Use of Fluidized-Bed Combustion Ash in Agricultural Applications

**Quarterly Report
October 1 - December 31, 1995**

Work Performed Under Contract No.: DE-AI21-94MC31205

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Technical Progress Report (Quarterly)

10/01/95 - 12/31/95

Under **Tasks 1 & 2** Monitoring of the in-field ash pad continues throughout the winter.

Under **Tasks 3 & 4**, the field experiment using blackberry as the index for growth was established. Treatments of FBC or FBC + manure were made. The soils and plants will be monitored for plant essential as well as trace elements. There was no additional monitoring of these plots during this time frame.

The soil column leaching experiment has been completed, all sixteen leaching events were made. Data is being compiled on leachate pH and electrical conductivity (EC). The frozen leachate samples will be analyzed for trace elements. The soil columns will be sectioned in order to examine trace and major element movement within the columns. The pH and EC data from all leaching events (see attached plots) indicate that by the end of the leaching cycle there was very little difference in leachate pH among treatments. However, EC varied greatly among treatments initially and then all column leachates decreased at the end of the cycle. The fluidized bed material plus dairy manure application both at the equivalent of 5 tons/acre (fm5) produced the highest leachate EC values after the first leaching event. This trend continue throughout the experiment.

These initial column results show the initial impact (particularly on EC) of surface applied amendments and how this impact diminishes with time (leaching events).

Treatments Identification for pH and EC plots:

con = control soil, no amendments

fb1 = fluidized bed combustion material applied at equivalent of 10 tons/acre

fb5 = fluidized bed combustion material applied at equivalent of 5 tons/acre

fm5 = fb5 + the equivalent of 5 tons/acre dairy manure

fm1 = fb1 + the equivalent of 10 tons/acre dairy manure

ma = dairy manure at the equivalent of 5 tons/acre

Soil Leachate Exp. 2, 1995

pH

Julian Day

con fb1 fb5 fm5 fm1 ma

Soil Leachate Exp. 2, 1995

EC

269 276 284 290 297 301 311 318 325 332 339 346 353 360 003 016

Julian Day

con fb1 fb5 fm5 fm1 ma