



An Environmental Safeguard for Coal Ash Waste



ClosureTurf[®]

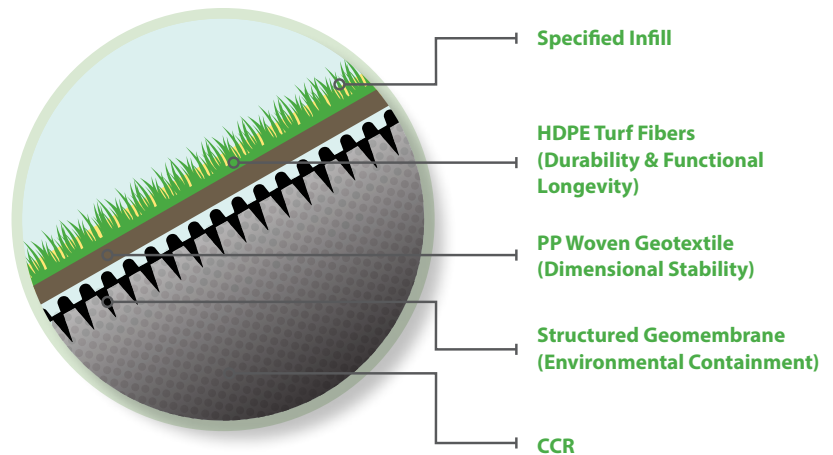
CCR Closure Technology

U.S. Patent Nos. 7,682,105 & 8,585,322

Canada Patent No. 2,663,170 • U.S. & International Patent Pending

Subtitle D Compliant, Final Closure System

ClosureTurf is a three component system comprised of an engineered synthetic turf for durability and functional longevity, a specified infill for enhanced protection and a structured geomembrane for environmental containment. Currently being used on large-scale CCR disposal projects as a final cover system rather than the traditional soil vegetative closure methods, ClosureTurf allows for a faster closure, is safer and more cost-effective — both during construction and in post-closure maintenance and custodial care, and offers several environmental benefits compared to traditional closure methods.



Bringing Final Closure to Coal Ash Disposal Challenges

Specifically designed to address the stringent requirements of CCR closure regulations, ClosureTurf® is proving to be a most effective solution for utilities and industrial sites facing aggressive mandates. ClosureTurf can reduce the closure construction schedule by at least 50%, thereby accelerating the project schedule. Through our patented engineered synthetic turf/infill/geomembrane system, the traditional 24" soil layer is eliminated, so borrow soil, transportation risks to and from the site, and long-term soil-related maintenance are no longer challenges the owner has to face.

Coal Energy Applications:

- > Ash impoundment closures
- > Synthetic gypsum removable covers
- > Coal refuse area closures
- > Coal overburden pile closures

Significant Improvements to Water Quality

With traditional prescriptive soil covers, a significant risk exists for sediment pollution through erosion of the soil layer. Due to its unique design, the ClosureTurf system provides clean runoff water perpetually. Additionally, with the virtual elimination of any borrow soil and related trucking, an independent analysis shows an approximately 80% reduction in ClosureTurf's carbon footprint when compared to traditional methods of closure.



Over 25 Million Square Feet Installed

To date, over 25 million square feet of ClosureTurf has been successfully installed in the U.S. Some of our more recent projects include a cement kiln dust landfill, an industrial sludge and ash lagoon, a waste to energy ash monofil landfill and utility coal ash ponds.

> Improved Safety

With no soil requirements, there are virtually no trucks and equipment on local roads or on the project site

> Accelerated Project Schedule

Reduces overall closure construction schedule by ~50%

> Water Quality Enhancement

Significantly cleaner runoff reduces potential storm water pollution of local waterways

> Maintenance Cost Savings

Total overall maintenance costs are typically reduced by approximately 90% in comparison to prescriptive covers

> Environmental & Community Benefits

Prevents dust, odors and air pollution for nearby residents; reduces carbon footprint by 80%

> Renewable Energy Opportunities

Serves as an ideal foundation for possible future ballasted solar arrays



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