

**BEFORE
THE NORTH CAROLINA UTILITIES COMMISSION**

DOCKET NO. E-7, SUB 1276

In the Matter of

Application of Duke Energy Carolinas,
LLC For Adjustment of Rates and Charges
Applicable to Electric Utility Service in
North Carolina and Performance-Based
Regulation

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**DIRECT TESTIMONY OF
TIMOTHY S. HILL FOR
DUKE ENERGY
CAROLINAS, LLC**

1 North and South Carolina. I served as maintenance manager at the Cape Fear
2 plant and as station manager at the H. F. Lee plant. I have extensive firsthand
3 experience in the operational support, maintenance, and engineering
4 requirements for coal combustion residuals ("CCR," or coal ash) management,
5 including ash pond and landfill design, construction, and maintenance, as well
6 as CCR byproduct sales and beneficial reuse. In 2008, I joined Duke Energy's
7 nuclear fleet operations, serving in a corporate governance role, and then as
8 maintenance manager at the Shearon Harris nuclear plant.

9 In 2014, I joined the newly formed CCP organization as the General
10 Manager of CCP Operations and Maintenance. In this role I oversaw a team of
11 engineers, maintenance technicians, and contractors that performed all aspects
12 of maintenance and operations of the landfills, dams, and other CCR facilities
13 in the Carolinas and Florida. My team was tasked with creating and
14 implementing the in-field processes and procedures required to comply with all
15 state and federal regulatory requirements. In May of 2021, I assumed my
16 current role of Vice President CCP Operations, Maintenance and Governance.

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

20 **A.** As Vice President of CCP Operations, Maintenance and Governance, I am
21 responsible for operations support, regulatory affairs, and other centralized
22 CCR management and oversight functions. My team works to define, establish,
23 and maintain fleet CCP standards, programs, processes, and best practices

1 within functional areas for all fossil plant sites. My team also oversees site
2 operations and maintenance of CCP facilities, including ash basins and dams,
3 production landfills, decommissioning and demolition, and byproducts
4 management.

5 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION**
6 **OR OTHER STATE PUBLIC UTILITY COMMISSIONS?**

7 A. I have not testified before this Commission in person but have provided written
8 testimony in Duke Energy Progress Docket No. E-2, Sub 1300. I have testified
9 previously in cases before the Florida Public Service Commission in Docket
10 Nos. 20180007-EI, 20190007-EI, 20200007-EI, 20210007-EI, and the Indiana
11 Utility Regulatory Commission in Cause Nos. 42061-ECR37 and 45749
12 regarding coal ash recovery.

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

14 A. My testimony is presented to support cost recovery for activities undertaken by
15 the Company in connection with closure of its coal ash basins¹ and landfills,
16 along with other CCR management units, for the period from February 1, 2020
17 through June 30, 2022 and costs to be incurred from July 1, 2022 through July
18 31, 2023. The costs sought for recovery are as follows:

¹ In my testimony, I also refer to the Company's coal ash basins as "ponds" and "surface impoundments."
For purposes of my testimony, these terms are used interchangeably.

Station	Actual and Forecast System Spend February 1, 2020 - July 31, 2023² (in millions)	Actual and Forecast NC Retail Level February 1, 2020 - July 31, 2023² (in millions)
Allen	\$91	\$61
Belews Creek	\$106	\$71
Buck	\$109	\$73
Cliffside	\$105	\$71
Dan River	\$18	\$12
W.S. Lee	\$77	\$52
Marshall	\$151	\$102
Riverbend	\$5	\$3
DEC Total ³	\$661	\$444

1 In Section III of my testimony, I provide additional site-by-site detail related to
2 these costs, as well as descriptions of the activities that generated the costs.
3 DEC's closure activities are driven by environmental laws, rules, and
4 regulations. Compliance with these legal requirements is mandatory for the
5 Company.⁴

6 My testimony demonstrates that the actual and forecasted activities and
7 costs in connection with CCR unit closure between February 1, 2020, and July
8 31, 2023, are reasonable and prudent. Specifically, my testimony shows that
9 DEC's closure activities have been implemented in accordance with closure
10 plans and (as applicable) corrective action plans as approved by the relevant
11 state environmental agencies – in North Carolina, the Department of

² This amount excludes costs for beneficial re-use and bottled water where applicable.

³ Totals may not foot due to rounding.

⁴ My testimony does not repeat the regulatory framework that has resulted in the Company's obligation to close its CCR management units. That framework was described in detail in testimony previously presented to the Commission by Witnesses Jon Kerin and Jessica Bednarcik in DEC's prior two general rate cases, Docket Nos. E-7, Sub 1146 and E-7, Sub 1214. Suffice it to say that DEC is legally required to close each of these units and is in the process of doing so.

1 Environmental Quality (“DEQ”); and in South Carolina, the Department of
2 Health and Environmental Control (“DHEC”). In this case, however, the
3 Company has reduced its request for recovery of otherwise recoverable coal ash
4 costs by \$108 million, to fulfill its obligations under the Coal Combustion
5 Residuals Settlement Agreement (“CCR Settlement Agreement”) approved by
6 the Commission in the Company’s immediately prior rate case (*see Order*
7 *Accepting Stipulations, Granting Partial Rate Increase, and Requiring*
8 *Customer Notice*, Docket No. E-2, Sub 1219 (Apr. 16, 2021)). Details of this
9 reduction in the amount requested for recovery are provided in the testimony of
10 Witness Quynh Bowman.

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

12 A. In Section I, I have provided information concerning my background and the
13 purpose of my testimony. In Section II, I provide a high-level summary of the
14 factors that lead me to conclude that the coal ash costs incurred by DEC for
15 which recovery is sought in this case are reasonable and prudent. In Section
16 III, I describe the Company’s CCR compliance and closure activities at each
17 DEC site for the period February 1, 2020, through July 31, 2023. I demonstrate
18 how those activities and associated costs were necessary, appropriate, timely,
19 and consistent with site closure plans and applicable regulatory requirements.

20 **Q. ARE YOU PROVIDING ANY EXHIBITS WITH YOUR TESTIMONY?**

21 A. Yes. I have attached eight total exhibits that I discuss further herein.

1 Q. WERE HILL EXHIBITS 1 THROUGH 8 PREPARED OR PROVIDED
2 HEREIN BY YOU, UNDER YOUR DIRECTION AND SUPERVISION?

3 A. Yes.

4 II. CCR COSTS INCURRED BY THE COMPANY ARE REASONABLE
5 AND PRUDENT

6 Q. TURNING FIRST TO THE ACTUAL CLOSURE COSTS INCURRED
7 BY THE COMPANY, WERE YOU ABLE TO REACH A CONCLUSION
8 ABOUT WHETHER THE COSTS AND ACTIVITIES THAT YOU
9 DESCRIBE IN YOUR TESTIMONY WERE REASONABLE AND
10 PRUDENT?

11 A. Yes. Based upon my training, experience, understanding of the Company's
12 regulatory obligations, and review of the Company's records, I can conclude
13 that the actual and forecasted activities and costs to close the DEC CCR storage
14 areas were reasonable and prudent.

15 Q. WHAT FACTORS DID YOU CONSIDER WHEN MAKING YOUR
16 REASONABLENESS AND PRUDENCY DETERMINATION?

17 A. I evaluated the reasonableness and prudence of the Company's closure
18 activities and associated costs based upon the following criteria: 1) whether the
19 activities performed and to be performed are necessary; 2) whether the costs for
20 the necessary activities are appropriate; and 3) whether the closure projects are
21 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 DEC's CCR management areas.
5 These regulations dictate how and by when closure must be achieved and
6 dictate other specific environmental requirements. For any major undertaking,
7 like the closure projects described above, Duke Energy relies on both Company
8 and third-party technical experts to provide consulting, engineering, and
9 construction services. For each site, the closure activities are based on
10 strategies, plans, scientific expertise, and schedules developed through
11 coordination between technical experts both within and outside the Company
12 to satisfy regulatory obligations. Each closure activity for which the Company
13 is requesting cost recovery aligns with the Company's obligations under the
14 CCR Rule and can be traced to specific provisions of the CCR Rule, state
15 regulatory requirements, or direction from state regulatory agencies. Therefore,
16 I have concluded that the closure activities described in my testimony for each
17 DEC site were necessary to comply with the Company's regulatory obligations.

18 **Q. HAS THE COMPANY TAKEN SUFFICIENT MEASURES TO ENSURE**
19 **THAT COSTS FOR ITS CLOSURE PROJECTS ARE**
20 **APPROPRIATELY MANAGED AND MINIMIZED?**

21 A. Yes. DEC has a robust system in place to review the costs of its CCR closure
22 projects from inception to payment. Specifically, DEC has implemented and
23 follows strict contracting policies and procedures to receive and evaluate bids

1 for its closure activities. Purchases are procured under the purview of the Duke
2 Energy Purchasing Controls Policy, which lays out requirements for
3 competitive bidding, vendor selection and purchase order use. All expenditures
4 against purchase orders are reviewed and approved under the requirements
5 documented in the Delegation of Authority Policy.

6 DEC also maintains detailed budgets, which are updated quarterly to
7 incorporate the knowledge and experience the Company has gained during the
8 project. Scope changes or estimate deviations are documented and approved as
9 appropriate.

10 These processes are utilized to ensure the costs that the Company has
11 incurred and will incur for tasks associated with the federal CCR Rule, North
12 Carolina's Coal Ash Management Act ("CAMA"), and other state regulatory
13 requirements, are not exorbitant, unnecessary, wasteful, or extravagant and are
14 consistent with the costs of similar services on the open market. The costs
15 incurred for all closure activities were, and continue to be, reviewed through
16 rigorous purchasing and expenditure review processes.

17 **Q. ARE THE COMPANY'S CLOSURE ACTIVITIES PROCEEDING ON**
18 **SCHEDULE?**

19 A. Yes. Complex projects require coordination between company personnel,
20 permitting authorities, and contractors. To that end, DEC has developed
21 extensive and detailed plans and schedules related to each aspect of the overall
22 site closure.

1 I have visited each site and met with site managers, and I regularly
2 discuss the status and progress of the closure projects. I have also reviewed site
3 closure plans and schedules. I have reviewed status reports covering February
4 1, 2020, to the present and have attended monthly project status review
5 meetings.

6 The closure plans and schedules the Company has developed for each
7 site detail the tasks and strategy being executed to meet its regulatory deadlines
8 and performance standards. Where applicable, plans were submitted to and
9 approved by regulatory agencies and made available to the public, and the
10 Company developed schedules to meet the approved commitments. Schedules
11 are reviewed, at a minimum, monthly with senior management to ensure
12 adherence to regulatory requirements and deadlines. Inevitably, all complex
13 projects face complicating factors, which may require modification of plans and
14 schedules. DEC's managerial oversight of these projects ensures that the
15 Company will still be able meet its regulatory obligations despite these
16 complications. DEC's management also maintains a direct line of
17 communication with regulators in the event plans or schedules may need to be
18 modified. DEC's closure projects are all on target to meet applicable regulatory
19 requirements. Therefore, I have concluded that the Company has been properly
20 managing its closure projects to ensure compliance with project schedules,
21 performance standards, and regulatory deadlines.

1 Settlement Agreement, Section III.C). The closure activities undertaken by the
2 Company have been performed in accordance with the DEQ-approved plans.

3 **A. BELEWS CREEK**

4 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**
5 **OPERATIONAL HISTORY OF THE BELEWS CREEK PLANT?**

6 A. Yes. The operational history of the Belews Creek Plant is described in Hill
7 Exhibit 1 to my testimony.

8 **Q. PLEASE SUMMARIZE THE CLOSURE AND CORRECTIVE ACTION**
9 **PLANS FOR THE BELEWS CREEK PLANT.**

10 A. As shown in Hill Exhibit 1, Belews Creek has one ash basin. The approved
11 closure plan for Belews Creek requires the Company to remove the CCR from
12 the Ash Basin and dispose it in an on-site landfill that will be constructed in the
13 northeast portion of the Ash Basin. Other activities required by the approved
14 closure plan include removal and treatment of the basin water, construction of
15 a stability feature to prevent lateral movement of the ash within and underneath
16 the Pine Haul Road landfill, validating clean closure, breaching the dam, and
17 establishing final grades.

18 In addition to the closure plans for the basin, the Belews Creek Plant has
19 an approved Corrective Action Plan to address groundwater remediation in an
20 area north-northwest of the basin. The plan requires actively addressing
21 constituents of interest (“COIs”) at or beyond the Ash Basin geographical
22 limitation using groundwater extraction and clean water infiltration.

1 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
2 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
3 **IMPLEMENT THE BELEWS CREEK PLANT'S CLOSURE AND**
4 **CORRECTIVE ACTION PLANS.**

5 A. As of February 2020, basin closure activities consisted of decanting the Ash
6 Basin, development of engineered closure plans and groundwater corrective
7 action plans, and other work to prepare for basin closure, such as diverting
8 storm water from the basin area. In June 2020, Duke Energy initiated a bid event
9 ("closure bid event") for ash basin excavation and landfill construction that
10 addressed seven sites across North Carolina and South Carolina. These
11 included five DEC sites, Belews Creek, Allen, Marshall, Cliffside, and W.S.
12 Lee. The remaining two sites were for DEP facilities. After receiving and
13 analyzing the bid responses from eleven contractors, DEC selected TransAsh
14 as the primary contractor for Belews Creek and in February 2021 signed a
15 Master Services Agreement to execute landfill construction and ash basin
16 closure.

17 TransAsh mobilized to the site in April of 2021 and began creating an
18 on-site borrow area to support landfill construction. In June, the permit to
19 construct the landfill was received, and TransAsh began clearing and grubbing
20 operations for the landfill as well as construction of the leachate basin; landfill
21 construction is ongoing, and the first cell of the landfill is expected to be in
22 service by the end of 2022.

1 In December of 2020, a contract for the installation of the groundwater
2 corrective action plan system was awarded and construction began on phase 1
3 of the system.

4 From February 1, 2020 through July 31, 2023, DEC has conducted or
5 will conduct the following additional activities in support of ash basin closure:

- 6 • Clear and develop soil borrow areas.
- 7 • Construct and operate the ash basin dewatering and treatment systems.
- 8 • Complete design of the stability feature for the Pine Haul Road landfill.
- 9 • Completed installation of phase 1 of the groundwater Corrective Action
10 Plan system and commenced full scale system construction.
- 11 • Collect and analyze groundwater samples and prepare environmental
12 and engineering reports for State and Federal regulators.

13 In this case the Company seeks recovery of actual costs from February 1,
14 2020 through June 30, 2022, plus estimated costs from July 1, 2022 through
15 July 31, 2023, which together total \$106 million. The amount allocated on a
16 North Carolina retail basis is \$71 million.

17 **B. ALLEN**

18 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**
19 **OPERATIONAL HISTORY OF THE ALLEN PLANT?**

20 **A.** Yes. The operational history of the Allen Plant is described in Hill Exhibit 2 to
21 my testimony.

1 **Q. PLEASE DESCRIBE THE COMPANY’S CLOSURE AND**
2 **CORRECTIVE ACTION PLANS FOR THE ALLEN PLANT.**

3 A. As shown in Hill Exhibit 2, Allen has two ash basins referred to as the Retired
4 Ash Basin ("RAB") and the Active Ash Basin ("AAB"). There is an onsite
5 landfill that was built over the RAB, referred to as the RAB Landfill. There are
6 also four ash storage or fill areas that were constructed atop the RAB, referred
7 to as Ash Fills or Ash Storage Areas as depicted. The approved closure plan for
8 the site requires the Company to construct two smaller "starter" landfills to
9 create the necessary space to build a third landfill to complete closure-by-
10 removal of all ash within the RAB and AAB, including removal of the RAB
11 Landfill. The first two landfills are referred to as the North Starter Landfill
12 ("NSLF") and the South Starter Landfill ("SSLF"), whose areas will encompass
13 portions of the RAB and AAB respectively. The third and larger landfill will be
14 constructed in the footprint of the AAB and will be referred to as the Ash Basin
15 Landfill ("ABLF"). Other activities required by the approved closure plan
16 include the construction of a leachate storage basin, removal and treatment of
17 the basin water, validating clean closure, breaching the Ash Basin dams, and
18 establishing final grades.

19 In addition to the closure plan for the basins, the Allen Plant has an
20 approved Corrective Action Plan to address groundwater remediation in areas
21 north and east of the basins. The plan requires actively addressing constituents
22 of interest ("COIs") at or beyond the Ash Basin geographical limitation using
23 groundwater extraction and clean water infiltration.

1 Like Belews Creek, the CCR Settlement Agreement addresses the
2 prudence of the DEQ-approved closure plan, and the closure activities
3 described below have been performed in accordance with this approved plan.

4 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
5 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
6 **IMPLEMENT THE ALLEN PLANT'S CLOSURE PLAN.**

7 A. As of February 2020, basin closure activities consisted of decanting the Ash
8 Basin, development of engineered closure plans, including design and
9 permitting packages for landfill construction and groundwater corrective action
10 plans, and other work to prepare for basin closure. As a result of the closure bid
11 event described in the Belews Creek section of this testimony, DEC selected
12 Charah as the primary contractor for Allen in February 2021 and signed a
13 Master Services Agreement to execute the process of landfill construction and
14 ash basin closure. Charah mobilized to the site in the second quarter of 2021
15 and began excavating ash from portions of the RAB basin to create room for
16 the NSLF. The permit to construct the NSLF was received in June 2021, and
17 Charah began landfill construction. The NSLF permit to operate is expected in
18 the first quarter of 2023.

19 From February 1, 2020, through July 31, 2023, DEC has conducted or
20 will conduct the following additional activities in support of ash basin closure
21 and CCR compliance:

- 22 • Develop and maintain soil borrow areas.

- 1 • Completed construction of a stormwater diversion project to reduce
- 2 stormwater flows to the AAB.
- 3 • Constructed and operate the ash basin dewatering and treatment system.
- 4 • Completed the phase 1 of the groundwater corrective action plan system
- 5 and commenced construction of phase 2.
- 6 • Received the permit to construct and began construction of the SSLF.
- 7 • Began construction of the leachate basin.
- 8 • Continue design and permitting work for the SSLF and ABLF.
- 9 • Receive the permit to operate the NSLF and the commencement of ash
- 10 placement from the RAB and AAB.
- 11 • Collect and analyze groundwater samples and prepare environmental
- 12 and engineering reports for State and Federal regulators.

13 In this case the Company seeks recovery of actual costs from February 1, 2020,
14 through June 30, 2022, plus estimated costs from July 1, 2022, through July 31,
15 2023, which together total \$91 million. The amount allocated on a North
16 Carolina retail basis is \$61 million.

17 **C. MARSHALL**

18 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**
19 **OPERATIONAL HISTORY OF THE MARSHALL PLANT?**

20 **A.** Yes. The operational history of the Marshall Plant is described in Hill Exhibit
21 3 to my testimony.

1 **Q. PLEASE DESCRIBE THE COMPANY’S CLOSURE PLAN AND**
2 **CORRECTIVE ACTION PLAN FOR THE MARSHALL PLANT.**

3 A. As shown in Hill Exhibit 3, Marshall has a single Ash Basin. The approved
4 closure plan requires the Company to remove the CCR from the basin and
5 dispose it in the on-site landfill, which will be expanded to the south over
6 portions of the Ash Basin. Other activities required by the approved closure
7 plan include removal of the closed Dry Ash Landfill Phase I ("1804 Phase I
8 Landfill"), installing geosynthetic caps on the Dry Ash Landfill Phase II ("1804
9 Phase II Landfill") and the PV Structural Fill, construction of stability features
10 to prevent lateral movement of the ash within and underneath PV Structural Fill
11 and 1804 Phase II Landfill, removal and treatment of the basin water, validating
12 clean closure, breaching the Ash Basin dam, and establishing final grades.

13 In addition to the closure plan for the basins, the Marshall Plant has an
14 approved Corrective Action Plan to address groundwater remediation in areas
15 east of the Ash Basin. The plan requires actively addressing constituents of
16 interest (“COIs”) at or beyond the Ash Basin geographical limitation using
17 groundwater extraction and clean water infiltration. As mentioned above, the
18 CCR Settlement Agreement addresses the prudence of the DEQ-approved
19 closure plan, and the closure activities described below have been performed in
20 accordance with this approved plan.

1 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
2 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
3 **IMPLEMENT THE MARSHALL SITE'S CLOSURE PLAN.**

4 A. As of February 2020, basin closure activities consisted of decanting the Ash
5 Basin, and development of numerous engineering and permitting plans required
6 to support closure including landfill construction, groundwater corrective
7 action systems, excavation of the 1804 Phase 1 Landfill, capping the PV
8 Structural Fill and the 1804 Phase II Landfill, stability features, and the
9 diversion of stormwater from the Ash Basin. As a result of the closure bid event
10 described previously in the Belews Creek section of my testimony, DEC
11 selected TransAsh as the primary contractor for Marshall in February 2021 and
12 signed a Master Services Agreement to execute the process of landfill
13 construction and ash basin closure. TransAsh mobilized to the site in the second
14 quarter of 2021 and began excavating ash from the 1804 Phase 1 Landfill and
15 the Ash Basin and disposing it in the on-site landfill. Once CCR adjacent to the
16 south of the existing landfill was removed, TransAsh began construction of the
17 next two landfill cells to support basin closure.

18 From February 1, 2020, through July 31, 2023, DEC has conducted or
19 will conduct the following additional or ongoing activities in support of ash
20 basin closure:

- 21 • Completed removal of the 1804 Phase 1 Landfill.
- 22 • Completed the stormwater diversion project to reduce stormwater flows
- 23 to the Ash Basin.

- 1 • Completed construction of the groundwater corrective action plan
- 2 system phase 1 and commenced construction of the full-scale system.
- 3 • Develop, maintain, and operate site borrow areas.
- 4 • Installed a water treatment system and maintained and operated the ash
- 5 basin dewatering system.
- 6 • Complete construction of the leachate storage basin.
- 7 • Complete construction of cell 5 of the landfill and begin receiving ash.
- 8 • Continue capping the PV Structural Fill and begin the 1804 Phase II
- 9 Landfill.
- 10 • Continue landfill cell 6 construction.
- 11 • Continue design and permitting the stability features for the PV
- 12 Structural Fill and the 1804 Phase II Landfill.
- 13 • Collect and analyze groundwater samples and prepare environmental
- 14 and engineering reports for State and Federal regulators.

15 In this case the Company seeks recovery of actual costs from February 1, 2020,
16 through June 30, 2022, plus estimated costs from July 1, 2022 through July 31,
17 2023, which together total \$151 million. The amount allocated on a North
18 Carolina retail basis is \$102 million.

19 **D. CLIFFSIDE**

20 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**
21 **OPERATIONAL HISTORY OF THE CLIFFSIDE PLANT?**

22 A. Yes. The operational history of Cliffside Station is described in further detail
23 in Hill Exhibit 4 to my testimony.

1 **Q. PLEASE DESCRIBE THE COMPANY'S CLOSURE PLAN AND**
2 **CORRECTIVE ACTION PLAN FOR THE CLIFFSIDE STATION.**

3 A. As shown in Hill Exhibit 4, the Cliffside Steam Station has two ash basins
4 remaining, the Active Ash Basin ("AAB") and the Unit 5 Inactive Ash Basin
5 ("IAB"). The Units 1-4 Inactive Ash Basin was closed-by-removal in 2017.
6 There is an Ash Storage Area ("ASA") that was constructed within the northern
7 portion of the AAB. The approved closure plan for the Cliffside station requires
8 the ash in the AAB and IAB to be excavated to the on-site landfill. Other
9 activities required by the approved closure plan include expansion of the
10 existing on-site landfill, removal and treatment of the basin water, validating
11 clean closure, breaching the ash basin dams, and establishing final grades.

12 In addition to the closure plan for the basins, the Cliffside Plant has an
13 approved Corrective Action Plan to address groundwater remediation in areas
14 north of the AAB and ASA. The plan requires actively addressing constituents
15 of interest COIs at or beyond the Ash Basin geographical limitation using
16 groundwater extraction and clean water infiltration. As described above, the
17 CCR Settlement Agreement addresses the prudence of the DEQ-approved
18 closure plan, and the closure activities described below have been performed in
19 accordance with this approved plan

1 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
2 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
3 **IMPLEMENT THE CLIFFSIDE SITE'S CLOSURE PLANS.**

4 A. In February 2020, Morgan Corporation had mobilized to begin constructing
5 phases 3 and 4 of the on-site landfill to support basin closure. This work was
6 completed in July 2021 when both phases received their permit to operate. As
7 a result of the closure bid event described previously in the Belews Creek
8 section of my testimony, DEC selected Sequoia as the primary contractor for
9 Cliffside in February 2021 and signed a Master Services Agreement to execute
10 the process of remaining ash basin closure activities. Other closure activities
11 included basin decanting, ASA closure, engineering and permitting activities
12 for basin closure, groundwater corrective action system, and the construction of
13 a haul road / bridge to the landfill from the AAB.

14 From February 1, 2020, through July 31, 2023, DEC has conducted or
15 will conduct the following additional activities in support of ash basin closure:

- 16 • Completed excavation of the ASA, including the relocation of an
17 existing transmission tower.
- 18 • Completed construction of the groundwater corrective action program
19 phase 1 and awarded the contract for full scale system construction.
- 20 • Completed construction of a haul road and bridge over the railroad
21 tracks to support hauling CCR from the AAB to the on-site landfill.
- 22 • Began excavating and hauling CCR from the IAB and AAB to the on-
23 site landfill.

- 1 • Continue to operate the ash basin dewatering and treatment systems to
2 maintain the ash basins in a dewatered state.
- 3 • Collect and analyze groundwater samples and prepare environmental
4 and engineering reports for State and Federal regulators.

5 In this case the Company seeks recovery of actual costs from February 1, 2020,
6 through June 30, 2022, plus estimated costs from July 1, 2022 through July 31,
7 2023, which together total \$105 million. The amount allocated on a North
8 Carolina retail basis is \$71 million.

9 **E. BUCK**

10 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**
11 **OPERATIONAL HISTORY OF THE BUCK PLANT?**

12 A. Yes. The operational history of the Buck plant is described in Hill Exhibit 5 to
13 my testimony.

14 **Q. PLEASE DESCRIBE THE COMPANY'S CLOSURE PLAN AND**
15 **CORRECTIVE ACTION PLAN FOR THE BUCK PLANT.**

16 A. As shown in Hill Exhibit 5 the Buck site has three ash basins referred to as Ash
17 Basins 1, 2 and 3. Buck was selected for the installation of a beneficiation
18 project pursuant to CAMA. DEC contracted with SEFA for utilization of its
19 STAR® technology to process the ash from the site through the beneficiation
20 plant for use in cementitious products.

21 The approved closure plan for the site requires the Company to remove
22 the CCR and transport it to the on-site STAR® Unit for reprocessing. Other
23 activities required by the approved closure plan include removal and treatment

1 of the basin water, conditioning of the ash prior to transport to the STAR® Unit,
2 construction of haul roads to and from the STAR® Unit, validating clean
3 closure, breaching the Ash Basin dams, and establishing final grades. The
4 Groundwater Corrective Action Plan for Buck will be submitted to DEQ in the
5 second quarter of 2023.

6 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
7 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
8 **IMPLEMENT THE BUCK SITE'S CLOSURE PLAN.**

9 A. As of February 1, 2020, the STAR® unit was under construction, and DEC had
10 begun planning and preparation activities to supply feed ash in anticipation of
11 unit start-up, such as basin decanting, haul road construction, wheel wash
12 installation, and stormwater controls. The STAR® unit was completed and
13 entered service in August 2020, and DEC began hauling ash from Ash Basin 1
14 to the unit for processing. In 2022 DEC held a bid event for excavation,
15 screening, and conditioning ash for basin closure. This work was awarded to
16 TransAsh in July 2022.

17 From February 1, 2020, through July 31, 2023, DEC has conducted or
18 will conduct the following additional activities in support of ash basin closure
19 and CCR compliance:

- 20 • Completed construction or expansion of haul roads to support hauling
21 CCR to the STAR® unit, including a wheel wash.
- 22 • Began excavation of Basin 2 ash to condition with Basin 1 to provide
23 the optimal feed ash for the STAR® unit.

- Operate the ash basin dewatering and treatment systems to maintain the ash basins in a dewatered state.
- Haul co-mingled and CCR materials that do not meet STAR® processing specifications to an off-site landfill for disposal.
- Collect and analyze groundwater samples and prepare environmental and engineering reports for State and Federal regulators.

In this case the Company seeks recovery of actual costs from February 1, 2020, through June 30, 2022, plus estimated costs from July 1, 2022 through July 31, 2023, which together total \$109 million. The amount allocated on a North Carolina retail basis is \$73 million.

F. W.S. LEE

Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE OPERATIONAL HISTORY OF THE W.S. LEE PLANT?

A. Yes. The operational history of the W.S. Lee Plant is described in further detail in Hill Exhibit 6 to my testimony.

Q. PLEASE DESCRIBE THE COMPANY'S CLOSURE PLAN FOR THE W.S. LEE PLANT.

A. As shown in Hill Exhibit 8, the W.S. Lee Plant currently has two ash basins called the Primary Ash Basin ("PAB") and the Secondary Ash Basin ("SAB"), and a Structural Fill Area. The Inactive Ash Basin and the Ash Fill Area were closed-by-removal to a permitted landfill in Georgia in 2017. The approved closure plan for the remaining CCR at the W.S. Lee site requires the CCR in the ash basins and the Structural Fill to be excavated to a new on-site landfill to

1 be constructed within a portion of the SAB. Other activities required by the
2 approved closure plan include dewatering the basins and treating the water,
3 verification of clean closure, decommissioning the ash basin dams, and
4 maintaining a groundwater monitoring and sampling program. The W.S. Lee
5 site does not require a DHEC directed groundwater Corrective Action Plan,
6 only continued monitoring as required by the CCR Rule and the DHEC
7 approved closure plan.

8 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
9 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
10 **IMPLEMENT THE W.S. LEE SITE'S CLOSURE PLAN.**

11 A. As of February 1, 2020, DEC had completed excavation of the Inactive Ash
12 Basin and the Ash Fill Area and had excavated ash from the SAB and stockpiled
13 it in the PAB to construct the new on-site landfill. Other activities in work
14 included basin decanting, and engineering and permitting for landfill design and
15 basin excavation, and the installation of a spillway for the PAB. As a result of
16 the closure bid event described previously in the Belews Creek section of my
17 testimony, DEC selected Morgan as the primary contractor for W.S. Lee in
18 February 2021 and signed a Master Services Agreement to execute the process
19 of ash basin closure and landfill construction. Morgan mobilized to the site in
20 April of 2021, and after DHEC issued the landfill permit to construct in August,
21 began construction activities.

1 From February 1, 2020, through July 31, 2023, DEC has conducted or
2 will conduct the following additional activities in support of closure and CCR
3 compliance:

- 4 • Closed the SAB discharge tower and grouted the pipe.
- 5 • Modified the PAB dam to install a new emergency spillway.
- 6 • Operate the ash basin dewatering and treatment systems to maintain the
7 ash basins in a dewatered state.
- 8 • Continue construction of the on-site landfill and leachate basin.
- 9 • Collect and analyze groundwater samples and prepare environmental
10 and engineering reports for State and Federal regulators.

11 In this case the Company seeks recovery of actual costs from February 1, 2020,
12 through June 30, 2022, plus estimated costs from July 1, 2022 through July 31,
13 2023, which together total \$77 million. The amount allocated on a North
14 Carolina retail basis is \$52 million.

15 **G. DAN RIVER**

16 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**
17 **OPERATIONAL HISTORY OF THE DAN RIVER PLANT?**

18 A. Yes. The operational history of the Dan River plant is described in further detail
19 in Hill Exhibit 7 to my testimony.

20 **Q. PLEASE DESCRIBE THE COMPANY'S CLOSURE PLAN AND**
21 **CORRECTIVE ACTION PLAN FOR THE DAN RIVER PLANT.**

22 A. As shown in Hill Exhibit 6, the Dan River plant had two ash basins, referred to
23 as the Primary and Secondary Ash Basins ("PAB" & "SAB") and two Ash Fill

1 areas. The closure plan for the Dan River plant required the Company to
2 excavate all CCR from the basins and fill areas and dispose it in a new on-site
3 landfill.

4 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
5 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
6 **IMPLEMENT THE DAN RIVER SITE'S CLOSURE PLAN.**

7 A. As of February 1, 2020, all CCR had been removed from the basins and the fill
8 areas and placed in the newly constructed landfill. TransAsh had been awarded
9 the contract for landfill construction and basin closure and was conducting final
10 grading of the excavated ash basin areas and landfill closure. Other activities
11 required by the approved closure plan included removal and treatment of the
12 basin water, validating clean closure, breaching the ash basin dams, and
13 establishing final grades. The Dan River Plant also has an approved
14 groundwater corrective action plan. The plan does not require any active
15 remediation measures, only continued monitoring to confirm the effectiveness
16 of source removal.

17 From February 1, 2020, through July 31, 2023, DEC has conducted or
18 will conduct the following additional activities in support of ash basin closure:

- 19 • Completed landfill closure.
- 20 • Received the post closure care permit for the landfill and began post
- 21 closure care activities.
- 22 • Completed dam decommissioning.

- 1 • Completed final grading of the PAB and SAB areas and commenced
- 2 post closure care in accordance with the submitted closure plan.
- 3 • Collect and analyze groundwater samples and prepare environmental
- 4 and engineering reports for State and Federal regulators.

5 In this case the Company seeks recovery of actual costs from February 1, 2020,

6 through June 30, 2022 plus estimated costs from July 1, 2022 through July 31,

7 2023, which together total \$18 million. The amount allocated on a North

8 Carolina retail basis is \$12 million.

9 **H. RIVERBEND**

10 **Q. HAVE YOU PREPARED AN EXHIBIT THAT DETAILS THE**

11 **OPERATIONAL HISTORY OF THE RIVERBEND PLANT?**

12 A. Yes. The operational history of the Riverbend plant is described in further

13 detail in Hill Exhibit 8 to my testimony.

14 **Q. PLEASE DESCRIBE THE COMPANY'S CLOSURE PLAN AND**

15 **CORRECTIVE ACTION PLAN FOR RIVERBEND.**

16 A. As shown in Hill Exhibit 8, Riverbend Station had two CCR basins referred to

17 as the Primary and Secondary Ash Basins, an Ash Stack, and a Cinder Pit area.

18 The closure plan for the Riverbend Station required all CCR be removed and

19 transported offsite. The majority of the CCR was transported via rail for

20 beneficial reuse at the Brickhaven Clay Mine in Chatham County North

21 Carolina. Other activities required by the approved closure plan included

22 removal and treatment of the basin water, validating clean closure, breaching

23 the Ash Basin dams, and establishing final grades. The Riverbend Station has

1 an approved groundwater Corrective Action Plan. The plan does not require any
2 active remediation measures, only continued monitoring to confirm the
3 effectiveness of source removal.

4 **Q. PLEASE SUMMARIZE THE ACTIVITIES TAKEN BY THE**
5 **COMPANY FROM FEBRUARY 1, 2020 THROUGH JULY 31, 2023 TO**
6 **IMPLEMENT THE RIVERBEND SITE'S CLOSURE AND**
7 **CORRECTIVE ACTION PLANS.**

8 A. As of February 1, 2020, the Company had completed excavation of all CCR,
9 decommissioned the Primary and Secondary Ash Basin dams, and was
10 completing final grading and demobilization activities. From February 1, 2020,
11 through July 31, 2023, DEC has conducted or will conduct the following
12 activities in support of ash basin closure and CCR compliance:

- 13 • Completed final grading of the Primary and Secondary Ash Basin, Ash
14 Stack, and Cinder Pit areas.
- 15 • Demobilized from the site and commenced post closure care activities
16 as required by the post-closure plan.
- 17 • Operate and maintain groundwater monitoring wells.
- 18 • Collect and analyze groundwater samples and prepare environmental
19 and engineering reports for State and Federal regulators.

20 In this case the Company seeks recovery of actual costs from February 1, 2020,
21 through June 30, 2022 plus estimated costs from July 1, 2022 through July 31,
22 2023, which together total \$5 million. The amount allocated on a North
23 Carolina retail basis is \$3 million.

- 1 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**
- 2 A. Yes.

Belews Creek Steam Station Stokes County, North Carolina

I. Site History

The Belews Creek Steam Station (“Belews Creek”) is a Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”) coal-fired generation facility that has been in service since 1974. Belews Creek has one impoundment, the Active Ash Basin, which has historically been used to store sluiced coal combustion residuals (“CCR”). The Active Ash Basin was constructed between 1970 and 1972 and became operational in 1974 when the coal-fired units came online.

In 1984, Belews Creek converted to dry handling of fly ash and began disposing the fly ash in the onsite Pine Hall Road Landfill. The Company continued to sluice bottom ash to the Active Ash Basin. Disposal of fly ash continued at the Pine Hall Road Landfill until it reached capacity in 2003 and was closed. From 2003 to 2007, dry fly ash was disposed of the Structural Fill nearby the Pine Hall Road Landfill. In 2007, the Company constructed the Craig Road Landfill, which then began receiving the plant’s dry fly ash. In 2008, flue gas desulphurization (“FGD”) residue, or gypsum, began to be produced as a byproduct of FGD technology. The gypsum byproduct is disposed of in the Craig Road Landfill or, if it meets specifications, is sold to the drywall industry. An aerial image depicting the CCR storage areas (“CCR Units”) at Belews Creek is provided in **Figure 1** below.



Figure 1 – Aerial showing CCR Units at Belews Creek

Allen Steam Station Belmont, Gaston County, North Carolina

I. Site History

The Allen Steam Station (“Allen”) is a Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”) coal-fired generation facility that began commercial operations in 1957. The Company has operated five coal-fired units at Allen, the newest of which was built in 1961.

Allen has two onsite ash basins that were constructed to receive sluiced coal combustion residuals (“CCR”) from the coal-fired units at the plant. The first ash basin, referred to as the Retired Ash Basin, was constructed in 1957 and received sluiced CCR until 1973. The second ash basin, known now as the Active Ash Basin, was constructed in 1972. Additionally, there are four dry ash storage areas onsite, which are designated as Distribution of Residual Solids (“DORS”). The DORS areas received dry ash from 1995 through 2006. The DORS areas are located above the west portion of the Retired Ash Basin. The CCR contained in the DORS areas were dredged from the Active Ash Basin in order to extend the useful life of the Active Ash Basin.

In 2009, the Allen Plant replaced its fly ash sluicing operation with a flue gas desulfurization (“FGD”) facility. Also in 2009, DE Carolinas received a permit from the North Carolina Department of Environmental Quality (“NC DEQ”) to construct an onsite, lined landfill on top of the Retired Ash Basin. This landfill, known as the RAB Ash Landfill, receives dry fly ash generated by the Allen Plant’s coal-fired units. The Active Ash Basin ceased receiving CCR from the coal-fired units in March of 2019. An aerial view of the Allen ash basins, DORS areas (ash fills), and landfill (collectively, the “CCR Units”) is provided in **Figure 1** below.



Figure 1 – Aerial showing CCR Units at Allen

Marshall Steam Station Catawba County, North Carolina

I. Site History

The Marshall Steam Station (“Marshall”) is a Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”) coal-fired generation facility that has been in operation since 1965. Marshall has one impoundment, referred to as the Ash Basin, which was put into service in 1965 to receive sluiced coal combustion residuals (“CCR”) from station’s coal-fired generation units. Three additional coal-fired units were added in 1966, 1969, and 1970. The Ash Basin consists of a single cell that was impounded by constructing an earthen dike at the historic confluence of Holdsclaw Creek and the Catawba River.

In approximately 1984, Marshall’s generation units were converted to produce dry fly ash as a byproduct of burning coal. Subsequently, the Company constructed the Dry Ash Landfill at Marshall to receive the dry fly ash. Phase 1, Cell 1 of the Dry Ash Landfill was completed in approximately 1984 and was closed in 1986. Phase 2 of the Dry Ash Landfill was also completed at the same time as Phase 1 and was closed in 2001. An onsite structural fill area also received dry fly ash from approximately 1999 through 2013. The Ash Basin has only received sluiced bottom ash since 1984.

In 2010, the Company constructed the onsite Industrial Landfill, which was designed for five phases with thirteen separate cells. The Industrial Landfill is permitted to receive fly ash, bottom ash, flue gas desulfurization (“FGD”) residuals (i.e. gypsum), and other CCR. Phase 1 is currently in operation with Cells 1, 2, 3 and 4. FGD residuals have also been stored in the FGD Landfill. An aerial image depicting the CCR storage areas (“CCR Units”) at Marshall is provided in **Figure 1** below.



Figure 1 – Aerial showing the CCR Units at Marshall

**Cliffside Steam Station (Rogers Energy Complex)
Cleveland and Rutherford Counties, North Carolina**

I. Site History

The Cliffside Steam Station (“Cliffside”) is a Duke Energy Carolinas, LLC’s (“DE Carolinas” or the “Company”) coal-fired generation facility that has been in operation since 1940. The Company originally operated four coal-fired generation units (“Units 1 through 4”) at the station. Unit 5 came on line in 1972, followed by Unit 6 – a clean-coal unit – in 2012. Units 1 through 4 were retired from service in 2011. Currently, only Units 5 and 6 are in operation.

Coal combustion residuals (“CCR”) from Cliffside have been stored in a combination of onsite ash basins and an onsite landfill. The oldest ash basin, referred to as the Units 1-4 Inactive Ash Basin, was constructed in 1957 to receive sluiced CCR from Units 1 through 4. The Units 1-4 Inactive Ash Basin was retired in 1977 when it reached capacity. It has since been excavated and repurposed for use as a stormwater basin.

The plant’s second ash basin, referred to as the Unit 5 Inactive Ash Basin, was constructed in 1970 in advance of Unit 5 coming on line. The Unit 5 Inactive Ash Basin received sluiced CCR from 1972 until it reached capacity in 1980.

The plant’s third ash basin, referred to as the Active Ash Basin, was constructed in 1975 to also receive CCR from Unit 5. The Active Ash Basin was later expanded in 1980 to its modern footprint; sluicing to this basin ceased in August, 2018. An additional dry ash storage area is located within the northwestern portion of the Active Ash Basin’s waste boundary. This dry ash storage area provided additional capacity for sluiced ash.

DE Carolinas also operates the onsite Coal Combustion Products (“CCP”) Landfill, which began receiving CCR in October 2010 as Phase 1 of the landfill. The CCP Landfill was constructed with an engineered liner and is permitted to receive fly ash, bottom ash, and other CCR. Phase 2 of the CCP Landfill was placed into service in 2016 and Phases 3 and 4 are being designed for future use. An aerial image depicting the CCR storage areas (“CCR Units”) at Cliffside is provided in **Figure 1** below.

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Figure 1 – Aerial showing CCR Units at Cliffside

**Buck Steam Station
Rowan County, North Carolina**

I. Site Details

Buck Steam Station (“Buck”) was Duke Energy Carolinas, LLC’s (“DE Carolinas” or the “Company”) first large capacity coal-fired electric generation station built in the Carolinas. Buck began commercial operations in 1926. All of the coal-fired units at Buck have been retired. The Company currently operates a 620 MW natural gas facility at Buck, which came on line in 2011.

The first coal combustion residuals (“CCR”) basin at the Buck Plant, referred to as the Primary Ash Basin, was formed in 1956 by constructing a dam across a tributary to the Yadkin River. In 1977, the Company increased its CCR storage capacity at Buck by raising the main dam that formed the Primary Ash Basin and constructing a divider dam across the basin to create what is referred to as the Secondary Ash Basin. In 1982, DE Carolinas began construction on the Additional Primary Ash Basin to provide more storage for sluiced CCR. In 2009, approximately 200,000 cubic yards of CCR was excavated from the Additional Primary Ash Basin and placed within an onsite dry ash storage area to create additional capacity for sluiced coal ash. DE Carolinas ceased sluicing CCR to the ash basins at Buck in 2013. An aerial view depicting the CCR storage areas (“CCR Units”) at Buck is provided in **Figure 1** below.



Figure 1 – Aerial showing the CCR Units at Buck

**W.S. Lee Steam Station
Anderson County, South Carolina**

I. Site Details

W.S. Lee Steam Station (“W.S. Lee”) was a Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”) coal-fired generation station that began operations in 1951. The Company operated three coal-fired generation units at W.S. Lee, all of which were retired by 2014. DE Carolinas now operates a natural gas combined-cycle plant at the site.

The Company constructed the first ash basin at W.S. Lee, referred to as the Inactive Ash Basin, in 1951. The Inactive Ash Basin received sluiced coal combustion residuals (“CCR”) from 1951 through 1974. DE Carolinas constructed the Primary and Secondary Ash Basins in 1974 and 1978, respectively, when the Inactive Ash Basin reached its storage capacity. The Primary and Secondary Ash Basins received sluiced CCR and other wastewater streams until November 2014. Periodically, CCR were dredged from the ash basins and placed at other locations onsite, including the Old Ash Fill and the Structural Fill. After 2014, the Primary and Secondary Ash Basins only received wastewater from the combined-cycle facilities and other associated facility wastewaters. An aerial view depicting the CCR storage areas (“CCR Units”) at W.S. Lee is provided in **Figure 1** below.



Figure 1 – Aerial showing the CCR Units at W.S. Lee

**Dan River Steam Station
Rockingham County, North Carolina**

I. Site History

The Dan River Steam Station (“Dan River Station”) was a Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”) coal-fired generation station that began operations in 1949. The Company operated three coal-fired units at the station, which were retired in 2012. The coal-fired units have been replaced with a 620-MW natural gas facility.

Coal combustion residuals (“CCR”) from the coal-fired units were stored onsite in four areas: Primary Ash Basin, Secondary Ash Basin, Ash Fill 1, and Ash Fill 2 (collectively, the “CCR Units”). The single ash basin at the Dan River Station was constructed in 1956 to receive sluiced coal combustion residuals (“CCR”) for storage and disposal. In 1968, the Company expanded the original ash basin to cover the area later occupied by the Primary and Secondary Ash Basins. Approximately eight years later, the Company modified the original basin to form the two basins known as the Primary and Secondary Ash Basins. These modifications were made to increase the storage capacity at the site and to improve the water quality of the effluent being discharged from the basins. In 1980, the Company constructed two onsite dry storage areas, Ash Fill 1 and Ash Fill 2, north of the Primary and Secondary Ash Basins. These ash fill areas served as a place for ash to be relocated from the Primary and Secondary Basins to extend their service life. An aerial view of the Dan River Station that shows the locations of the CCR Units is provided in **Figure 1** below.



Figure 1 – Aerial showing the CCR Units at Dan River

Riverbend Site Details Gaston County, North Carolina

I. Site History

Riverbend was a Duke Energy Carolinas, LLC (“DE Carolinas” or the “Company”) coal-fired steam plant that was constructed in 1929. In 2013, Riverbend was decommissioned, and it no longer generates electricity. Historically, coal combustion residuals (“CCR”) was stored at the site in several locations, including the Primary Ash Basin, Secondary Ash Basin, Cinder Pit, and Ash Stack (collectively “CCR Units”). Initially when the plant was constructed, the Company managed CCR from its coal-fired units in an area known as the Cinder Pit. In 1957, the Company began wet sluicing CCR and constructed a surface impoundment to receive the sluiced CCR. That original basin was divided and vertically expanded in 1979 to form the Primary and Secondary Ash Basins. Periodically, the Company would remove CCR from the ash basins to extend their useful life and meet permitting requirements. The CCR removed from the ash basins was stored in the Ash Stack area. An aerial view depicting the locations of the CCR Units at Riverbend is provided in **Figure 1** below.

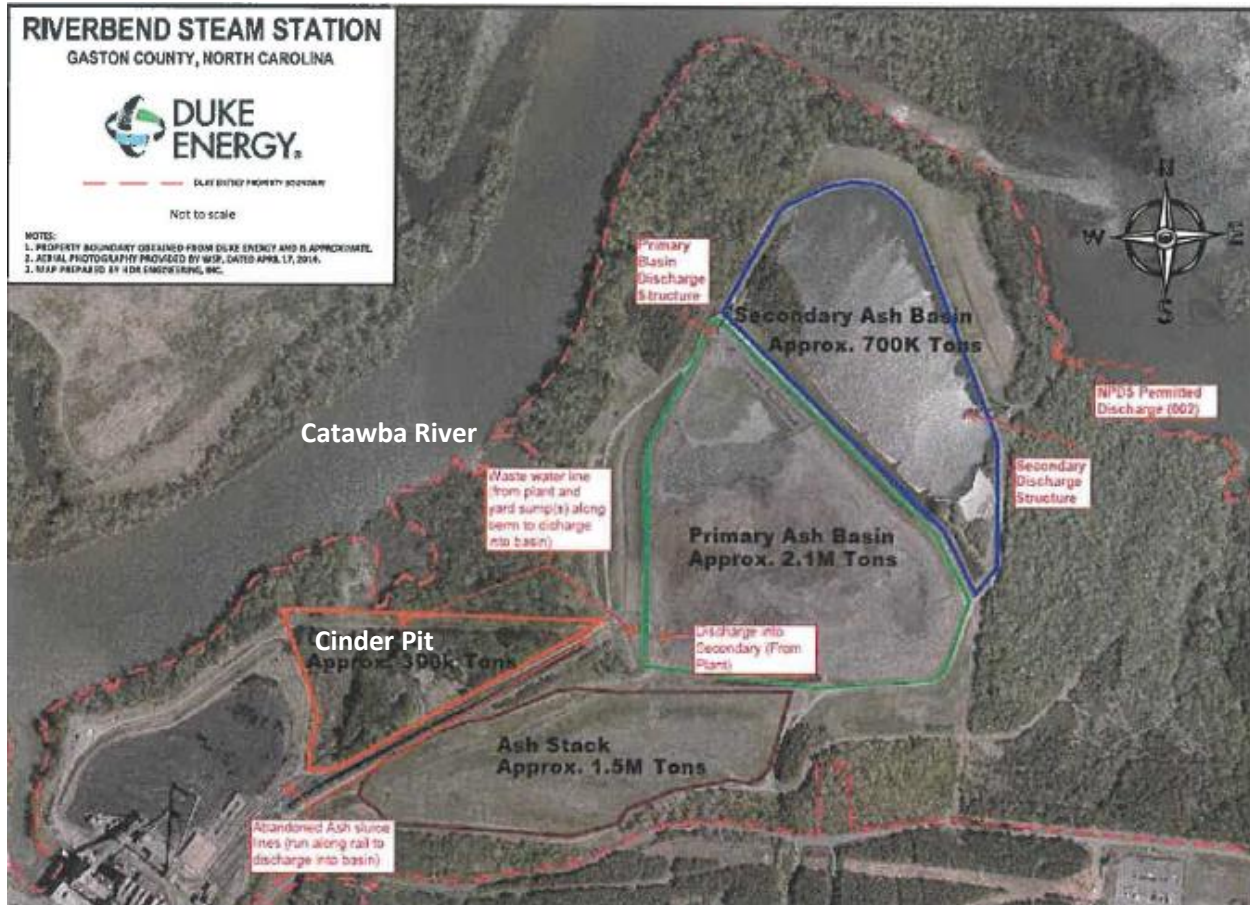


Figure 1 – Aerial showing the CCR Units at Riverbend