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**VIA ELECTRONIC MAIL** (*ed.martin@ncdenr.gov*)

Edward L. Martin, P.E.  
Division of Air Quality  
1641 Mail Service Center  
Raleigh, NC 27699-1641

**Re: Comments on the Draft Title V Permit Modification for Allen Steam Station  
(Permit No. 03757T41)**

Dear Mr. Martin:

The Southern Environmental Law Center, on behalf of itself, the Catawba Riverkeeper, Clean Air Carolina, and Medical Advocates for Healthy Air, respectfully submits the following comments on the draft air permit modification proposed by the North Carolina Department of Environment Quality (“NCDEQ”) for the Allen Steam Station (“Allen”), which is owned and operated by Duke Energy Carolinas, LLC (“Duke”).

The draft permit does not protect the people of North Carolina. Instead, it allows Duke Energy to comply with federal mercury and air toxic requirements by adding bromides to its coal plant operations, *even though these substances are known to cause carcinogens to form in downstream drinking water intakes*. NCDEQ must abandon this proposal, and instead require Duke Energy to install modern, widely-used baghouse pollution controls to limit its mercury and air toxic pollution at Allen. And rather than allowing Duke Energy to *increase* its bromide discharges, NCDEQ must require Duke Energy to stop the bromide discharges from its coal ash basin by removing the contents of the basin to dry, lined storage.

**I. DEQ’s Proposed Permit Allows Duke Energy To Use A Substance That Has Already Caused Carcinogens To Spike In Downstream Drinking Water Intakes.**

Duke Energy’s proposal to reduce Allen’s mercury and air toxic emissions would only exacerbate another serious problem stemming from the Allen coal plant operations: contamination of downstream drinking water supplies with cancer-causing pollutants. To control mercury and air toxic emissions from Allen, DEQ proposes to allow Duke Energy to use a ‘halide salt’ fuel additive.<sup>1</sup> These halides would then become part of the waste that is discharged

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<sup>1</sup> NCDEQ, Draft Air Quality Title V Permit for Duke Energy Carolina’s Allen Steam Station, No. 03757T41 at 3-4.

into Duke Energy’s coal ash basins at Allen. Many drinking water intakes are located downstream of the discharges from the Allen coal ash basins. Unfortunately, halides—particularly a type of halide called bromide—are known to cause carcinogens to form when they enter downstream drinking water intakes. These carcinogens are called trihalomethanes, and form when bromides mix with chlorine in drinking water supplies. In other words, bromides that are introduced into Duke Energy’s coal-burning process to control air pollution may instead end up contributing to cancerous substances in the drinking water that hundreds of thousands of people rely on.

**A. Trihalomethanes cause many serious health problems, including cancer.**

Any trihalomethanes that result from the proposed permit carry with them serious health risks. Drinking water contaminated with trihalomethanes can cause liver, kidney, and central nervous system problems, as well as an increased risk of cancer.<sup>2</sup>

In response to these health risks, the U.S. Environmental Protection Agency (“EPA”) set a federal maximum contaminant level of 80 parts per billion for trihalomethanes. However, this level is based not only on what is protective of human health, but also on what is technologically and economically feasible for drinking water systems.<sup>3</sup> The maximum contaminant level goal, in contrast, is more protective because it focuses exclusively on protection of human health, and reflects the level of contamination at which “no known or anticipated adverse effects on the health of persons occur.”<sup>4</sup>

EPA has set maximum contaminant level goals for a number of different types of brominated trihalomethanes, which are the types of trihalomethanes caused by discharges from Duke Energy’s coal plants. For two types of trihalomethanes that are formed by bromide, bromodichloromethane and bromoform, *EPA set a maximum contaminant level goal of zero—meaning that people should not be exposed to any level of these carcinogens.*<sup>5</sup> For another bromide-caused trihalomethane, dibromochloromethane, EPA set a maximum contaminant level of 60 parts per billion.<sup>6</sup> All of these types of trihalomethanes—bromoform,

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<sup>2</sup> Attachment A, Massachusetts Office of Energy and Environmental Affairs, *Current Regulatory Limit: Total Trihalomethanes (TTHMs)* (last updated May 2004), <http://www.mass.gov/eea/agencies/massdep/water/drinking/standards/total-trihalomethanes-tthms.html>; EPA, National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule, 71 Fed. Reg. 387, 391, 394-407 (Jan. 4, 2006), available at <https://www.federalregister.gov/documents/2006/01/04/06-3/national-primary-drinking-water-regulations-stage-2-disinfectants-and-disinfection-byproducts-rule>.

<sup>3</sup> NCDEQ, *Well Water Testing Information*, <https://deq.nc.gov/news/hot-topics/coal-ash-nc/well-water-testing-information> (last visited Feb. 27, 2017) (“Federal standards apply to public water supplies and take into account a vast array of inputs, including the cost and technology available to filtrate water to a certain level.”).

<sup>4</sup> EPA, National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule, 71 Fed. Reg. 387, 392 (Jan. 4, 2006), available at <https://www.federalregister.gov/documents/2006/01/04/06-3/national-primary-drinking-water-regulations-stage-2-disinfectants-and-disinfection-byproducts-rule>.

<sup>5</sup> Attachment B, EPA National Primary Drinking Water Regulations at 5 (May 2009), [https://www.epa.gov/sites/production/files/2015-11/documents/howeparegulates\\_mcl\\_0.pdf](https://www.epa.gov/sites/production/files/2015-11/documents/howeparegulates_mcl_0.pdf).

<sup>6</sup> *Id.*

bromodichloromethane, and dibromochloromethane—have been found in drinking water intakes downstream of Duke Energy’s coal ash sites.<sup>7</sup>

**B. Duke Energy’s bromide discharges already contribute to carcinogens in drinking water supplies that hundreds of thousands of people rely on, and the proposed permit would only make this problem worse.**

Cities and towns across North Carolina are already struggling to deal with carcinogens caused by existing, ongoing bromide discharges from Duke Energy’s coal ash basins. Bromides have been present in Duke Energy’s coal burning process and its coal ash basins for years at the company’s Allen, Asheville, Belews Creek, Cliffside, Marshall, Mayo, and Roxboro coal plants. These bromide discharges from Duke Energy’s coal ash basins have contributed to the formation of carcinogens in numerous downstream drinking water intakes, many of which have exceeded the federal maximum contaminant level for trihalomethane.

At the Allen coal plant itself, Duke Energy’s bromide discharges have contributed to the formation of carcinogens in downstream drinking water intakes. Levels of trihalomethanes above 80 parts per billion have been found in recent years in the drinking water system for Rock Hill (67,549 residents served), which also provides water to Fort Mill (11,800 residents served), Tega Cay (8,009 residents served), York (23,975 residents served), River Hills (8,566 residents served), the Catawba Indian Nation (440 residents served), and others.<sup>8</sup> The Allen site is also upstream of drinking water intakes for Lancaster (71,669 residents served), Chester (12,731 residents served) and Kershaw (27,379 residents served).<sup>9</sup> *In total, hundreds of thousands of people rely on drinking water from intakes downstream of Allen that could be affected by this proposed permit.*

This problem is pervasive at Duke Energy’s coal ash sites across North Carolina. In 2011, downstream drinking water providers along the Dan River traced spikes in trihalomethane carcinogens to bromide discharges from the Belews Creek coal ash basin.<sup>10</sup> At that time, Duke Energy had not even informed NCDEQ that bromide was present in its coal ash basin discharges.<sup>11</sup> The bromide discharges from the Belews Creek coal ash basin have affected downstream communities such as the Town of Madison, the City of Eden, and the City of Danville. These impacted drinking water systems collectively serve nearly 70,000 people.<sup>12</sup>

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<sup>7</sup> See, e.g., Attachment C, NCDEQ, *Summary of Bromide Issues in the WSRO [Winston Salem Regional Office]* at Appx. A-B (Dec. 6, 2011).

<sup>8</sup> Attachment D, Rock Hill Utilities, 2015 Water Quality Consumer Confidence Report, 4610002 at 5 (2015); EPA, Safe Drinking Water Information System (SDWIS) (last visited Feb. 27, 2017), available at <https://www3.epa.gov/enviro/facts/sdwis/search.html>.

<sup>9</sup> EPA, Safe Drinking Water Information System (SDWIS) (last visited Feb. 27, 2017), available at <https://www3.epa.gov/enviro/facts/sdwis/search.html>.

<sup>10</sup> Attachment E, Joint Factual Statement, *United States of America v. Duke Energy*, No. 5:15-CR-62-H at 52-53 (May 14, 2015).

<sup>11</sup> *Id.*

<sup>12</sup> EPA, Safe Drinking Water Information System (SDWIS) (last visited Feb. 27, 2017), available at <https://www3.epa.gov/enviro/facts/sdwis/search.html>.

Duke Energy was required by its criminal plea agreement with the federal government to provide funding to resolve the carcinogen contamination at Madison and Eden.<sup>13</sup>

But although Duke Energy has poured millions of dollars into attempts to find a band-aid solution, it has not been able to eliminate the bromide-caused carcinogens in these drinking water intakes. In 2015, trihalomethane levels in the City of Eden's water supply were detected as high as 89 parts per billion.<sup>14</sup> And there is no guarantee that the so-called 'fixes' that Duke Energy is pursuing will ever eliminate these bromide-caused carcinogens from peoples' drinking water. Although the City of Eden has proposed switching from chloride to chloramines to reduce the bromide/chlorine reaction that creates trihalomethanes, it has not yet begun on-the-ground implementation of this switch.<sup>15</sup> Moreover, this proposed 'fix' will create other problems: chloramines are linked to health problems such as respiratory irritants, severe skin reactions, and greater exposure to pathogens in the water.<sup>16</sup> And the City of Eden itself has recognized that certain sub-categories of people, such as people with kidney issues, will need to take special precautions when drinking chloramine-treated water.<sup>17</sup> The City of Danville continues to suffer from trihalomethane levels above 80 parts per billion, and does not appear to have received any financial assistance from Duke Energy to treat these high levels of carcinogens.<sup>18</sup>

Downstream of Duke Energy's Mayo and Roxboro coal ash sites, trihalomethanes have been detected above 80 parts per billion in the water supplies for Henderson (15,325 residents served) and Clarksville (1,400 residents served), both on Kerr Lake.<sup>19</sup> Near the Cliffside coal ash site on the French Broad River, high trihalomethane levels have been detected in the water at

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<sup>13</sup> Attachment F, Plea Agreement, Exhibit B, *United States v. Duke Energy Carolinas, LLC*, No. 5:15-CR-62-H, at 10 (May 14, 2015).

<sup>14</sup> Attachment G, 2015 Water Quality Report, City of Eden Public Utilities Department, Public Water System ID # 02-79-010 at 5 (2015), available at <http://www.edennc.us/DocumentCenter/View/1226>.

<sup>15</sup> Attachment H, Duke Energy Carolinas, LLC, *Belews Creek Steam Station - #NC0024406, Bromide Reduction Evaluation Semi-Annual Report* (Oct. 25, 2016).

<sup>16</sup> Citizens Concerned About Chloramine, Chloramine Facts (Sept. 11, 2006), <http://www.chloramine.org/chloraminefacts.htm>. According to the World Health Organization, "monochloramine is about 2,000 and 100,000 times less effective than free chlorine for the inactivation of E. Coli and rotaviruses, respectively." World Health Organization, *Seminar Pack for Drinking-Water Quality* at 5, [http://www.who.int/water\\_sanitation\\_health/dwq/S04.pdf](http://www.who.int/water_sanitation_health/dwq/S04.pdf).

<sup>17</sup> Attachment G, 2015 Water Quality Report, City of Eden Public Utilities Department, Public Water System ID # 02-79-010 at 5 (2015).

<sup>18</sup> Attachment I, City of Danville 2015 Water Quality Report, PWSID # 5590100 at 2-3 (2015) (showing trihalomethane detections as high as 100 parts per billion). The City of Danville installed a new mixing and aeration system at one of its storage reservoirs to help remove trihalomethanes, but there is no public information yet on whether the system has reduced—much less eliminated—trihalomethanes. *Id.*

<sup>19</sup> Attachment J, Henderson – Kerr Lake Regional Water System, Notice to the Public, Henderson – Kerr Lake Regional Water System Has Levels of Total Trihalomethanes (TTHMs) Above Drinking Water Standards (Jan. 5, 2015); Attachment K, 2014 Henderson – Kerr Lake Regional Water System, Annual Water Quality Report, PWS ID#: NC0291010 at 6 (2014) (showing trihalomethanes levels as high as 150 parts per billion, with an average of 105 parts per billion); Attachment L, Town of Clarksville, Virginia, *Important Information About Your Drinking Water* (Jan. 4, 2017), <http://www.clarksvilleva.org/important-information-about-your-drinking-water/> ("Based on quarterly test results of routine samples collected between July 1, 2016 and September 30, 2016, our system exceeded the Primary Maximum Contaminant Level (PMCL) for total Trihalomethane (TTHM). The standard for TTHM is 0.080 mg/L based on a four quarter running average. The average concentration of TTHM over this monitoring period was 0.082 mg/L.").

the City of Shelby's water supply (21,263 residents served), which also serves the Town of Boiling Springs (4,608 residents served).<sup>20</sup> At the Marshall coal ash site, downstream communities on the Catawba River with high levels of trihalomethanes include the City of Charlotte (954,644 residents served),<sup>21</sup> and the City of Belmont (10,076 residents served), which draws its drinking water from Lake Wylie.<sup>22</sup>

Additional communities may be exposed to this contamination going forward. New water intakes may be added downstream of Duke Energy's coal ash contamination. And many people who live in close proximity to Duke Energy's coal ash sites have contamination in their drinking water wells, and have received letters from the State of North Carolina telling them that their water is unsafe to drink. Duke Energy is required by law to provide alternative drinking water to many of these individuals, either by paying for connection to public water supplies or for in-home filters. In December of 2016, Duke Energy announced its intention to offer municipal water to many of these affected individuals.<sup>23</sup> For Allen, the municipal water would come from the City of Belmont's water supply<sup>24</sup>—which is downstream of Duke Energy's Marshall site and has elevated levels of carcinogenic trihalomethanes, as described above.

This means that people whose wells have been contaminated may now have to choose between contaminated well water or municipal water that has been contaminated by Duke Energy's bromide discharges.

In sum, hundreds of thousands of people who drink water from these drinking water supplies downstream of Duke Energy's coal operations have been exposed to unsafe levels of carcinogenic trihalomethanes for years, and many more may be exposed going forward. The additional bromides allowed by the proposed permit would add to this problem that downstream communities are already struggling to cope with.

**C. There are no limits in Duke Energy's wastewater permit that would protect people from these dangerous discharges.**

There are no limits for halides or bromides in Duke Energy's wastewater permit for Allen that would protect downstream communities from these dangerous substances.<sup>25</sup> Although NCDEQ released a new draft permit for the Allen site last fall, that proposed permit also allows Duke Energy to discharge bromides and halides without limit.<sup>26</sup>

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<sup>20</sup> Attachment M, Town of Boiling Springs 2015 Annual Drinking Water Quality Report, Water System ID Number: 01-23-025 at 5 (2015) (trihalomethanes detected as high as 105 parts per billion).

<sup>21</sup> Attachment N, 2015 Annual Drinking Water Quality Report Charlotte Water, Water System Number: 01-60-010 at 6 (2015) (trihalomethane levels detected as high as 116 parts per billion, with an average of 77 parts per billion).

<sup>22</sup> Attachment O, 2015 Annual Drinking Water Quality Report, City of Belmont, Water System Number 01-36-015 at 5 (2015).

<sup>23</sup> Duke Energy, North Carolina Permanent Water Plans, <https://www.duke-energy.com/our-company/about-us/power-plants/ash-management/water-plans> (last visited Feb. 27, 2017).

<sup>24</sup> Attachment P, Duke Energy, Permanent Water Supply Proposal to DEQ – Allen (Dec. 7, 2016).

<sup>25</sup> Attachment Q, Duke Energy, Allen NPDES Permit No. NC0004979 at 4 (Jan. 18, 2011).

<sup>26</sup> Attachment R, NCDEQ, Duke Energy Allen Plant, Draft Permit to Discharge Wastewater Under the National Pollutant Discharge Elimination System at 5-7 (Oct. 28, 2016).

Duke Energy already discharges high levels of bromides through its permitted outfall<sup>27</sup> and the illegal discharges seeping from the sides of its coal ash basins at Allen.<sup>28</sup> NCDEQ has not taken any action to limit these discharges. That means that there is no limit on the amount of additional bromide that Duke Energy could discharge into North Carolina's waters if NCDEQ moves forward with the air quality permit as drafted for Allen. The additional bromide authorized by the draft air quality permit would only add to the problems encountered by downstream drinking water intakes.

## **II. NCDEQ Must Instead Require Duke Energy To Install Pollution Controls That Will Protect, Rather Than Harm, The People of North Carolina.**

Rather than allowing Duke Energy to add cancer-causing substances to its coal operations, NCDEQ should require Duke Energy to install technologies that are proven to reduce toxic air emissions without carcinogenic side effects. Fabric filters, also known as baghouses, are widely used throughout the coal power plant industry to capture toxic particles before they escape into the air that people breathe. Over one-third of the coal-fired power generated in the United States in recent years comes from power plants that are equipped with baghouses to help control their air pollution.

Yet the Allen coal plant does not have this basic pollution control technology to protect the public from emissions of mercury and other toxic pollutants. This is true despite the fact that Allen plant has emitted approximately 20 to 70 tons of these hazardous pollutants annually in recent years.<sup>29</sup>

These toxic pollutants cause numerous health problems. Mercury can cause neurological problems in children, including lower IQ, learning disabilities, and memory problems.<sup>30</sup> Hydrogen chloride, another toxic pollutant emitted by the Allen plant, can cause respiratory problems like asthma, eye and skin irritation, and tooth discoloration.<sup>31</sup> In 2012, EPA passed Mercury and Air Toxics Standards, which require coal plants like Allen to limit their emissions of toxic pollutants. These standards, if implemented correctly, will prevent up to 480 premature deaths in North Carolina annually, while creating up to \$3.9 billion in health benefits for the people of North Carolina each year.<sup>32</sup>

The Allen plant is located in a heavily populated residential area, meaning that many people around the Allen site suffer from the lack of modern pollution controls at the plant.

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<sup>27</sup> Duke Energy Carolinas, LLC – NPDES Permit Application, Allen Steam Station - #NC0004979 at PDF 22 (Oct. 15, 2014) (showing bromide levels as high as 7,300 parts per billion from the coal ash basin discharge outfall).

<sup>28</sup> Letter from Brent Dueitt, General Manager II, Allen Steam Station, to Jeff Poupart, North Carolina Division of Water Resources at tbl. A-1 (Mar. 29, 2016) (showing bromide levels in seeps from the Allen coal ash basin as high as 2,760 parts per billion).

<sup>29</sup> NCDEQ, Draft Air Quality Permit, Application Review at 1.

<sup>30</sup> Attachment S, EPA, *Health Effects of Exposure to Mercury*, <https://www.epa.gov/mercury/health-effects-exposures-mercury> (last updated May 31, 2016).

<sup>31</sup> Attachment T, Agency for Toxic Substances & Disease Registry, Toxic Substances Portal, Hydrogen Chloride (April 2002), <https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=759&tid=147#bookmark05> (last updated July 27, 2015).

<sup>32</sup> Attachment U, EPA, Mercury and Air Toxics Standards in North Carolina, <https://www.epa.gov/mats/mercury-and-air-toxics-standards-north-carolina> (last updated Dec. 7, 2016).

According to the latest census data, over 4,000 people live within three miles of the Allen coal plant. The Allen plant is also located just 10 miles from the heart of the Charlotte metropolitan area, which has a population of well over 2 million people. These people and other communities downwind of Allen deserve to have robust protections in place against toxic pollution from the Allen plant.

For all of these reasons, NCDEQ cannot allow Duke Energy to use a pollution control strategy that poisons downstream communities, and must instead require Duke Energy to install widely-used pollution controls that do not simply convert one problem into another.

**III. Rather Than Allowing Duke Energy To Increase Its Bromide Discharges, NCDEQ Must Require Duke Energy To Eliminate Ongoing Bromide Discharges By Excavating the Ash Basin at Allen.**

NCDEQ must also require Duke Energy to excavate its bromide-contaminated coal ash in order to stop the ongoing discharge of bromides from the coal ash basin at Allen that continue to contribute to cancer-causing substances in downstream drinking water intakes. Instead of requiring Duke Energy to address the bromide problems at Allen head-on, the draft air permit would allow Duke Energy to add to those problems. This is a step backwards, not forwards, and must be corrected.

**IV. Conclusion**

For all of these reasons, NCDEQ must rescind the draft air quality permit; issue a new permit that requires Duke Energy to reduce its mercury and air toxics emissions through proven technologies that do not create other problems for downstream communities, such as baghouses; and require Duke Energy to excavate the materials from its ash basin to eliminate bromide discharges from the basin.

Respectfully submitted,



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