishing a lower limit for the carbon remaining after burn out. We expect that the different concentrations of reactant gas will assist in this endeavor. We also plan to engage two undergraduate students early in the new year to provide them with research experience on the project. This measure is in keeping with both DOE and UMES efforts to encourage more minority students to undertake research in energy related fields.

## II. HIGHLIGHT OF ACCOMPLISHMENTS

- Introduction of a number of minority students to research experience in fossil energy.
- Successful application of Proportionality Law to kinetic data.
- Development of fossil energy instructional material for the class room.