

Capping of Coal Ash Landfill in Mallorca

The increased use of coal to generate electricity has brought with it an increased amount of coal combustion by-products (CCBs). Metal ions released from these CCBs can be harmful to the environment and therefore need to be contained.



PROJECT DETAILS

Capping of Coal Ash Landfill,
C.T. Alcudia

LOCATION

Mallorca, Balearic Islands (Spain)

PRODUCTS USED

RESISTEX® ST GCL

CETCODRAIN 40X12-2

CHALLENGE:

The CCB landfill at the Alcudia Thermal Plant in Mallorca was originally lined with bentonite-enhanced sand (BES) barrier and an HDPE geomembrane. Once the landfill cell was filled with waste the need for impermeable and durable capping solution emerged. Due to the high concentrations of inorganic salts and heavy metals in the waste, the compatibility and long-term performance of both: the bottom liner and the capping system were of paramount importance.

The size of the capped cell is 130,000 m², with 40,000 m² of slopes. Slopes are inclined at 3H:1V and length of each slope varies from 5 m to 35 m. Due to the complexity of BES installation on slopes, the potential for instability and time constraints the client was reluctant to use the same BES barrier for capping. CETCO technical consultants were approached to propose a capping solution that would match the chemistry of the waste, remain in service in the long term and allow for rapid installation.

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SOLUTION:

As a result of leachate analysis and conformance tests carried out at CETCO labs, a recommendation was made to use a RESISTEX® ST GCL to cover the Alcudia landfill cell. Drainage geocomposite (CETCODRAIN) was also recommended on top of the RESISTEX® ST GCL, to collect and drain excessive rainwater.

RESULT:

Thanks to the conformance testing performed ahead of the contract award the engineers were able to identify the most efficient and reliable liner system for the landfill cover. RESISTEX® ST geosynthetic clay liner turned out to be the most durable, competitive and cost-efficient solution. The installation was done quickly and fulfilled the challenging requirements of the project.