

WEACAU-III:
Workshop on Environmental Aspects of Coal Ash Uses
Complementary Session
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Proposed environmental conditions for coal ash application to soil (in road construction, infrastructure and agriculture)

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Abstract

A set of environmental requirements which will serve as the basis for a body of regulations aimed at controlling the use of coal ash for land applications is presented. Coal ash is defined for this purpose as any assemblage of particles that are formed as a result of burning coal. The proposed regulations, being specifically designed for coal ash and covering all aspects of its land use, will free one from the need to classify the ash as belonging to a broader category of substances, such as "waste" or "byproduct".

The proposed environmental requirements are application-dependent. There are two major types of land application of coal ash: a. road construction and infrastructure – including, for example, construction material for embankments or filling material for excavations or ditches. The use of coal ash for such applications will require limitations on the concentrations of trace elements in the leachate from the land-applied ash. These limitations will be, in turn, dictated by the hydrological sensitivity of the site of application and by the nature of the final product (e.g., the physical properties, especially hydraulic conductivity, of the embankment); b. agricultural uses – these include use of the ash as a soil additive, a growth medium, or an additive to sludges which are applied to agricultural land. Again, when ash is used in agriculture, limits on the concentration of trace elements in the ash leachate are defined on the basis of soil type, hydrological sensitivity of the site of application and the load of ash applied.

The maximum allowed levels and the methods of extraction and analysis to be used in order to define these levels, are specific to the intended application of the ash. Thus, ash used in infrastructure applications will have to conform to the criteria for non-hazardous waste of the European Union as related to the leachate of granular material, while ash used in road construction will have to conform to the maximum allowed values defined for compacted granular materials by the European Union. As for coal ash used in agriculture, there are two proposed alternatives: maximum allowed values will be either derived from the allowed concentrations in sludge grade A applied to soils, or will be based on the criteria for non-hazardous waste of the European Union after extrapolation to the expected load of the ash in a given field over an extended period.