

# Fly Ash in North Carolina

**Beneficial Reuse has no risk. Placing coal ash in an encapsulated product is the solution!**

- Demand for Ash in North Carolina and bordering states will exceed 46 million tons in the next 15 years according to Dr. Michael Leming, PhD, FACI, author of the report Fly Ash In Concrete.
- Good quality fly ash (low and stable carbon content) is a valuable mineral admixture in the concrete industry. Fly ash is a supplementary cementitious material and a partial replacement of cement, which both improves the durability and reduces the cost of concrete.
- Fly ash greatly reduces the risk of Alkali Silica Reactivity (ASR), and reduces concrete permeability (rebar corrosion), NCDOT requires fly ash in all concrete bridges, roads and state construction.
- The market is greatly underserved. Allocations and supply disruptions occur frequently and will continue throughout 2016. Currently the industry is receiving 35-50% of its needs and all of that comes from out of state.
- Our industry is being forced to import ash from sources around the world (China, Turkey, SE Asia)



**WE URGE YOU TO ENACT LANGUAGE THAT WOULD EXTEND THE CLOSURE OF A COAL ASH POND ONLY IF IT IS CLEANED UP COMPLETELY THROUGH BENEFICIAL REUSE IN A PRODUCT THAT ENCAPSULATES THE COAL ASH. BE A PART OF THE SOLUTION!**



# Recycle Coal Ash in North Carolina for Beneficial Use in Concrete

Prior to 2015, unused ash was disposed by either sluicing to ponds (lowest cost) or embanking in landfills, and there were no comprehensive Federal standards for ash ponds or landfills prior to the 2015 USEPA Coal Combustion Residuals (CCR) rule.

The USEPA CCR Rule (coal disposal regulation effective in 2015) prohibits new ponds and requires existing ponds to close. New embanked landfills must use double liners, ground water monitoring, and leachate collection systems.

The minimum federally required method to close an ash pond is called “cap in place”: drain off surface water and cover with soil or membrane. The ash stays in place, and no liner is required.

The next level of pond closure is called “clean closure”. Coal ash is completely excavated from ponds, and it is then typically moved to new landfill site with double liner, ground water monitoring, and leachate collection, where the ash is embanked exactly like municipal solid waste.

A lower cost option for “clean closure” allows for the ash to be processed into quality fly ash suitable for use in concrete, rather than be transported and reburied in new landfills.

Several firms field technology to reclaim fly ash from ponds and landfills, process into valuable mineral admixture, and supply concrete market demands.

A SC utility entered into a consent agreement for a modified scope that includes “reclaim and reuse” instead of the conventional “clean closure” which would have required “transport” to and “place and compact” in a new landfill. Several hundred-thousand tons are now being excavated and beneficially reused each year.

Fly ash reclaimed from ponds and fills no longer simply prevents disposal; it remediates legacy storage sites with associated environmental risks. It also supplements supply when coal generation is low or when there are seasonal shortages.



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Type of Closure	Timeframe	Scope of Work	Relative Cost
“Cap In Place”	1-2 years	<ul style="list-style-type: none"> <li>Dewater pond</li> <li>Install impervious liner system on top of ash</li> </ul>	Baseline Cost—varies according to size of pond
Conventional “Clean Closure” with reburial Class 3 Landfill	3-5 + years, depending on size of pond	<ul style="list-style-type: none"> <li>Permit and construct new Class 3 Landfill</li> <li>Dewater pond</li> <li>Excavate all pond ash</li> <li>Transport all pond ash to Class 3 Landfill</li> <li>Place and compact ash in Class 3 Landfill</li> <li>Install impervious linker system on top of ash</li> <li>Long-term, post-closure monitoring</li> </ul>	4-5 times more than the cost of “Cap in Place”
Clean Closure with Beneficial Use in Concrete	10-20 + years, depending on size of pond, typically 300,000-500,000 tons per year	<ul style="list-style-type: none"> <li>Dewater pond</li> <li>Excavate all pond ash</li> <li>Transport all pond ash to beneficiation plant</li> <li>Beneficiate and use ash in concrete production</li> </ul>	25%-50% less expensive than the cos of Conventional “Clean Closure”

**The Carolinas Ready Mixed Concrete Association**

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