

Coal Ash Management at the N.C. Department of Environment and Natural Resources

Feb. 16, 2015

Background

Coal ash is the residue from burning coal to create electricity. It contains heavy metals, some of which can be toxic at high concentrations and over a long period of time. Iron, Manganese, Selenium, Strontium, Arsenic, Boron, and a suite of other heavy metals are some common elements found in the ash.

When electric power plants began burning coal in mass quantities in the early 20th century, ash was dumped into ravines, sold for fill material, etc. Later, utilities developed wet pond storage: ash is sluiced into ponds where it settles out of the water column. The treated water is then released from the top of the ponds. DENR issues National Pollutant Discharge Elimination System (NPDES) permits to ensure that at no time will the pollutant loading in the effluent cause water quality standard violations in the receiving water body.



Situation in 2013

When Governor McCrory took office in Jan. 2013, little progress had been made toward cleaning up wet ash ponds, even though:

1. A substantial amount of data submitted by North Carolina utilities showed evidence of groundwater contamination at many of the 14 coal-fired electric-generating facilities in the state.
2. DENR leadership was aware of seeps of contaminated water at the sites that had not been included in the utilities' NPDES discharge permits. (In fact, many of the seeps are what are called "engineered seeps," meaning that they are necessary for the structural integrity of the impoundments because they relieve pressure on the earthen dams.)

3. Structural concerns with the ponds were well known, especially since December 2008, when 1.1 billion gallons of coal ash spilled from ash ponds at the Tennessee Valley Authority's Kingston Fossil Plant into tributaries of the Tennessee River.

Addressing coal ash at facilities across North Carolina

When Governor McCrory came into office, DENR began aggressively looking into coal ash regulation, including the ash ponds themselves. These efforts can be separated into three categories:

- **Discharges:** Discharges to waters of the state are regulated through DENR's National Pollutant Discharge Elimination System (NPDES) program. DENR is the delegated authority for enforcing the Clean Water Act, including the NPDES, in North Carolina;
- **Groundwater contamination:** Contamination of groundwater is regulated by 15A NCAC 02L, North Carolina's water quality standards, known as the 2L rules. DENR's Division of Water Resources (DWR) is the sole enforcement authority for the rules, *i.e.*, the federal government has no jurisdiction.
- **Structural issues:** Historically, structural issues at coal ash impoundments were regulated by the N.C. Utilities Commission. Following the TVA Kingston spill, the General Assembly changed the law so that the dams and structures fall under the Dam Safety section of DENR's Division of Energy, Mineral and Land Resources (DEMLR).

Discharges

Lawsuits

Under the authority of the Clean Water Act, DENR filed four lawsuits alleging violations regarding unlawful discharges at all 14 Duke Energy facilities. The suits were designed to expedite the process of bringing the ash ponds into compliance (as opposed to holding the utility accountable for violations of the law, which is discussed below). The first suit filed covered Duke Energy Progress' [Asheville Plant](#) (March 2013) the second covered Duke Energy Carolinas' [Riverbend Plant](#) in Gaston County (May 2013), and the third and fourth covered the [remaining six DEP plants](#) (filed in August 2013 in Wake County) and the [remaining six DEC plants](#) (filed on the same day in Mecklenburg County). Since DENR's filing of these lawsuits, several special-interest groups have moved to intervene and DENR made no effort to oppose these parties from joining the state's legal actions.

Enhanced inspections: Since January 2013, DENR has performed increasingly thorough inspections of the sites. The inspections identified several issues to be addressed and more information that was needed. The utility is taking corrective action as ordered by the agency.

Reopening permits: In February 2014, DENR notified the utility that it would be reopening the company's NPDES permits for the Dan River site. In March 2014, DENR moved to reopen Duke Energy's Riverbend, Asheville and Sutton permits. Reopening the permits allows the agency to include more terms and conditions to the permit such as enhanced monitoring where necessary to ensure that water quality is protected. In July 2014, Duke submitted applications for NPDES permits for Dan River, Asheville, Sutton, Cliffside, Cape Fear and Belews Creek facilities. DENR is reviewing these applications and the revised permits.

Canvassing the discharges: In order to revise the NPDES permits to eliminate the unauthorized discharges, DENR initiated a vast and unprecedented effort to identify every potential seep statewide. Each potential discharge had to be located, identified, sampled (where there was sufficient flow), catalogued and analyzed to determine the cause of the potential discharge. Staff analyzed hundreds of samples and shared this comprehensive data set with the public and the EPA.

In August, DENR announced its intention to [reopen the NPDES permits for cause](#) for the seven plants that had not yet submitted applications to address and eliminate unauthorized discharges from their coal ash ponds.

Sutton Lake: In November 2014, DENR [reclassified Sutton Lake](#), a cooling pond at Duke Energy's Sutton plant near Wilmington, as a public resource instead of an industrial cooling pond. The lake, which receives coal ash wastewater discharges from the ash ponds, will now be considered "waters of the state," a classification that means the lake will be protected by more stringent water quality standards. The reclassification followed a document review during which records were found indicating that while the water body [met the legal definition](#) for waters of the state, [previous department leadership decided to disregard that determination](#), possibly under legal pressure from the utility. The lake reclassification also prompted a change in the state's hazard classification for two dams that are part of the coal ash impoundments at the facility.

North Carolina-EPA joint enforcement (civil, Clean Water Act violations): In March 2014, DENR [invited the EPA](#) to partner in enforcement actions against Duke Energy for Clean Water Act violations in North Carolina. The [EPA's acceptance](#) means that the combined expertise of the federal and state agencies is helping to assess comprehensively Duke's continued noncompliance with the Clean Water Act. The EPA has sent Duke Energy letters requiring more information about potential violations. Enforcement actions, including penalties, may result.

Groundwater Contamination

Groundwater flows underground, and contamination spreads very slowly. In any situation, pinpointing a definitive source of contamination can be difficult. In the case of coal ash, since all contaminants are naturally occurring, it can be even more difficult to identify a source. Due to these challenges, groundwater assessments take time and detailed hydrogeological expertise.

Lawsuits

Groundwater contamination issues were included in the lawsuits DENR filed as well as the CWA violations. The lawsuits ask for the utility to develop groundwater assessment plans as the first step to remediating any environmental damage. The plan to address groundwater contamination is based on the state's existing 2L rules. The rules give a violator options for how it proposes to remediate contamination and require any and all illegal contamination to be cleaned up.

Executive Order No. 62: On Aug. 1, 2014, the General Assembly signaled that it was unable to agree on a final coal ash bill and deferred taking further action. Given the legislative impasse, Governor McCrory issued [Executive Order 62](#), requiring DENR to expeditiously assess coal ash ponds, initiate a survey of drinking water wells to determine any contamination, halt any violations where necessary, mandate remediation plans for all facilities where violations are found, and continue prosecuting the lawsuits.

Putting E.O. 62 into action: On Aug. 11, DENR sent four letters to Duke Energy requiring Duke to provide [excavation plans](#) for Riverbend and Asheville, [groundwater assessment plans](#) within 45 days, and private and public drinking water well surveys within 60 days. The letters also called on Duke to conduct [weekly inspections of all coal ash impoundments](#) and annual, third-party comprehensive structural assessments.

Currently public and private drinking water wells within 1,000 feet of each facility [are being tested](#) for numerous constituents that could indicate the presence of any contamination associated with coal ash. Results of the testing are expected in the coming months. The state Department of Health and Human Services will conduct health risk evaluations, which will be sent by DENR staff to residents whose private wells may have been impacted.

DENR groundwater enforcement (civil, state law)

Violations of state groundwater standards can result in civil fines. These fines are calculated based on the severity of the violation, the length of time the violation occurred, the environmental damage caused, and other factors. DENR's enforcement actions against Duke Energy for groundwater contamination are ongoing.

In August 2014 DENR issued Duke Energy Progress a [Notice of Violation and Intent to Enforce](#) for violations of the 2L rules at the Sutton facility near Wilmington. DENR's enforcement is pending.

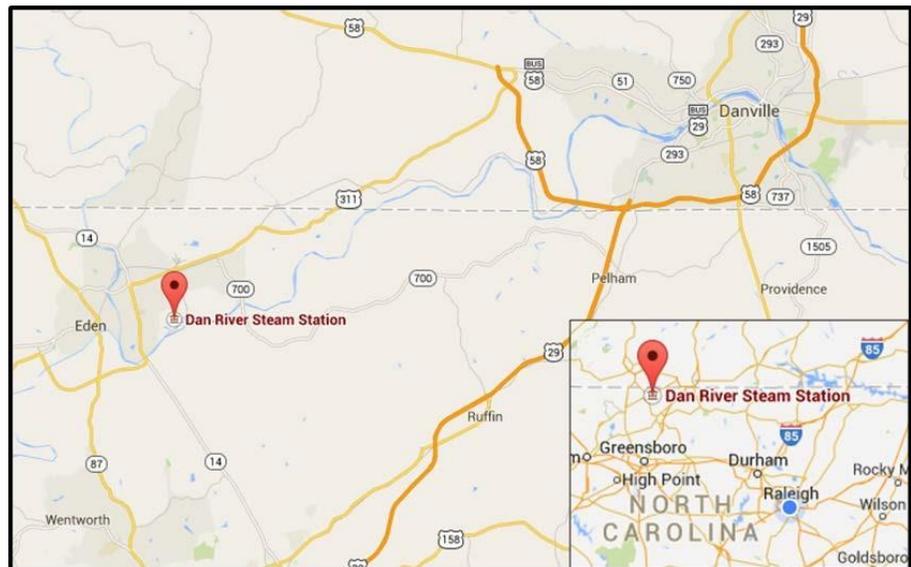
Structural Issues

The governor's proposed legislation dealt with several structural issues. All of these proposed changes were included in the final bill:

- **Closed dam safety loophole** Closed the loophole in SB 1004 (SL 2009-390); utility will be required to submit certain plans and materials regarding the operation and maintenance of coal ash facilities. (When the regulation of coal ash ponds was moved from the Utilities Commission to DENR, all facilities were "deemed permitted" by the law.)
- **Emergency action plans** Closed loophole; utility will be required to submit emergency action plans to DENR, including inundation maps.
- **Notification of emergency repair of a dam** Requires DENR to be notified within 24 hours if emergency repairs to any dam (not just a coal ash impoundment) are necessary.
- **Ensuring structural integrity of coal ash dams** Requires weekly inspections by the owner and annual third-party inspections by an independent professional engineer.

The Dan River Spill: On Feb. 2, 2014, about 39,000 tons of coal ash and 27 million gallons of ash pond water spilled from Duke Energy's Dan River plant into the Dan River in Eden, N.C. There was no loss of human life, no property damage and Danville and South Boston, Va., along with all downstream municipalities with

intakes on the Dan River, reported that their water remained safe for drinking using normal treatment processes. The pipe was permanently sealed within a week.



In the weeks following the spill, tests revealed that the quality of the water in the Dan River had returned to its normal levels, and N.C. DHHS officials removed a water advisory last summer after tests showed that contaminants associated with the spill were at levels appropriate to allow recreational use of the river. Then in the fall, DENR's testing revealed that aquatic insect communities in an area downstream from the coal ash spill were thriving, a test that is a recognized indicator of overall health of a waterway. EPA testing has also confirmed that the health of the river is good: "We've done two quarterly sampling events since July, and both have showed no human or ecosystem risks," according to EPA's Kenneth Rhame.

DENR officials continue to conduct water quality sampling every month to ensure the water remains safe, and will continue to conduct fish tissue sampling as well.

Dan River criminal investigation: Based on DENR's technical review of the historical documents related to the Dan River plant ash pond, Secretary Skvarla sent a [letter to SBI Director McLeod](#) in April 2014 requesting the SBI investigate the coal ash release to determine if an environmental crime was committed.

Natural Resources Damage Claim: In May, DENR announced it would serve as one of three trustees in a Natural Resource Damages claim against Duke Energy to address damage to the environment resulting from the Dan River coal ash spill. North Carolina's participation as a trustee will ensure that Duke Energy is held accountable for the damages to North Carolina's environmental resources and will work to require Duke Energy to fund projects that directly restore the damages caused by the spill.

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