

Coal ash rarely used as structural fill in Triangle

By JOHN MURAWSKI
jmurawski@newsobserver.com

Despite its prevalence as a construction material in North Carolina, state records show a conspicuous absence of coal ash being used as structural fill in the Triangle, one of the fastest-growing and most construction-intensive regions of the state.

Most of the 70-plus structural fill sites documented by the N.C. Department of Environment and Natural Resources are in rural areas, such as Halifax, Cumberland,

Brunswick, Iredell and Nash counties.

The agency lists a pair of projects in Orange County and one in Durham County, but they were not completed or records are unavailable.

One project was a UNC-Chapel Hill pilot study in 1992 to assess the feasibility of using 500 to 600 tons of coal ash as a substitute for lime on agricultural fields at a farm that grew soybeans.

The university has no records of the study and none of the employ-

ees from that time still work for UNC's Energy Services department, said UNC spokeswoman Susan Hudson.

One condition of the state's approval for the project was that UNC would submit a report on the pilot project, but DENR does not have a copy on file.

The UNC ash came from the campus co-generation power plant that burns coal as one of its fuel sources. The ash is temporarily stored on site in a silo and trucked away for reuse as structural fill, as concrete

or for other uses, Hudson said.

DENR also lists Duke University as designating 4,000 to 5,000 tons of coal ash to be used as structural fill for the Science Research Center, Law School Addition, Public Policy Building, Medical Science Research Building and for utility trenches.

However, Duke spokesman Keith Lawrence said veteran employees on facilities projects do not recall ash being used for structural fill. "As best as we can determine, there is no indication that the ash was actually used as

material," Lawrence said.

Lawrence said the university does not have the time and resources to manually search its paper records, which are archived off-site, to confirm the employees' recollections about the ash.

Duke had been burning coal on campus since the 1920s and converted the power plant to burn natural gas in 2011. The plant produces steam to heat Duke's buildings, sterilize surgical equipment and maintain proper humidity for artwork and lab research.

Coal ash dumped at sites in rural N.C.

Sites around state are unregulated and mostly unmonitored

By JOHN MURAWSKI
jmurawski@newsobserver.com

Years before the accidental coal-ash spill into the Dan River in February, the waste was being dumped into creeks, wetlands and vacant fields across the state.

Scores of private ash sites were proposed for legitimate construction use – such as building an airstrip or a parking lot – but the construction didn't always take place.

More than 70 ash sites statewide hold about 11 million cubic yards of ash, much of it used in building roads, parking lots and other projects.

But nearly a quarter of the waste sits at six of the largest sites, where about 2.6 million cubic yards of coal ash lies in unlined pits, largely unmonitored for potential groundwater contamination.

Over the years, the sites have been cited by the N.C. Department of Environment and Natural Resources with violations for creating dust clouds, for being placed too close to water sources, and for

Inside

In the Triangle: Coal ash rarely used as structural fill. 14A

Liability threat: Shareholders sue Duke Energy over coal-ash management. 4B

ash erosion into water drainage areas. At one site, the ash was dumped into a wetland area.

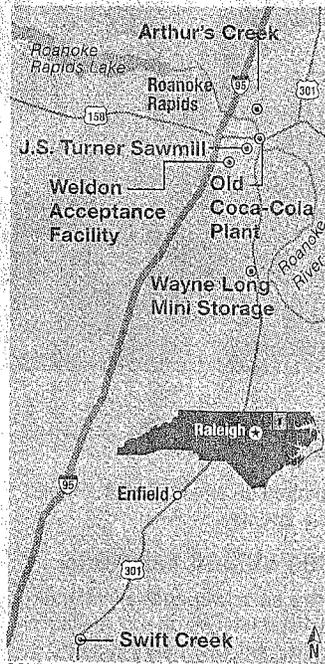
“When they said they had an end use, they didn't have an end use – it was a form of disposal,” said Ellen Lorschneider, planning and programs branch head of the solid waste section within DENR. She said operators were just dumping coal ash and describing the sites as structural fill.

As public officials grapple with a solution to safe coal ash storage, the focus has largely been on the future of the 33 ash pits and ponds at power plant facilities that are contaminating nearby groundwater. These sites are operated by Charlotte-based Duke Energy and its Raleigh-based subsidiary, Duke Energy Progress, formerly called Progress Energy.

But the 70-plus ash sites throughout the state, many on private property in Eastern North

Structural fill sites

Six of the state's largest structural fill sites that DENR says are coal ash disposal sites because the ash was not used for construction.



SOURCE: NC Department of Environment and Natural Resources
The News & Observer

SEE COAL ASH, PAGE 14A

COAL ASH

CONTINUED FROM PAGE 1A

Carolina, are also drawing attention after years of neglect. Even where the ash was used as "structural fill" – to level roadways, for road beds and to stabilize soil under buildings – the concern doesn't go away.

Gov. Pat McCrory's proposed Coal Ash Action Plan, now under review by lawmakers in Raleigh, includes a temporary moratorium on the use of coal as structural fill in amounts of 5,000 cubic yards or more.

McCrory's coal-ash proposal would also start regulating structural fill as landfilled solid waste. It would require state permits, leak-proof liners and groundwater monitoring for structural fill sites, none of which has been required in past years.

"Under current law, passed by previous administrations, there are more stringent requirements for the disposal of household garbage than there are for certain coal-ash applications," said DENR spokesman Drew Elliot.

Undocumented sites

The state's six biggest ash dumps, including four about 90 miles northeast of Raleigh in Halifax County, contain anywhere from 10 times to 100 times more coal ash than is typically needed for construction. The six sites range in size from 127,176 cubic yards to 905,238 cubic yards, according to state records.

The structural fill sites documented by DENR were mostly built after North Carolina adopted regulations in 1994 to promote the "beneficial reuse" of coal ash as structural fill. The use of ash for construction fill is widely accepted and encouraged by the U.S. Environmental Protection Agency.

The state's structural fills contain coal ash disgorged by Duke and Progress and reused at their own power plants and other construction sites, as well as waste from smaller industrial operations. Duke once sold the ash for 50 cents to \$1 a ton, but ash producers also paid to have it hauled away.

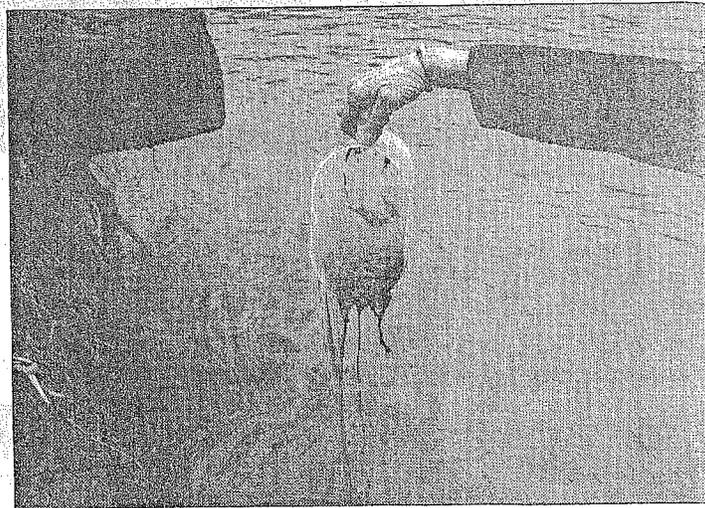
It's not clear how many total structural fill sites exist in the Triangle or statewide or where they are located, however, because sites built before the 1990s are not documented.

What is clear is that the state's historic dependence on coal as an energy source to generate electricity produced more ash than the construction industry could use. Duke and Progress for decades have stored excess ash on site in pits and lagoons.

Some enterprising locals saw an opportunity and agreed to haul ash away for a fee, hoping to find a buyer or to use it for development projects.

"It was just a great big huge hole there, and we filled it in," said Blackwell Bennett Pierce, owner of Utilities Transport, a trucking company that hauled coal ash between 2004 and 2007 to the Arthur's Creek disposal site in Northampton County, about 90 miles northeast of Raleigh. The site holds 480,612 cubic yards of ash, according to a county deed in the DENR records.

Plumblin Engineering, which designed the ash retention site, paid an administrative penalty of \$9,154.88 in 2011 for a number of violations at Arthur's Creek that included erosion problems and coal



GERRY BROOME - A

Jenny Edwards of the Dan River Basin Association scoops coal ash from the banks of the river in Rockingham County.

ash washing into a nearby creek. DENR officials say the problems have been resolved.

"We thought maybe we might use it for something one day," Pierce said. "But there's no use for it. Nobody wanted it."

Research biologist Dennis Lemly, who works for Wake Forest University and the U.S. Forest Service, has studied the effects of coal-ash contaminants and said dry ash storage sites are long-festering problems and overdue for stricter oversight.

"The two operative words are unregulated and mostly unmonitored," Lemly said. "It raises the larger underlying issue with the state regulatory system."

Problems in Nash since 2002

A Nash County site called Swift Creek has caused the most chronic environmental headaches. It accepted coal ash for more than a decade through 2003 and resulted in contamination of lead, arsenic and sulfates in shallow groundwater, a problem still awaiting a solution.

DENR on May 16 gave the site's operators 90 days to come up with groundwater corrective measures. The agency first cited Swift Creek for violations back in 2002.

Resolving ash-related problems can take years because DENR doesn't issue permits for structural fill sites and has limited authority

» Online

Previous problems: Read more stories about the N.C. coal ash issue at nando.com/coalash.

toring report by Sherrill Environmental of Durham said the eight water samples showed no contamination of coal-ash chemicals in deep groundwater monitoring wells.

The companies that worked the Swift Creek project were ReUse Technology, the broker that filed the 1991 notification of the project, and Full Circle Solutions, which bought the site from ReUse in 2003, according to DENR records. Full Circle CEO Robert Waldrop, who is based in Georgia, did not respond to questions about Swift Creek development plans for the structural fill or why the problems are taking so long to resolve.

Full Circle's lawyer, David Franchina in Charlotte, said by email that the companies and their consultants had been working with DENR for 10 years and plan to resolve the issues.

Company denies liability

The ash at Swift Creek came from Cogentrix, a Charlotte energy company that operated small coal-burning power plants throughout North Carolina. The Cogentrix power plants sold electricity to large utility companies for years, but Cogentrix has since sold off the plants, and some have been converted to other fuel sources.

When it owned the plants, Cogentrix had the ash hauled away and has washed its hands of any liability.

"The transfer of responsibility would take place when the materials go into the contractor's vehicle," said Cogentrix spokesman Jeff Freeman. "We're out of it completely."

State regulations require that structural fill proposals must submit a notice to DENR and be constructed safely to prevent erosion. They can't be put within 50 feet of a wetland or stream, within 100 feet of a drinking water source, and within 2 feet of the seasonal high groundwater table.

State regulations also prohibit

speculatively storing coal ash for some potential future use. Speculative storing can be avoided if at least 75 percent of the ash is used or sold every year for beneficial reuse in construction projects.

Henry Long, part owner of the Arthur's Creek property, said he was paid an average of \$1,400 a month to accept ash at the site from the Roanoke Valley Energy power plant owned by the Westmoreland Coal Co. His responsibility was watering and dust suppression of the ash, and in the 1990s, he said he hauled ash for Pierce's trucking company.

"When you dump that stuff out, it's like talcum powder almost," Long said.

DENR citations

After a local farmer complained in 2006, DENR slapped Long and Plumblin with a Notice of Violation for "creating a very large dust cloud of coal ash."

DENR's second citation, in 2009, noted "coal ash stockpiled on the property," and described that ash south of the pile "occupied an extensive wetland area measuring 2 to 3 inches in depth."

Samples taken from the wetland area "revealed high levels of arsenic, calcium, selenium and iron," according to DENR documents.

Agency spokeswoman Susan Masengale said the groundwater at Arthur's Creek has not been tested.

Russell Henry Grant, who did surveying work for Plumblin Engineers on structural fill sites, said some of the ash in Halifax County was beneficially reused for construction in the 1990s - a Family Dollar, a fire station in Weldon, a Basnight building supply store and an overpass for N.C. 125.

But then DENR inspectors started visiting the ash sites and citing violations, said Grant, who is part-owner of the Arthur's Creek property.

"We weren't getting paid enough to handle all the problems," Grant said. "Everyone just kind of ran when DENR started issuing violations. Everyone's scared of it."

CHARLOTTE OBSERVER STAFF WRITER BRUCE HENDERSON CONTRIBUTED TO THIS REPORT.

to regulate ash disposal, Lorschneider said. Additionally, the projects involve a host of conflicting interests: engineers, property owners, ash haulers and dust suppressors.

"They are fighting among themselves as to who should take responsibility for it," Lorschneider said.

Swift Creek began accepting ash in 1992, but environmental regulators didn't realize the extent of the problems there until 2002, when Swift Creek project operators notified DENR they planned to expand the site to accept more ash. That's when state inspectors noticed that the 2002 plans didn't match the original 1991 plans, and that the ash had been dumped into a drainage area and was soaking in water, which causes leaching of toxic chemicals.

The facility operators agreed to install groundwater monitoring wells in 2005, which confirmed suspicions that the ash was percolating chemicals. By then the site contained 134,000 cubic yards of ash.

In 2006, the site operators paid a \$4,000 administrative penalty and submitted a dewatering plan to dry out the ash. That plan, which diverts a drainage channel, has largely worked, but the chemicals remain in the groundwater.

A July 2013 groundwater moni-

Murawski: 919-829-8932