



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

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Secretary

December 30, 2014

MEMORANDUM

TO: ENVIRONMENTAL REVIEW COMMISSION
The Honorable Brent Jackson, Chairman
The Honorable Ruth Samuelson, Co-Chairman
The Honorable Mike Hager, Co-Chairman

COAL ASH MANAGEMENT COMMISSION
Michael Jacobs, Chair

FROM: Neal Robbins
Director of Legislative Affairs

SUBJECT: Quarterly Report on Operations, Activities, Programs and Progress Relating to
Coal Combustion Residuals Surface Impoundments

DATE: December 30, 2014

Pursuant to S.L. 2014-122, section 3(a), the Department shall submit quarterly written reports to the Environmental Review Commission and the Coal Ash Management Commission on its operations, activities, programs, and progress with respect to its obligations under this Part concerning all coal combustion residuals surface impoundments. The attached report satisfies this reporting requirement.

If you have any questions or need additional information, please contact me by phone at (919) 707-8618 or via e-mail at neal.robbs@ncdenr.gov.

cc: Mitch Gillespie, Assistant Secretary for Environment
Mariah Matheson, ERC Assistant
Jeff Hudson, ERC Counsel
Jennifer McGinnis, ERC Counsel

North Carolina Department of Environment and Natural Resources

Division of Water Resources

Quarterly Report to the Environmental Review Commission on Operations, Activities, Programs and Progress Relating to Coal Combustion Residuals Surface Impoundments

January 1, 2015

This report is submitted to meet the requirements of Senate Bill 729, Section 3(a) which requires quarterly reporting on DENR operations, activities, programs and progress relating to coal combustion residuals surface impoundments

This report is intended to provide an update on activities that have occurred since the submission of the last Quarterly Report on October 1, 2014.

For organizational purposes, the information contained within will be divided into the following sections:

1. Coal Ash Tonnage in North Carolina
2. Groundwater-Related Activities
3. Unauthorized Surface Water Discharge-Related Activities
4. Ash Pond Closure-Related Activities
5. Dan River Sampling Update

1. Coal Ash Tonnage in North Carolina

Past reports from this Department have reported the estimated the coal ash tonnage in North Carolina at Duke Energy's 14 facilities at 107,889,000 tons. While this figure is still a valid approximation of the tonnage of coal ash in the actual coal ash impoundments at the 14 coal ash facilities, Duke has subsequently reported an additional amount of coal ash at their facilities, which is not located in the ash basins, or impoundments. This additional coal ash is often buried at other sites within the facilities, in what are termed ash pits, or cinder pits. The ash buried in this manner most commonly is ash that originated at the facility before the wet disposal of coal ash was introduced, or it is material that was dredged from the ash ponds in order to extend the service life of these ponds. This additional ash, outside of the impoundments, is approximated to be about 43,350,000 tons. When this additional ash is added to the ash in the coal ash basins, the total coal ash in North Carolina is approximately 151,239,000.

2. Groundwater-Related Activities

Drinking Water Supply Well Survey

As mandated in the Session Law, Duke Energy submitted its survey of private and public water supply wells located within one-half mile of the compliance boundaries of all coal combustion impoundments. Although the Session Law required the survey to only include "drinking water supply wells within one-half mile down-gradient from the established compliance boundary of the impoundment...", Duke Energy surveyed all drinking water supply wells within one-half mile of the established compliance boundaries, regardless of their relationship to the groundwater gradient. The results of this survey, indicating the number of water supply wells that fell within these conditions for each of the 14 coal ash facilities are indicated in the following table:

Facility	Wells < 2,640 ft.	Facility	Wells < 2,640 ft
Asheville	43	Lee	95
Allen	223	Marshall	84
Belews Creek	50	Mayo	22
Buck	170	Riverbend	4
Cape Fear	28	Roxboro	65
Cliffside	71	Sutton	26
Dan River	4	Weatherspoon	22

A total of 907 water supply wells were identified within one-half mile of the established compliance boundaries for all 14 facilities.

Based upon the results of this survey, the Department is requiring Duke Energy to fund well sampling for all water supply wells within 1000 feet of the compliance boundaries of the impoundments and will also require sampling of a few selected wells beyond this 1000 foot perimeter. This sampling will be conducted by State-certified, independent, third party laboratories. Duke Energy will pay all costs associated with this sampling effort. The number of wells to be sampled at each facility is indicated in the following table:

Facility	# of wells	Facility	# of wells
Asheville	12	Lee	16
Allen	118	Marshall	30
Belews Creek	16	Mayo	6
Buck	68	Riverbend	1
Cape Fear	1	Roxboro	11
Cliffside	21	Sutton	26
Dan River	0	Weatherspoon	8

This sampling will be coordinated by the Division of Water Resources (DWR). Letters to the owners of the wells proposed for sampling were mailed on December 17, 2014. A sample copy of the letters that were mailed, along with a full explanation of the procedures to be utilized in this sampling can be found at the following link: <http://portal.ncdenr.org/web/wq/water-test-resident-info> . It is expected that the well sampling will commence in early January 2015.

Groundwater Assessment Plans

Per the requirements of Executive Order #62, Duke Energy submitted draft Groundwater Assessment Plans (GAPs) on October 26, 2014. These are the same assessment plans mandated under G.S. 130A-309.209(a)(1). The implementation of these plans is critical in order to determine the horizontal and vertical extent of any groundwater contamination that may exist under these facilities. The information derived from these plans will also be used to determine if any contamination found

in nearby water supply wells is attributable to the coal ash impoundments and will also be used to guide the development of any required groundwater contamination Corrective Action Plans.

After a thorough review of the submitted GAPs, DWR responded to Duke with a list of required additional information and corrections before the plans could be approved. Duke technical staff has met with the associated technical staff of the Division of Water Resources on two separate occasions in order to discuss and appropriately modify the GAPs. At the time of the writing of this document, it is anticipated that Duke Energy will resubmit the revised GAPs prior to December 31, 2014.

Additional information regarding the Groundwater Assessment Plans can be found at the following link:

http://portal.ncdenr.org/web/wq//coal_ash_gw_assessment_plans.

This information presented at this link includes the original Assessment Plans submitted by Duke for all 14 facilities, DWR's review letters for each plan, and any plan resubmittals as they are received.

3. Unauthorized Surface Water Discharge-Related Activities

Modification of Existing National Pollutant Discharge Eliminations System (NPDES Permits)

Unauthorized surface water discharges consist primarily of the seeps and engineered toe drains associated with the coal ash impoundments. These seeps and engineered drains are known to discharge fluids containing the constituents of coal ash at a very small volume (three to five gallons per minute). While the volume is normally small, these discharges are not included in any of the 14 facilities' discharge permits (NPDES Permits), which allow surface discharges to the waters of North Carolina. Therefore, in order to fully comply with the federal Clean Water Act, all 14 of the NPDES Permits for Duke's coal ash facilities must be modified in order to incorporate the discharge from these seeps and toe drains.

Duke Energy has submitted preliminary permit application requests to modify the NPDES Permits at all 14 of their coal ash facilities. However, only two of these permit applications, Marshall and Cape Fear, have been deemed complete at this time. Further complicating the permit modifications is a decision by the Environmental Protection Agency (EPA) that the NPDES Permits will need to be modified further before Duke can begin drawing down (decanting) the water in the coal ash ponds. This decision will significantly delay the permit modification process and will also delay the commencement of the decanting activities at the coal ash ponds by about nine months.

Further information about this process and the permit application requests that Duke Energy has submitted to date can be found at the following link:

http://portal.ncdenr.org/web/wq/2014duke_npdes_modrenewal .

New Discharge Identification Plans

In accordance with G.S. 130A-309.210(d) Duke Energy was required to submit a Proposed Plan for the Identification of New Discharges for all 14 facilities to the Department for review and comment. Duke complied with this mandate and proposed plans were submitted on time. The Department has completed its review of these New Discharge Identification Plans and is finalizing its comments and its request for additional information. The draft New Discharge Identification Plans for all 14 facilities can be viewed at the following link:

http://portal.ncdenr.org/web/wq/2014duke_npdes_modrenewal .

Topographic Maps Identifying Engineered Outfalls and Seeps

Per G.S. 130A-309.210(a)(2), Duke Energy is required to submit topographic maps identifying all engineered outfalls and seeps by December 31, 2014. Although these maps have not yet been submitted at the time of the writing of this report, Duke has assured the Department that these maps will be submitted by December 31. When these topographic maps have been submitted they will be available for viewing on the Division of Water Resources website.

Discharge Assessment Plans

Per G.S. 130A-309.210(b)(1), Duke Energy is required to submit Discharge Assessment Plans, which detail whether any unauthorized discharge has reached surface waters of the State and has caused a violation of surface water quality standards, by December 31, 2014. Although these plans have not yet been submitted at the time of the writing of this report, Duke has assured the Department that the Discharge Assessment Plans will be submitted by December 31. When the plans have been submitted they will be available for viewing on the Division of Water Resources website.

4. Ash Pond Closure-Related Activities

Per the requirements of Executive Order 62, Duke Energy has submitted preliminary excavation plans for their Asheville, Dan River, Riverbend, and Sutton facilities. In general, these excavation plans cover the next 12 to 18 months and detail Duke's plans to commence decanting/dewatering of the ash ponds and initial ash removal activities at all four of these plants. The Department is currently developing detailed comments regarding these plans and will conduct a meeting with Duke Staff in early January to discuss the technical details associated with executing these proposals. All four Excavation Plans can be viewed at the following link: <http://portal.ncdenr.org/web/wq/ca-excavation-plans> .

5. Dan River Sampling Update

Water Quality Sampling

Division of Water Resources staff collected physical and chemical water quality samples to evaluate conditions in the Dan River. Water quality parameters sampled included temperature, pH, dissolved oxygen, metals, nutrients, chloride, fluoride, and solids. Once the release was terminated (February 24), all surface water quality data indicated a return to near background concentrations and were below surface water quality standards.

Sediment Sampling

The Division of Water Resources collected sediment samples three times during February in response to the Dan River Coal ash Release in Eden, NC. At the nine stations visited, sediment samples were collected and analyzed for 27 metals of concern. In total, eight metals were detected above EPA ecological screening levels in the Dan River (Al, As, Ba, Ca, Mn, Fe, Se, Sr). Three of these: Calcium (Ca), Aluminum (Al) and Iron (Fe) are likely related to natural geologic conditions found in the surrounding watershed.

Sediment metals concentrations which exceeded screening levels generally occurred immediately downstream of the coal ash release site. Data collected from both US EPA and Duke Energy is similar to these results. On-going sampling by US EPA and Duke Energy has shown decreases in sediment metals concentrations in most of the areas monitored within North Carolina.

Fish tissue Sampling

Fish tissue samples were collected from the Dan River for a baseline assessment of heavy metals following the coal ash release in Eden, NC. Samples were collected at five stations from upstream of the Dan River Steam Station to the headwater flats of Kerr Reservoir. A total of 18 species were collected during this initial assessment including Largemouth Bass, sunfish, sucker species, and catfish species. Processed fish tissue samples were tested for 16 metals: Al, As, Ba, Cd, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Ni, Se, Ag, Tl, and Zn, and compared to NC Division of Public Health fish tissue screening levels.

Baseline results from the current DWR fish tissue assessment are similar to DWR historic observations in the Dan River, both in species composition and levels of mercury, arsenic, cadmium, chromium, copper, nickel, lead and zinc.

Fish Tissue and sediment sampling associated with the release is ongoing and will take place during the fall of 2014. Reports and data from these monitoring efforts can be found at the reports and data section of the DWR WSS website

<http://portal.ncdenr.org/web/wq/ess/reports>.

Benthic Macroinvertebrate Sampling

On October 28, 2014, the Division of Water Resources sampled the Dan River at two locations. The upstream sample (Off SR 1779) was located above the discharge point. The sample at NC 700 was obtained downstream of the coal ash release. The downstream location at NC 700 is the nearest wadeable segment of the Dan River below the discharge. Based on the physical/chemical data (water quality parameters, habitat scores, and landuse) the upstream and downstream monitoring locations were very similar. Moreover, analysis of the benthic macroinvertebrate data also suggests no significant difference between the upstream and downstream benthic communities, and both stations received bioclassifications of “Excellent”.