

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1214

In the Matter of:)	
)	
Application of Duke Energy Carolinas, LLC)	DIRECT TESTIMONY OF
for Adjustment of Rates and Charges)	JESSICA L. BEDNARCIK
Applicable to Electric Utility Service in North)	FOR DUKE ENERGY
Carolina.)	CAROLINAS, LLC

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT POSITION.

A. My name is Jessica L. Bednarcik. My business address is 400 South Tryon Street, Charlotte, North Carolina, 28202. I am employed by Duke Energy Business Services, LLC, as Vice President, Coal Combustion Products (“CCP”) Operations, Maintenance and Governance. In this docket, I am testifying on behalf of Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”). As more fully discussed below, my responsibilities include providing governance and operations leadership to Duke Energy Corporation’s (“Duke Energy”) regulated operating companies, including DE Carolinas.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I received my Bachelor of Science degree in Chemical Engineering from Clemson University South Carolina in 2001. I am a registered Professional Engineer in North Carolina and South Carolina, and am a Certified Project Management Professional through the Project Management Institute.

From 2001 to 2002, I was an Associate Engineer for Duke/Fluor Daniel (Charlotte, NC). In that role, I designed processes for new combined cycle power generation plants, with a focus on water treatment. From 2003-2004, as an Associate Engineer for Southerland Associates (Charlotte, NC), I worked on numerous design engineering projects. From 2004 to 2005, I was an Associate

1 Engineer for WPC, Inc. (Charlotte, NC), and my responsibilities included
2 environmental compliance and design.

3 In 2005, I joined the Environmental Engineering group at Duke Energy,
4 which became the Waste and Remediation Management Group after the Duke
5 Energy merger with Cinergy Corporation in 2006. In 2013, after the merger
6 with Progress Energy, I became Manager of the Remediation and
7 Decommissioning Group at Duke Energy, and my responsibilities included
8 management of environmental aspects of decommissioning coal fired power
9 plants. From January 2015 to August 2016, I was the Director of
10 Environmental, Health and Safety Risk and Compliance Assurance.

11 From September 2016 to July 2018, I held the position of Special
12 Assignment Leader in the Environmental, Health and Safety (“EHS”)
13 department and managed the provision of permanent water required by North
14 Carolina House Bill 630. From August 2018 to February 2019, I was the Senior
15 Director of Grid Assurance.

16 **Q. WHAT ARE YOUR PRIMARY RESPONSIBILITIES AS THE VICE**
17 **PRESIDENT CCP, OPERATIONS, MAINTENANCE AND**
18 **GOVERNANCE?**

19 A. I am responsible for operations support, regulatory affairs, and other centralized
20 CCR functions. My team works to define, establish, and maintain fleet CCP
21 standards, programs, processes, and best practices within functional areas for
22 all fossil plant sites. My team also oversees site operations and maintenance

1 (“O&M”) of CCP facilities, including CCR and dam operations and
2 maintenance, production landfills, decommissioning and demolition, and
3 byproducts management.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 A. DE Carolinas is seeking recovery of CCR expenses incurred from January 2018
6 through June 30, 2019, and costs to be incurred through January 31, 2020,
7 related to compliance with applicable regulatory requirements. The purpose of
8 my testimony is to explain how DE Carolinas’ compliance actions since January
9 1, 2018 have been and continue to be reasonable, prudent, and cost-effective
10 approaches to comply with regulatory requirements. Specifically, I will explain
11 why the activities supporting the costs are necessary to satisfy federal and state
12 regulatory requirements; are appropriate in terms of meeting engineering and
13 environmental standards; and are timely and consistent with the site closure
14 plans. My testimony demonstrates that the actual costs incurred for ash basin
15 closure at each site between January 1, 2018 and June 30, 2019, are reasonable
16 and prudent.

17 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

18 A. In Section I, I provide information concerning my background and the purpose
19 of my testimony. In Section II, I provide a summary of the applicable federal
20 and state regulatory requirements that have driven the activities and costs for
21 which the Company is seeking recovery in this case. In Section III, I explain
22 the North Carolina Department of Environmental Quality (“NC DEQ”) order

1 to excavate Allen, Belews Creek, Cliffside/Rogers, and Marshall Ash Basins
2 that was issued on April 1, 2019. In Section IV, I provide details of the costs
3 incurred and activities forecasted at each DE Carolinas site during the period of
4 January 1, 2018 through January 31, 2020, and explain how those costs and
5 activities were necessary, appropriate, timely, and consistent with anticipated
6 site closure plans and federal and state regulatory requirements.

7 **Q ARE YOU PROVIDING ANY EXHIBITS WITH YOUR TESTIMONY?**

8 A. Yes. I have attached 17 total exhibits that I discuss further herein.

9 **Q WERE EXHIBITS 1 THROUGH 17 PREPARED OR PROVIDED**
10 **HEREIN BY YOU, UNDER YOUR DIRECTION AND SUPERVISION?**

11 A. Yes. They were.

12 **II. OVERVIEW OF REGULATORY REQUIREMENTS**

13 **Q. WHAT FEDERAL AND STATE REGULATORY REQUIREMENTS**
14 **APPLY TO DE CAROLINAS' COAL ASH IMPOUNDMENTS AND**
15 **LANDFILLS?**

16 A. The Company's closure activities are primarily driven by a set of overarching
17 federal regulations and state-specific regulatory requirements in its operating
18 territories in North Carolina and South Carolina.

19 At the federal level, all DE Carolinas sites are subject to and must
20 comply with the Hazardous and Solid Waste Management System: Disposal of
21 Coal Combustion Residuals from Electric Utilities; Final Rule promulgated by
22 the EPA, also known as the CCR Rule. *See* 80 Fed. Reg. 21302 (April 17,

1 2015); 81 Fed. Reg. 51802 (Aug. 5, 2016).¹ For the Company’s North Carolina
2 operations, it must comply with the North Carolina Coal Ash Management Act
3 of 2014 (“CAMA”) enacted by the North Carolina General Assembly as N.C.
4 Sess. Law 2014-122, as amended June 2015 by the Mountain Energy Act, Sess.
5 Law 2015-110 and July 2016 by Sess. Law 2016-95. A copy of CAMA is
6 provided with my testimony as Bednarcik Exhibit 1. In South Carolina, where
7 it has one former coal-fired plant, DE Carolinas must comply with a negotiated
8 Consent Agreement with the South Carolina Department of Health and
9 Environmental Control (“DHEC”). A copy of the W.S. Lee Consent
10 Agreement is provided with my testimony as Bednarcik Exhibit 2. The
11 Company must comply with its federal and state obligations concerning the
12 management and disposal of CCRs, operation and closure of its ash
13 impoundments and other storage areas (“CCR Units”), and corrective action
14 and post-closure care.

15 **Q. PLEASE SUMMARIZE THE MAJOR REQUIREMENTS UNDER THE**
16 **CCR RULE.**

17 A. The EPA’s final CCR Rule established national minimum criteria for coal
18 combustion residuals (“CCR”) landfills and surface impoundments that consist
19 of: (1) location restrictions; (2) design and operating criteria; (3) groundwater
20 monitoring and corrective action; (4) closure requirements and post-closure

¹ The CCR Rule is available on EPA’s website provided below and is incorporated by reference in my testimony:
<https://www.epa.gov/coalash/coal-ash-rule>.

1 care; (5) recordkeeping; (6) notification; and (7) internet posting requirements.
2 These requirements are summarized below and they result in different impacts
3 at each CCR unit, depending on site-specific factors.

4 The CCR Rule requires that new and existing CCR surface
5 impoundments and new CCR landfills and lateral expansions meet location
6 restrictions for: (1) placement above the uppermost aquifer; (2) wetlands; (3)
7 fault areas; (4) seismic impact zones; and (5) unstable areas. The specific
8 location restriction assessment that is most likely to affect the Company's CCR
9 basins, because of typical geological characteristics and historic groundwater
10 elevations in the Carolinas, is placement above the uppermost aquifer. This
11 requires that existing CCR basins be constructed with a base that is located no
12 less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer,
13 or demonstrate that there will not be an intermittent, recurring, or sustained
14 hydraulic connection between any portion of the base of the CCR unit and the
15 uppermost aquifer due to normal fluctuations in groundwater elevations
16 (including the seasonal high-water table). If a CCR basin does not meet the
17 location restrictions, then basin closure is required under the CCR Rule. The
18 CCR Rule contains design criteria for new CCR landfills and lateral extensions
19 and new CCR surface impoundments, as well as structural integrity criteria for
20 new and existing CCR surface impoundments, including an assessment of dam
21 safety factors.

1 The CCR Rule contains standards for how and when CCR basins must
2 be closed. It provides two alternatives for closure, “closure by leaving ash in
3 place” (cap-in-place) and “closure through removal of the CCR” (i.e.
4 excavation). For cap-in-place closure, the CCR Rule provides design criteria
5 for the closure cap system. Post-closure monitoring requirements are also
6 detailed in the CCR Rule. Lastly, the CCR Rule requires specific notifications,
7 such as to state agencies; specific requirements for record keeping, such as the
8 written operating record; and specific requirements for posting information on
9 a publicly accessible internet website. The Company’s closure plans that were
10 developed pursuant to the CCR Rule are provided with my testimony as
11 Bednarcik Exhibit 3.

12 **Q. PLEASE SUMMARIZE THE MAJOR REQUIREMENTS UNDER**
13 **CAMA.**

14 A. CAMA requires closure of all ash basins in North Carolina, with the closure
15 option (i.e., excavate or cap-in-place) and closure deadline driven by a
16 prioritization risk ranking classification process – high priority, intermediate
17 priority, and low priority. CAMA delineates specific requirements based on
18 those risk classifications.

19 CAMA specifically designated the CCR surface impoundments at Dan
20 River and Riverbend as “high priority” sites, which must be closed by
21 excavation by August 1, 2019.

1 DE Carolina's impoundments at Allen, Belews Creek, Buck,
2 Cliffside/Rogers, and Marshall were initially classified as intermediate risk. As
3 amended, CAMA requires that intermediate-risk impoundments be closed as
4 soon as practicable, but no later than December 31, 2024, with a proposed
5 closure plan for the impoundments to be submitted as soon as practicable, but
6 no later than December 31, 2019. Intermediate-risk impoundments must be
7 excavated. At a minimum, DE Carolinas must dewater the impoundments and
8 either: (1) convert them to a lined industrial landfill by removing all CCR and
9 contaminated soil temporarily, safely storing the residuals on-site, and
10 complying with new CCR landfill requirements; or (2) remove all CCR, return
11 the impoundment to a non-erosive and stable condition, and transfer the CCR
12 for disposal in a CCR landfill, industrial landfill, or municipal solid waste
13 landfill, or use the coal combustion products in a structural fill or for other
14 beneficial uses as allowed by law.

15 The impoundments at Allen, Belews Creek, Buck, Cliffside/Rogers, and
16 Marshall received revised low-risk classifications in November 2018 based
17 upon the establishment of permanent water supplies and rectification of dam
18 safety deficiencies. Pursuant to CAMA as amended, low-risk impoundments
19 shall be closed as soon as practicable, but no later than December 31, 2029,
20 with a proposed closure plan for such impoundments to be submitted as soon
21 as practicable, but no later than December 31, 2019. At a minimum, the
22 impoundments at low-risk sites shall be dewatered and closed either by

1 excavation or by cap-in-place, pending NC DEQ's approval of the closure plan.
2 CAMA applies to all of DE Carolinas' North Carolina CCR surface
3 impoundments.

4 Like the CCR Rule, CAMA requires the installation of groundwater
5 wells and provides for a monitoring program and monitoring plan to extend
6 through the construction period and post-closure care period.

7 Additionally, the 2016 CAMA amendments specifically require the
8 Company provide permanent replacement water supplies to all homeowners
9 with drinking water supply wells located within a ½ mile radius from the
10 established compliance boundaries of the impoundments, without a showing of
11 groundwater impacts. The 2016 CAMA amendments provide a preference for
12 permanent replacement water supplies by connection to public water systems;
13 provided that homeowners may elect to receive filtration systems and the NC
14 DEQ may determine that connection to a public water supply to a particular
15 household would be cost prohibitive.

16 The 2016 CAMA Amendments also define certain dam safety actions
17 to be undertaken by the Company. Upon completion of these actions and
18 installation of permanent water supplies, the impoundment ranking shall be
19 low-risk, which provides for the full range of closure options consistent with
20 the federal CCR Rule. Lastly, the 2016 CAMA amendments require the
21 Company to implement ash beneficiation projects capable of processing a total
22 of 900,000 tons of ash per year at three sites for use in cementitious products.

1 The Company initially announced two sites for beneficiation: Buck (DE
2 Carolinas) and H.F. Lee (DE Progress). The third site, Cape Fear (DE
3 Progress), was announced on July 1, 2017, the date mandated by the 2016
4 CAMA amendments.

5 **Q. DO BOTH THE CCR RULE AND CAMA REQUIRE CLOSURE OF**
6 **THE COMPANY'S CCR BASINS?**

7 A. Yes. The CCR Rule and CAMA require the closure of the Company's CCR
8 basins.

9 **Q. HOW DO CAMA AND THE CCR RULE WORK TOGETHER TO**
10 **ADDRESS MANAGEMENT AND REMEDIATION OF THE**
11 **COMPANY'S CCR BASINS?**

12 A. The CCR Rule requires DE Carolinas to comply with minimum national
13 criteria, as well as applicable state laws, in the closure of ash basins. Thus, the
14 CCR Rule provides overarching requirements pursuant to which each state may
15 set forth more specific regulations. However, as long as minimum national
16 criteria are satisfied, the CCR Rule does not specify a particular method for
17 closing ash basins. Thus, the CCR Rule leaves to the states to approve the
18 method of ash basin closure, as long as such method meets the timeframes and
19 minimum requirements set forth in the CCR Rule. In North Carolina, the
20 method of closure required under the CCR Rule has been selected through the
21 process set forth in CAMA. CAMA sets forth specific closure methods which
22 are consistent with the CCR Rule's minimum national criteria, for sites deemed

1 intermediate risk. The CCR Rule, as a result of being self-implementing,
2 requires a greater number of notifications and for information to be posted on a
3 publicly accessible website. The CCR Rule regulates CCR landfills in addition
4 to CCR surface impoundments, whereas CAMA only addresses CCR surface
5 impoundments.

6 **III. APRIL 1, 2019 NC DEQ ORDER TO EXCAVATE ALLEN, BELEWS**
7 **CREEK, CLIFFSIDE/ROGERS, AND MARSHALL ASH BASINS**

8 **Q. WHAT CLOSURE OPTIONS ARE AVAILABLE UNDER CAMA FOR**
9 **DE CAROLINAS' LOW-RISK IMPOUNDMENTS AT ALLEN,**
10 **BELEWS CREEK, CLIFFSIDE/ROGERS, AND MARSHALL?**

11 A. The North Carolina legislature provided three closure options for
12 impoundments that receive a low-risk classification: cap-in-place, excavation,
13 or a hybrid approach. These closure options are the same closure options
14 available under the CCR Rule.

15 **Q. WHAT IS THE COMPANY'S PREFERRED CLOSURE METHOD FOR**
16 **DE CAROLINAS' LOW-RISK SITES?**

17 A. Cap-in-place is the Company's preferred closure method for Allen,
18 Cliffside/Rogers, and Marshall. Hybrid cap-in-place closure is the Company's
19 preferred closure method for Belews Creek. The Company, with assistance
20 from experienced, professional engineering firms, developed and submitted
21 Closure Options Analysis Reports ("COA Report") to the NC DEQ in fourth
22 quarter of 2018 for the four sites. The COA Reports are provided with my

1 testimony as Bednarcik Exhibit 4. The COA Reports demonstrated that cap-in-
2 place was both environmentally protective and cost-effective.

3 **Q. PLEASE EXPLAIN THE APRIL 1, 2019 ORDER FROM THE NC DEQ**
4 **CONCERNING EXCAVATION OF ALL ASH BASINS AT ALLEN,**
5 **BELEWS CREEK, CLIFFSIDE/ROGERS AND MARSHALL.**

6 A. On April 1, 2019, the NC DEQ ordered Duke Energy to excavate all remaining
7 coal ash impoundments in North Carolina (“NC DEQ Order”). After the
8 Company submitted the COA Reports, the NC DEQ mandated that DE
9 Carolinas excavate the impoundments at Allen, Belews Creek,
10 Cliffside/Rogers, and Marshall under CAMA. The NC DEQ ordered that coal
11 ash at those sites must be disposed of in a lined landfill.

12 The NC DEQ Order also stated that Duke Energy must submit final
13 excavation closure plans to the NC DEQ by August 1, 2019. In a May 9, 2019
14 letter, the NC DEQ revised the closure plan submittal date to December 31,
15 2019. In those plans, Duke must propose where excavated coal ash will reside
16 and estimate how long that process will take.

17 **Q. IN ADVANCE OF THE NC DEQ’S ORDER, DID THE COMPANY**
18 **BEGIN IMPLEMENTING CAP-IN-PLACE CLOSURE AT ANY OF**
19 **THE FOUR DE CAROLINAS’ SITES COVERED BY THE NC DEQ**
20 **ORDER?**

21 A. No. With the exception of preliminary closure plan development, none of the
22 site work that has been conducted at these four sites is specific to cap-in-place

1 closure. All site work to date would also have to be conducted in an excavation
2 closure. Later in 2019, DE Carolinas anticipates conducting preliminary site
3 evaluations at these four sites, including boring wells, to evaluate potential
4 onsite locations for landfills. This will be done to ensure that the Company will
5 be able to proceed with closure if the NC DEQ Order is upheld.

6 **Q. WHAT WAS DE CAROLINAS' RESPONSE TO THE NC DEQ ORDER?**

7 A. On April 26, 2019, DE Carolinas filed petitions for a contested case hearing
8 ("Petitions") with the North Carolina Office of Administrative Hearings
9 ("OAH") to appeal the NC DEQ Order for each of the four applicable sites. In
10 the appeal, Duke Energy raised several significant procedural and substantive
11 concerns with the NC DEQ Order. While I am not a lawyer, my understanding
12 is that enforcement of the NC DEQ Order will be stayed during the pendency
13 of the appeal before OAH. Until this appeal is resolved, DE Carolinas will
14 continue closure planning and activities at the affected sites as long as the work
15 would be utilized for both an excavation closure as well as cap-in-place closure,
16 excluding the preliminary landfill site evaluation work previously described.

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IV. SITE-BY-SITE CLOSURE ACTIVITIES AND ASSOCIATED COSTS

Q. PLEASE EXPLAIN THE CLOSURE ACTIVITIES RELATING TO ALLEN, BELEWS CREEK, CLIFFSIDE/ROGERS, AND MARSHALL FROM JANUARY 1, 2018 THROUGH JANUARY 31, 2020.

A. The ash basins at Allen, Belews Creek, Cliffside/Rogers, and Marshall earned low-risk classifications under CAMA, which means they would be eligible for cap-in-place closure. Due to their shared classifications, these four plants are under similar closure schedules, and the activities conducted at these sites beginning on January 1, 2018 through January 31, 2020, were relatively the same.

Related to basin closure, the Company, in conjunction with engineering consultants, developed and submitted the COA Reports. As discussed in Section III of my testimony, closure-in-place represented a cost-effective and environmentally protective means of complying with CAMA and the federal CCR rule. To remain on target with regulatory closure deadlines, the Company then began developing preliminary draft closure plans to execute cap-in-place at its low-risk sites, although no onsite work was performed.

As I previously explained, the NC DEQ Order suggests alterations to the Company's closure strategy for its low-risk impoundments. The Company is appealing the NC DEQ Order. During the pendency of the appeal, the

1 Company has not and will not perform onsite closure activities that would be
2 undertaken solely to achieve excavation or closure-in-place.

3 Specifically, certain activities are required under both excavation and
4 cap-in-place, and DE Carolinas will continue to execute those overlapping
5 closure activities until the appeal is resolved. Those activities and associated
6 costs include pursuing environmental permits, which are required to comply
7 with environmental permitting regimes including Erosion and Sediment
8 Control, National Pollutant Discharge Elimination System (“NPDES”), and
9 storm water pollution prevention plan; and performing groundwater activities,
10 including data review and reporting of groundwater monitoring to comply with
11 the CCR Rule, CAMA, and the Company’s NPDES permits. Additionally, the
12 Company is dewatering the impoundments at its sites, which would be
13 necessary under closure-in-place and closure by excavation.

14 The Company has also incurred costs to plan, design, and install
15 permanent water supplies to neighboring residents to comply with CAMA.
16 Permanent water supply costs included the planning, design, and installation of
17 municipal water mains and/or service lines; the planning, design and
18 installation of water treatment systems; and taxes and fees for permitting and
19 connection of the water lines and water treatment systems. Costs also includes
20 communications to homeowners and the development of reports required by the
21 NC DEQ to certify completion of the permanent water supply provision.

1 Lastly, the Company has incurred several miscellaneous costs,
 2 including operating and maintenance costs related to the coal ash landfills and
 3 basins. Maintenance and operations activities are performed on retired and
 4 active CCR impoundments and facilities to ensure compliance with state and
 5 local regulations, as well as operating and post-closure permits. Typical
 6 activities include vegetation management to support required inspections, as
 7 well as repairs to dams, landfills, structural fills, and ash stacks.

8 A summary of the activities performed and costs incurred from January
 9 1, 2018 through June 30, 2019 for Allen, Belews Creek, Cliffside/Rogers, and
 10 Marshall is provided in Table 1 below.

<i>Table 1</i>	Actual cost incurred 1/1/2018 through 6/30/2019			
	<u>Allen</u>	<u>Belews Creek</u>	<u>Cliffside/Rogers</u>	<u>Marshall</u>
EHS	\$4,711,010	\$4,788,547	\$5,803,812	\$4,437,090
Basin Closure / Engineering Design	\$2,195,969	\$2,784,491	\$2,487,578	\$5,421,021
Basin Support Projects	\$2,564	\$0	\$48,402	\$11,228,600
Permanent Water Supply	\$9,326,407	\$565,895	\$1,766,241	\$1,077,337
Permitting	\$415,244	\$687,758	\$565,534	\$265,127
Other	\$1,402,680	\$3,647,793	\$2,023,193	\$2,380,727
Total Cost	\$18,053,874	\$12,474,484	\$12,694,760	\$24,809,902

1 **Q. CAN YOU PROVIDE A FURTHER BREAKDOWN OF THE WORK**
2 **THAT WAS CONDUCTED WITHIN THE SIX CATEGORIES OF**
3 **ACTIVITIES THAT YOU PROVIDED IN TABLE 1?**

4 A. Yes. For Allen, Belews Creek, Cliffside/Rogers, and Marshall, I have provided
5 in Bednarcik Exhibits 5, 6, 7, and 8, respectively, site details and a description
6 of the work performed and to be performed January 1, 2018 through January
7 31, 2020.

8 **Q. PLEASE EXPLAIN THE CLOSURE ACTIVITIES OCCURRING AT**
9 **BUCK FROM JANUARY 1, 2018 THROUGH JANUARY 31, 2020.**

10 A. Buck was selected as one of three Duke Energy sites for the installation of a
11 beneficiation project pursuant to CAMA; therefore, the Company will be
12 closing the impoundments at Buck by excavation. Excavated ash from Buck
13 will be processed through the beneficiation plant for use in the concrete
14 industry, as opposed to being placed in a lined landfill.

15 To prepare the site for excavation, DE Carolinas began bulk dewatering
16 of the Buck impoundments following the receipt of a revised NPDES
17 wastewater discharge permit. The Company has installed groundwater
18 monitoring wells, which it regularly samples and monitors, to comply with the
19 CCR Rule and CAMA.

20 DE Carolinas will be utilizing the SEFA STAR technology to process
21 the ash from Buck. Construction of the beneficiation plant began in May 2018.
22 Initial construction involved the installation of erosion control measures for the

1 site. A sedimentation basin was constructed and placed into service on January
2 22, 2019, to capture sediment or soil that is disturbed during construction. After
3 the completion of the sedimentation basin, construction began on the
4 foundations and support structures for the beneficiation plant. Additionally, in
5 2019, the Company will install the necessary utilities to operate the
6 beneficiation plant.

7 To supply the beneficiation plant with ash when it becomes operational,
8 the Company has been developing an excavation plan and an environmental
9 erosion control plan for its impoundments. DE Carolinas is also designing an
10 onsite haul road between the impoundments and the new beneficiation plant to
11 transport the excavated ash.

12 A summary of the activities performed and costs incurred from January
13 1, 2018 through June 30, 2019 for Buck is provided in Table 2 below. A further
14 description of the actual and forecasted site-specific work from January 1, 2018
15 through January 31, 2020, at Buck is provided with my direct testimony as
16 Bednarcik Exhibit 9. A copy of the Company's excavation plan for Buck is
17 also being provided as Bednarcik Exhibit 10.

<i>Table 2</i>	Actual costs incurred 1/1/2018 through 6/30/2019
	<u>Buck</u>
EHS	\$1,696,180
Basin Closure	\$6,432,828
Beneficiation Facility Construction	\$94,877,353
Basin Support Projects	\$2,355,252
Municipal Water Lines	\$4,765,720
Permitting	\$408,947
Other	\$831,887
Total Cost	\$111,368,167

1 **Q. PLEASE EXPLAIN THE CLOSURE ACTIVITIES OCCURRING AT**
2 **DAN RIVER FROM JANUARY 1, 2018 THROUGH JANUARY 31, 2020.**

3 A. DE Carolinas is closing its impoundments at Dan River by excavation, which
4 must be completed by August 1, 2019. The Company completed excavation of
5 ash from the impoundments on May 20, 2019.

6 Excavated ash from the Dan River impoundments has been transferred
7 to an onsite, CCR landfill. From January 1, 2018 through May 20, 2019, DE
8 Carolinas excavated 1,426,200 tons of ash from the Primary and Secondary Ash
9 Basins at the Dan River site, which was then placed in the onsite landfill or
10 supplied to Roanoke Cement for beneficial reuse. Additional excavated
11 material that did not meet standards for CCR landfill disposal was sent to offsite
12 landfills. The Company has begun the process of closing the CCR landfill in
13 compliance with state and federal standards.

14 In conjunction with its excavation activities, the Company also
15 performed dam decommissioning work on its basins to meet post-closure dam
16 safety requirements. The dam decommissioning work began in May 2018.

1 A summary of the activities performed and costs incurred from January
 2 1, 2018 through June 30, 2019 for Dan River is provided in Table 3 below. A
 3 further description of the actual and forecasted site-specific work from January
 4 1, 2018 through January 31, 2020, at Dan River is provided with my testimony
 5 as Bednarcik Exhibit 11. Additionally, with my testimony, I am providing the
 6 Site Analysis and Removal Plan (“SARP”) and excavation plan for Dan River
 7 as Bednarcik Exhibit 12 and Bednarcik Exhibit 13, respectively.

<i>Table 3</i>	Actual costs incurred from 1/1/2018 through 6/30/2019
	<u>Dan River</u>
EHS	\$1,743,634
Basin Closure	\$61,720,567
Permanent Water Supply	\$24,281
Permitting	\$239,059
Other	\$(158,201)
Total Cost	\$63,569,340

8 **Q. PLEASE EXPLAIN THE CLOSURE ACTIVITIES OCCURRING AT**
 9 **RIVERBEND FROM JANUARY 1, 2018 THROUGH JANUARY 31,**
 10 **2020.**

11 A. DE Carolinas has completed excavation and removal of CCR materials from
 12 the impoundments at Riverbend. During the period January 1, 2018 to June 30,
 13 2019, a total of 1,479,066 tons of ash was excavated from the basins, ash stack,
 14 and cinder pit and transported to the Brickhaven Structural Fill site in Chatham
 15 County, NC. A total of 19,543 tons of ash containing asbestos-containing-
 16 material was excavated from the cinder pit and transported to the Republic
 17 Services Charlotte Motor Speedway Landfill in Cabarrus County, NC. A

1 cumulative total of 5,351,308 tons of ash has been removed from the site. Ash
2 basin closure was completed on March 16, 2019.

3 Similar to Dan River, on April 22, 2019, DE Carolinas began dam
4 decommissioning and site grading work to meet post-closure dam safety
5 standards.

6 DE Carolinas is required by CAMA and its DEQ-issued NPDES permit
7 to conduct groundwater monitoring at Riverbend. From January 1, 2018
8 through present, DE Carolinas has installed additional wells to meet these
9 regulatory requirements. The Company regularly monitors and samples these
10 wells to assess the groundwater quality at this site.

11 A summary of the activities performed and costs incurred from January
12 1, 2018 through June 30, 2019, for Riverbend is provided in Table 4 below. A
13 further description of the actual and forecasted site-specific work from January
14 1, 2018 through January 31, 2020, at Riverbend is provided in Bednarcik
15 Exhibit 14 to my direct testimony. Additionally, I am providing the Site
16 Analysis and Removal Plan (“SARP”) and excavation plan for Riverbend as
17 Bednarcik Exhibit 15 and Bednarcik Exhibit 16, respectively.

<i>Table 4</i>	Actual costs incurred 1/1/2018 through 6/30/2019
	<u>Riverbend</u>
EHS	\$1,734,965
Basin Closure	\$100,835,239
Permanent Water Supply	\$1,189
Permitting	\$282,874
Other	\$290,792
Total Cost	\$103,145,059

1 **Q. ARE THERE ANY ADDITIONAL COSTS RELATED TO CLOSURE**
2 **AT RIVERBEND FOR WHICH THE COMPANY IS REQUESTING**
3 **RECOVERY IN THIS CASE?**

4 A. Yes. In 2014, Duke Energy executed contracts with Charah, LLC dispose of
5 coal ash from DE Carolinas' Riverbend site, as well as DE Progress' Sutton,
6 Cape Fear, H.F. Lee, and Weatherspoon sites. The contract with Charah
7 required Duke Energy to provide a minimum amount of coal ash for disposal at
8 Charah's Brickhaven and Colon mines. Due to changing circumstances,
9 including changes to Duke Energy's closure strategy at those sites after the
10 contract was entered into due to ammendments to CAMA requiring
11 beneficiation, Duke Energy did not provide the amount contracted for
12 Brickhaven and did not send any material to the Colon mine. As a result, the
13 contract with Charah was terminated, with Duke Energy incurring a fulfillment
14 fee of \$80 million. Specifically, \$46,329,946 has been allocated to DE
15 Carolinas to account for costs incurred by Charah associated with the ash from
16 the Riverbend location, as well as future estimated costs for leachate
17 management, capping of the landfill, and post closure maintenance.

1 **Q. WAS IT REASONABLE AND PRUDENT FOR THE COMPANY TO**
2 **ENTER INTO ARRANGEMENTS WITH CHARAH THAT COULD**
3 **IMPOSE FULFILLMENT COSTS IN RELATION TO THE**
4 **BRICKHAVEN AND COLON MINES?**

5 A. Yes. Where agreements require a contractor to develop large infrastructure
6 projects to be able to perform the needed contracted service, it is common and
7 reasonable to require minimum investment from the company receiving the
8 service. This is particularly the case where the market does not indicate a
9 readily “next available client” to use the completed infrastructure for the
10 purpose for which it was designed. To facilitate transport and disposal of coal
11 ash to Brickhaven and Colon mines, Charah’s infrastructure arrangements
12 involved the purchase of land, permitting costs, rail spur and unloading system
13 construction, landfill construction, and leachate system construction. Even with
14 the fulfillment costs, the Charah option was the best option for customers
15 compared to the other options that Duke Energy had available at the time to
16 meet regulatory requirements.

17 **Q. PLEASE EXPLAIN THE CLOSURE ACTIVITIES OCCURRING AT**
18 **W.S. LEE FROM JANUARY 1, 2018 THROUGH JANUARY 31, 2020.**

19 A. DE Carolinas is closing the ash storage areas at W.S. Lee by excavation. The
20 major activities occurring after January 1, 2018 have been site preparation and
21 excavation of the Secondary Ash Basin. Ash from the Secondary Ash Basin is
22 being temporarily stored in the Primary Ash Basin.

1 Before excavation could begin on the Secondary Ash Basin, it had to be
2 decanted and then dewatered. DE Carolinas began decanting the Secondary
3 Ash Basin in September 2018, and dewatering began in February 2019.
4 Interstitial dewatering of the Primary and Secondary Ash Basins began in the
5 fourth quarter of 2018 and will continue throughout the closure process.

6 At the same time, the Company also began dewatering the Primary Ash
7 Basin. DE Carolinas began excavating ash from the Secondary Ash Basin in
8 March 2019, which is temporarily being placed in the Primary Ash Basin.
9 Excavation of the Secondary Ash Basin was completed on June 14, 2019.
10 Construction of a sediment basin intended to support current excavation
11 activities and future landfill construction began in January 2019 and was
12 completed in July 2019.

13 DE Carolinas has also performed groundwater activities, including
14 collection, analysis, and reporting of groundwater monitoring to comply with
15 the CCR Rule and State requirements.

16 A summary of the activities performed and costs incurred from January
17 1, 2018 through June 30, 2019 for W.S. Lee is provided in Table 5 below. A
18 further description of the actual and forecasted site-specific work from January
19 1, 2018 through January 31, 2020, at W.S. Lee is provided in Bednarcik Exhibit
20 17 to my direct testimony.

<i>Table 5</i>	Actual costs incurred 1/1/2018 through 6/30/2019
	<u>W.S. Lee</u>
EHS	\$1,455,463
Basin Closure	\$10,706,727
Permitting	\$294,395
Basin Support	\$472,873
Other	\$582,541
Total Cost	\$13,511,999

1 **Q. WERE YOU ABLE TO REACH A CONCLUSION ABOUT WHETHER**
2 **THE COSTS AND ACTIVITIES THAT YOU DESCRIBE IN YOUR**
3 **FOREGOING TESTIMONY WERE REASONABLE AND PRUDENT?**

4 A. Yes. Based upon my training, experience, understanding of the Company's
5 regulatory obligations, and review of the Company's records, I was able to
6 conclude that the actual and forecasted activities and costs to close the DE
7 Carolinas impoundments were reasonable and prudent.

8 **Q. WHAT FACTORS DID YOU CONSIDER WHEN MAKING YOUR**
9 **REASONABLENESS AND PRUDENCY DETERMINATION?**

10 A. I evaluated the reasonableness and prudence of the Company's closure
11 activities and associated costs based upon the following criteria: 1) whether the
12 activities performed and to be performed are necessary; 2) whether the costs for
13 the necessary activities are appropriate; and 3) whether the closure projects are
14 meeting Company and regulatory deadlines.

1 **Q. ARE THE CLOSURE ACTIVITIES THAT ARE DESCRIBED IN YOUR**
2 **TESTIMONY NECESSARY?**

3 A. Yes. As part of my role within CCP, I have become well-versed in the federal
4 and state regulatory obligations relating to DE Carolinas' CCR storage
5 facilities. These regulations dictate how and by when closure must be achieved
6 and dictate other specific environmental requirements. For any major
7 undertaking, like the closure projects described above, Duke Energy relies on
8 both Company and third-party technical experts to provide consulting,
9 engineering, and construction services. For each site, the closure activities that
10 were performed and that are planned to be performed are based on strategies,
11 plans, scientific expertise, and schedules developed through coordination
12 between technical experts both within and outside the Company to satisfy
13 regulatory obligations. Each closure activity described above and for which the
14 Company is requesting cost recovery can be traced to a provision of the federal
15 CCR rule, CAMA, or other state regulatory requirement. Therefore, I have
16 concluded that the closure activities described in my testimony for each DE
17 Carolinas site were necessary to comply with Federal and State regulatory
18 obligations.

1 **Q. HAS THE COMPANY TAKEN SUFFICIENT MEASURES TO ENSURE**
2 **THAT COSTS FOR ITS CLOSURE PROJECTS ARE**
3 **APPROPRIATELY MANAGED AND MINIMIZED?**

4 A. Yes. DE Carolinas has a robust system in place to review the costs of its CCR
5 Unit closure projects from inception to payment. Specifically, DE Carolinas
6 has implemented and followed strict contracting policies and procedures to
7 receive and evaluate bids for its closure activities. Purchases were procured
8 under the purview of the Duke Energy Purchasing Controls Policy, which lays
9 out requirements for competitive bidding, vendor selection and purchase order
10 use. All expenditures against purchase orders are reviewed and approved under
11 the requirements documented in the Delegation of Authority Policy.

12 DE Carolinas also maintains detailed budgets, which are updated
13 quarterly to incorporate the knowledge and experience the Company has gained
14 during the project. Scope changes or estimate deviations are documented and
15 approved as appropriate.

16 These processes are utilized to ensure that costs that the Company has
17 and will incur for tasks associated with the CCR rule, CAMA, and other state
18 regulatory requirements are not exorbitant, unnecessary, wasteful, or
19 extravagant and are consistent with the costs of similar services on the open
20 market. The costs incurred for all closure activities were, and continue to be
21 reviewed through rigorous purchasing and expenditure review processes.

1 **Q. ARE THE COMPANY'S CLOSURE ACTIVITIES PROCEEDING ON**
2 **SCHEDULE?**

3 A. Yes. Complex projects require coordination between company personnel, with
4 permitting authorities (state and federal regulatory agencies), and contractors.
5 To that end, DE Carolinas has developed extensive and detailed plans and
6 schedules related to each aspect of the overall site closure.

7 I visited each site and met with site managers, and regularly discuss the
8 status and progress of the closure projects. I have also reviewed site closure
9 plans and schedules. I have attended monthly project status review meetings
10 and reviewed status reports covering January 1, 2018 to the present.

11 The closure plans and schedules that the Company has developed for
12 each site detail the tasks and strategy being executed to meet its federal and
13 state regulatory deadlines. Where applicable, plans were submitted to and
14 approved by regulatory agencies, and the Company developed schedules to
15 meet the approved commitments. Schedules are reviewed, at a minimum,
16 monthly with senior management to ensure adherence to regulatory
17 requirements and deadlines. Inevitably, all complex projects face complicating
18 factors, which may require modification of plans and schedules. DE Carolinas'
19 managerial oversight of these projects ensures that the Company will still be
20 able meet its regulatory obligations despite these complications. DE Carolinas'
21 closure projects are all on target to meet applicable regulatory requirements.
22 Therefore, I have concluded that the Company has been properly managing its

1 closure projects to ensure compliance with project schedules and regulatory
2 deadlines.

3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 A. Yes.