Plant Materials and Amendments for Controlling Wind and Water Erosion on a Fly Ash Disposal Area: TVA Colbert Fossil Plant, Alabama. Jimmy J. Maddox, David Behel, John M. Soileau, and Jimmie Kelsoe.

Abstract: Fly ash disposal sites adjacent to fossil fueled generating plants are subject to wind and water erosion which increases the operation and maintenance costs. Gullies and unstable areas in the disposal sites require expensive leveling and filling practices. Test evaluated both warm- and cool-season cover crops established by either sod or seed. Amendments to the ash consisted of composted poultry litter (CPL), soil, soil+CPL, fertilizer and beneficial soil microbes including mycorrhizal fungi. Turf sods (419 Bermuda, Emerald zoysia, and Raleigh St. Augustine) were compared in greenhouse and field studies. Six legumes and 12 grass species were tested in the greenhouse as seeded cover crops using similar amendments and raw poultry litter (PL). Legumes grew better with CPL and soil amendments and grasses grew better on PL and soil amendments possibly due to differences in N requirements and N supply. Cool season crops generally grew faster than warm season species in the greenhouse tests. Amendments should be mixed with the FA to ameliorate the effects of boron and salt toxicity and to increase the water holding capacity. Bermuda sod grew faster than either St. Augustine or Emerald zoysia,but requires more water. A microbial amendment increased dry matter yields of bermuda sod 2 to 3 times after 40 to 60 days over unamended controls. Microbial amendments may be justified on an economic and sustainable basis. A field study is assessing the environmental and cultural requirements to grow a cover crop on an annual basis.

Additional Key Words: restoration, ash ponds.