Dominion reconsidering coal ash storage plans in VA

State, federal actions prompt utility to look at recycling or in-situ stabilization options

- *By* Whitney Pipkin *on* May 08, 2017

Recycling coal ash for use in concrete is one of the alternatives Virginia lawmakers have directed Dominion Virginia Power to consider during a moratorium on permits for permanently storing the ash in the ground. (Max / CC BY-NC-ND 2.0, flickr.com/photos/iceage366/ 2686572211)

Earlier this year, it seemed inevitable that Dominion Virginia Power would be permanently storing coal ash underground at a power station near the Potomac River. The site is the first of four along Chesapeake Bay tributaries where the utility is looking to entomb the accumulated residue from decades of burning coal for power. What happens at Possum Point near Quantico could set a precedent for how ash is handled elsewhere in the state.

But before state environmental regulators could issue the first permit to allow long-term storage, separate actions by the Virginia governor and a federal judge this spring have sent the company back to the drawing board for a more thorough consideration of alternatives.

This amounts to the first significant pause in a nearly two-year permitting marathon toward the utility's goal of closing several coal ash impoundments that are no longer actively receiving ash as many plants have transitioned to burning natural gas. Advocates who have lobbied for Dominion to consider alternatives such as recycling the ash or hauling it away from rivers to lined landfills — pointing to other states that have required such steps — might now see those options more fully considered.

In late March, Virginia Gov. Terry McAuliffe amended a bill passed by the General Assembly to impose a moratorium on new coal ash-related permits until 2018. The bill already required Dominion to study and report to the legislature by the end of the year the costs, benefits and risks of alternatives to permanent storage, such as recycling into cement the ash that is now stored in mostly drained lagoons at the plants.

The company was in the process of seeking a solid waste permit to permanently store about 4 million tons of ash at its Possum Point power station, with a decision expected from Virginia's Department of Environmental Quality in June.

But, after opposing the original legislation and arguing that its planned method for closing the pits in place would protect local water quality, Dominion changed its tune and threw support behind the governor's amended version of the bill.

"We share your commitment to ensuring that management of these facilities is done in an informed and thoughtful manner," Dominion's president and CEO, Thomas Farrell II, wrote in a letter to the governor in support of the amended bill. "The assessments provide an opportunity for potentially valuable input as Dominion undertakes the next steps in meeting our obligations with regard to these sites."

Farrell said the company is hiring a third-party contractor to assess the best way of dealing with the coal ash at each of the four power plant sites. Under the legislation passed in March, the results of that study are to be submitted to the General Assembly at the end of the year.

With the Richmond-based energy company on board, legislators in early April approved McAuliffe's amendment, imposing a permitting moratorium through the end of the year.

A federal court decision in late March that questioned the environmental soundness of Dominion's coal ash storage practices could have played a role in the company's decision to go along with a slower, more public process.

U.S. District Judge John Gibney Jr. ruled that Dominion's storage of coal ash at a now-closed plant near the Elizabeth River has been illegally polluting groundwater and the river for years. The decision, in a lawsuit brought by the Sierra Club, poses another hurdle to Dominion's plans to permanently store ash in pits with varying degrees of liners at this and other facilities in the state.

Sierra, represented by the Southern Environmental Law Center, had asked the judge to make Dominion excavate more than 3 million tons of ash in four pits at its Chesapeake Energy Center and remove it to a lined landfill. But his 21-page opinion on the case made clear that he did not consider removing the ash to be "in the public interest" because it would "entail years of efforts costing hundreds of millions of dollars, for little return."

While stopping short of requiring the utility to excavate the ash and take it to a landfill designed to prevent leaking, Gibney did order the company to work with the environmental group to come up with a plan on which both parties can agree.

Interviews with industry experts who have handled coal ash remediation projects in other states suggest that utilities and state regulators have several options when it comes to remediating pits that have leaked. The alternatives are likely to be more expensive than leaving the ash where it is, as Dominion proposes; but they're probably less costly — and safer long-term, perhaps — than excavating all of the ash and trucking it away to be entombed elsewhere in a landfill specially built to prevent leaks.

Recycling – a middle option?

Environmental groups have pointed out at public meetings that utilities in North Carolina, South Carolina and Georgia have been recycling ash, in some cases from legacy ash pits like the one at Possum Point.

Fly ash, which is captured by power plants' smokestack pollution controls, is often used as a substitute for Portland cement in making concrete. Wallboard, roofing material and bricks, among other things, can also be made with coal-combustion byproducts in such a way that they seal or encapsulate the hazardous metals and chemicals that concentrate in the ash.

But there are plenty of reasons that recycling isn't the first choice for utilities working to quickly close pits that have been receiving ash for decades. The ash that has collected in the pit over time isn't separated like it would be at a plant where it's actively produced and recycled, so recycling would entail additional steps — and costs.

Jimmy Knowles, a vice president for the South Carolina-based SEFA Group, a company that recycles coal ash, said that while the technology exists to turn legacy ash into usable material for concrete products, it's less expensive to take care of it via the "cap in place" plan Dominion originally proposed.

After draining water from its coal ash impoundments, Dominion intended to cover the pits with layers of dirt and impervious synthetic material to prevent rainwater from reaching the ash below. Knowles said most utilities would do the same if regulators didn't object. To recycle the ash, he explained, "you would have to have somebody like us build a plant like our plant, and it is an extra cost. If you can cap in place and there is no environmental liability to capping in place, that's always the lowest cost option."

But if regulators or lawmakers do require the removal of the ash, Knowles said that recycling it could recoup some of the costs of excavation — and he believes the market can absorb plenty of the product.

Virginia's concrete-supply companies currently import one type of ash from other states and overseas, he said, and one industry study found concrete producers would rather purchase those materials from utilities in the state.

Recycling might appeal most to those who are concerned about arsenic and other heavy metals in coal ash, which could leach from the pits into groundwater and nearby rivers and streams. Though liners, groundwater monitoring and other precautions can reduce the chances of leaks, they can and still do occur

By using ash in concrete, Knowles said, "every individual particle of ash dissolves over time as it combines with the cement hydration byproducts. These constituents of concern become part of the glue, and (they're) not as leachable as they are sitting in a pond."

Other methods

Chris Hardin, a professional engineer and managing director of the Coal Ash and Liquid Management office at the University of North Carolina in Charlotte, agreed that recycling the ash can transform it into something that poses fewer environmental hazards. But he also said that excavating and recycling the ash isn't the only way to deal with it.

"The two extremes are to dig it all out or to leave it all in place," he said of dealing with legacy coal ash. "Those two extremes are probably not the way to go."

Hardin, who since 1995 has worked on coal ash impoundment closures in the Midwest and in the Carolinas, said he now sees more utilities considering the in-between options. Those combine in-place storage with methods to seal the edges of pits to prevent environmental contamination, often using slurry or barrier walls.

One of those other methods, called in-situ stabilization, has been used for years to close hazardous waste sites. In these cases, coal ash is mixed with cement or lime to create less permeable barriers around the edges of a storage pit. That could reduce the risk of leaching into groundwater, Hardin said. In some cases leaving some of the ash available for excavation and recycling in the future is another, even more expensive option, as it involves converting the entire ash pit into cement before covering it with an impermeable cap.

Cost, though, is not the only consideration, Hardin said.

“Digging it out, depending on site access and proximity to rivers, can make things worse,” he explained. Workers face unforeseen hazards in dredging ash from deep pits constructed decades ago, he said. And excavation could unintentionally release contaminants into the air or water, either through a catastrophic spill or a heavy rainstorm.

But while the technology to close hazardous waste sites has been around for some time, no one is an expert yet on applying it to some of the most problematic coal ash sites, according to Paul Lear, senior technical director in the Tennessee office of Envirocon Inc. The Montana-based contractor is closing a pair of ash pits in South Carolina.

“Everyone has been taking care of the easy ones,” Lear said. “It’s only in the last two or three years that anything’s being done with impoundments that have a lot of wet ash in them.”

Wet ash — which would be left at the bottom of some of Dominion’s impoundments — is more difficult to deal with, Lear said, because of its slippery chemical attributes and concerns about contaminants leaching into groundwater. In his experience, Lear said, the most effective methods for preventing such problems include installing both a cap and a hydraulic barrier, such as a slurry wall, around the pit. Those would prevent rainwater and groundwater from reaching the enclosed contaminants.

“If you’re going to put a barrier around it, you should put a competent one all the way around it rather than half measures,” he said. “The trouble with some pits that have ‘partial’ clay liners is that it’s like a partial fence. If you’re going to have a partial fence, you may as well not have one.”

The pit at Dominion’s Possum Point facility, for example, was constructed in 1988 with a compressed clay liner. Environmental groups have called into question the integrity of that liner, citing an email from a state regulator that was obtained through public records request and reflects concerns that the liner is only partial in some areas.

Dominion spokesman Rob Richardson said in April that Dominion was still hiring one or more contractors to conduct the assessments that will look at the environmental impact, cost, risks and potential corrective measures for each of the storage, excavation and recycling options.

“We’ve never taken a one-size-fits-all approach,” Richardson said. “The group that Dominion chooses to do the assessments will look at all the available options with managing the closure of these ponds, and we’re looking for the best solution for Virginia.”