

GSI W-24 Webinar Entitled: “Disposal of Coal Combustion Residuals”

Webinar Overview

With coal representing over 25% of energy sources, the disposal of coal combustion residuals is critical. They are placed in disposal areas either in a dry or wet state. The latter is by slurring behind earthen embankments and several have failed in recent years, e.g., in Spain, Hungary and the U.S. (one in North Carolina, the other in Tennessee). This webinar describes the current status including the detailed stability analysis of several sites. It also mentions that there are over six hundred of such facilities in the U.S. along with their approximate geographic locations.

The webinar then addresses, in detail, various geosynthetic related opportunities with disposal sites. All of the methodologies are within the state-of-the-practice of geosynthetic engineering design and construction but are largely unknown or under-utilized in the context of CCR disposal. Each of the nine scenarios is rather detailed and complete such that the webinar participant will be knowledgeably informed of their present status.

Learning Objectives

Participants will gain detailed perspectives on the status of both dry and wet disposal of coal combustion residuals (CCRs). This includes amounts, types, locations and general design scenarios of the containment embankments. Detailed analyses of such embankments with several case history failures are presented. In light of this background, nine geosynthetic solutions involved in proper disposal will be detailed and illustrated. Ultimately, each participant of the webinar will become knowledgeable of the opportunities and practices that currently exist.

Webinar Benefits

1. Understand where and how CCRs are generated
2. Understand the stability concerns between dry and wet disposal techniques
3. Appreciate the nature and details of past CCR impoundment failures
4. Understand details of geotechnical stability analyses of such failed embankments
5. Understand the nuances of various CCR liner systems
6. Understand how and why existing foundation soils can impact CCR impoundment failures
7. Understand the nuances of various CCR cover systems
8. Be exposed to new methods of disposal of slurried CCRs

Intended Audiences

Public and private owners/operators of landfills, heap leach pads, shale gas cuttings, combustion coal residuals and related solid waste facilities; consultants and designers in the public and private sector; regulators and agency personnel at the federal, state and local levels; geosynthetic manufacturers and their representatives; geotechnical and geosynthetic testing organization personnel; contractors and installers of liner and cover systems; academic and research groups;

and others desiring technically related information on this important aspect of our constructed environment.

Specific Topics Covered

1. Overview of Energy Sources
2. Coal Spoil Tips
3. Coal Combustion Residuals
 - 3.1 Dry Disposal
 - 3.2 Wet Disposal (Slurried)
4. Related Geosynthetic Solutions
5. Summary and Conclusions

Webinar Instructor

Dr. George R. Koerner is the current director of the Geosynthetic Institute, a position that he has held since 2014. George's interest in geosynthetics spans his entire professional life from undergraduate work in the 1980's to the present. He holds his PH.D. in Civil, Architectural and Environmental Engineering from Drexel University in Philadelphia. George's master thesis was on direct shear testing of geosynthetic interfaces and his doctoral dissertation was on landfill leachate clogging of soil and geosynthetic filters. Both are regularly cited to this day.

Dr. George Koerner is a Professional Engineer in both Pennsylvania and New Jersey, and is an ASQC Quality Auditor. During his 30-years of geosynthetic activities, Dr. Koerner's output has been tremendous and he has to his credit the following publications:

- Books Edited or Co-Edited – 15
- Journal Papers – 18
- Symposium and Conference Publications – 40
- Book Chapters and Published Reports – 4
- Miscellaneous Articles – 30

The Geosynthetic Institute is a nonprofit research and development organization dedicated to the proper use of geosynthetics in its myriad applications. As director of the Geosynthetic Institute, Dr. George Koerner is also in charge of the laboratory accreditation and inspection certification programs.