NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION

November 4, 2020

Ms. Kimberley A. Campbell, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. E-7, Sub 1213 – Application for Approval of Proposed Prepaid Advantage Program; Docket No. E-7, Sub 1214 – Application for General Rate Case; and E-7, Sub 1187 – Petition of Duke Energy Carolinas, LLC for an Accounting Order to Defer Incremental Storm Damage Expenses Incurred as a Result of Hurricanes Florence and Michael and Winter Storm Diego

Dear Ms. Campbell:

Attached for filing are public and confidential versions of the Public Staff's Proposed Additional Findings, Evidence, and Conclusions (Coal Ash Related Issues) in the above-referenced docket.

By copy of this letter, I am forwarding a copy of the redacted version to all parties of record by electronic delivery. The confidential version will be provided to those parties that have entered into a confidentiality agreement.

Sincerely,

Electronically submitted
s/ Dianna W. Downey
Chief Counsel
dianna.downey@psncuc.nc.gov

DWD/cla

Attachment

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1213
DOCKET NO. E-7, SUB 1214
DOCKET NO. E-7, SUB 1187

DOCKET NO. E-7, SUB 1213 In the Matter of Application for Approval of Proposed Prepaid Advantage Program DOCKET NO. E-7, SUB 1214 In the Matter of Application of Duke Energy Carolinas, LLC for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina DOCKET NO. E-7, SUB 1187 In the Matter of Application of Duke Energy Carolinas, LLC for an Accounting Order to Defer Incremental Storm Damage Expenses Incurred as a Result of Hurricanes Florence and Michael and Winter Storm Diego	)	**PUBLIC STAFF'S PROPOSED ADDITIONAL FINDINGS, EVIDENCE, AND CONCLUSIONS (COAL ASH RELATED ISSUES)**

ADDITIONAL FINDINGS OF FACT

Recovery of CCR Costs

1. DEC is subject to the federal Coal Combustion Residuals Rule (CCR Rule) and the North Carolina Coal Ash Management Act (CAMA). These legal requirements mandate the closure of the 17 coal ash basins at the Company's coal-fired power plants.

2. The Company knew or should have known by the early 1980s that the wet storage of CCR in unlined impoundments had the potential to contaminate surrounding groundwater and surface water.

3. There is substantial evidence in light of the whole record showing that DEC's coal ash disposal practices, including its actions and omissions over the lives of the impoundments, have resulted in extensive violations of environmental laws and regulations for which DEC is culpable. These violations include groundwater contamination in violation of North Carolina's 2L rules and unauthorized seeps in violation of DEC's National Pollutant Discharge Elimination System (NPDES) permits and N.C. Gen. Stat. § 143-215.1.

4. Culpability is a relevant factor in determining what are "reasonable and just rates" under N.C. Gen. Stat. § 62-133(d).

5. The Commission has historically approved cost sharing between shareholders and ratepayers for certain unusual costs of large magnitude, including the costs of abandoned nuclear plant construction and manufactured gas

plant remediation. Such cost sharing is reasonable and appropriate and within the Commission's discretion.

6. Due to the magnitude and extraordinary nature of the coal ash closure and remediation costs, as well as DEC's environmental violations and culpability for those violations, it is fair and reasonable to equitably share the coal ash remediation costs, net of disallowances, between ratepayers and investors pursuant to N.C.G.S. § 62-133(d).

CCR-Specific Disallowances

7. DEC's expenditures for groundwater extraction and treatment at the Belews Creek Plant are due solely to environmental violations and should be disallowed.

8. DEC's expenditures for permanent replacement water supplies, through either the connection of eligible residential properties to public water supplies or the installation, operation, and maintenance of water filtration systems, are the direct result of the legislature deciding that coal ash constituents from DEC's impoundments created an unacceptable risk to people's groundwater wells in the vicinity of the coal ash impoundments, and should be disallowed.

9. DEBS, as agent for and on the behalf of DEC and DEP (collectively, the Companies), entered into eMax Master Contract Number 8323 with Charah, Inc. (Charah), for the disposal of coal ash from the DEC Riverbend and DEP Sutton Stations at the Brickhaven Mine (Charah Master Contract).

10. Pursuant to the Termination provisions of the Charah Master Contract, the Companies were required to pay Charah Prorated Costs calculated based on a Prorated Percentage. The method for calculating the Prorated Costs agreed to by DEBS on behalf of the Companies was fundamentally flawed due to the use of a Prorated Percentage that unreasonably inflated the Prorated Costs. Furthermore, DEBS failed to define key terms in the Charah Master Contract, and the resulting ambiguity exposed the Companies to an unreasonable and amount of risk, and resulted in DEC paying an unreasonable settlement, or "fulfillment fee," to Charah.

11. DEBS' decision, on behalf of the Companies, to execute the Charah Master Contract containing the flawed Prorated Percentage calculation and ambiguous terms rather than pursuing feasible alternatives resulted in costs that are not reasonable or prudent for recovery in rates from customers.

12. Prior to entering into the contract with Parsons Environment & Infrastructure Group, Inc. (Parsons), for the excavation, transportation, and placement of ash at the Dan River Station and prior to setting milestones for the excavation, it would have been reasonable and appropriate for DEC to accurately assess the quantity of coal ash materials in the basins and embankments.

13. Prior to terminating the contract with Parsons, it would have been reasonable and appropriate for DEC to request a variance of the CAMA closure deadline and to secure adequate treatment and/or disposal options for wastewater generated from ash dewatering and conditioning activities associated with the excavation. In addition, it would have been reasonable and appropriate for DEC to

allow Parsons to increase labor and equipment hours and perform other forms of ash conditioning such as the use of lime in order to complete the excavation.

14. DEC mismanaged the excavation of the basins at Dan River Station. The Company's failure to accurately assess the amount of ash to be excavated, and its decisions to fire Parsons, hire Trans Ash to perform the same work at a higher cost, and then expand the scope of work and further increase costs were not reasonable or prudent.

15. DEBS' decisions, as an agent for and on behalf of the Companies, to select the STAR beneficiation technology and to enter into a contract with The SEFA Group, Inc. (SEFA), for engineering and procurement services to comply with the coal ash beneficiation requirements of CAMA were reasonable and prudent.

16. After developing the engineering design and construction documents but before entering into a contract with Zachry Industrial Inc. (Zachry) for the engineering, procurement, and construction (EPC) of three coal ash beneficiation facilities, it would have been reasonable and prudent for DEBS to: (1) expand the bidder pool and rebid the construction of the three beneficiation projects, either before or after further developing the design with SEFA, (2) separate the three projects and possibly the components of the projects, (3) seek statutory relief, and (4) communicate with the regulator of the CAMA requirements, DEQ, regarding alternative options and compromise.

17. DEBS' decision, as an agent for and on behalf of the Companies, to enter into an EPC contract with Zachry for a substantially higher cost than

estimated in the Request for Information (RFI) process, without first evaluating feasible options to reduce the cost to the Company and thereby ratepayers, was not reasonable or prudent.

Coal Combustion Residuals Cost Deferral

18. Since its last rate case, DEC has incurred significant costs to comply with legal requirements applicable to its coal ash impoundments. DEC is entitled to recover the CCR costs established in this general rate case, in the manner and subject to the conditions set forth herein.

19. On a North Carolina retail jurisdiction basis, and after reflection of specific prudence disallowances found appropriate and reasonable by the Commission, the actual coal ash basin closure costs DEC has incurred during the period from January 1, 2018, to January 31, 2020 (Deferral Period), including carrying costs through the Deferral Period and further through July 31, 2020, amount to $261,242,000.

20. Continued deferral of certain CCR expenditures is appropriate.

21. It is appropriate to treat the CCR costs as deferred operating expenses and not as costs of property used and useful within the meaning and scope of N.C.G.S. § 62-133 (b), and to disallow a return on the unamortized balance of the CCR costs.

22. Just and reasonable rates will be achieved by excluding from rate base the CCR costs and amortizing recovery of the CCR costs over a period of twenty-five (25) years.

23. DEC may recover its financing costs on the CCR costs incurred during the Deferral Period, up to the effective date of rates approved pursuant to this Order, calculated at the Company's previously authorized weighted average cost of capital.

24. The rates approved in this case will remain provisional until the Commission assesses any impact of the Supreme Court's decisions on the appeal of Docket No. E-7, Sub 1146, to the extent necessary to incorporate the results of that appeal into the revenue requirement approved herein.

25. Deferral of non-ARO projects should be considered on a case-by-case basis, if proposed by the Company, and should not be automatically presumed appropriate for deferral under the Commission's Orders issued in Sub 1110, Sub 1146, or the current proceeding.

26. The Company should be allowed to continue, for regulatory accounting purposes, to defer ARO-related coal ash closure, disposal, and remediation costs from February 1, 2020, through the effective end-of-period date in the Company's next general rate case. The amount of those costs actually allowed for recovery will be subject to review by the Commission in a general rate case.

CCR Insurance Claims

27. DEC shall continue to comply with the requirements set out in the Commission's Sub 1146 Order regarding Coal Combustion Residual (CCR) insurance claims.

ADDITIONAL EVIDENCE AND CONCLUSIONS

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 1

The evidence supporting this finding of fact and conclusions is contained in the Application, Form E-1, and the testimony and exhibits of DEC witnesses Jessica L. Bednarcik, James Wells, and Marcia E. Williams, Public Staff witnesses Charles Junis and Michael C. Maness, and AGO witness Steven C. Hart.

DEC has relied upon coal-fired power plants throughout its history, and depends upon coal-fired generation today. Coal ash, also known as coal combustion residuals, or CCRs, is a by-product of coal-fired generation. Since the 1950s, standard industry practice, at least in the Southeast, has been to deposit coal ash in coal ash impoundments, and such impoundments were constructed and were or are used at all of the Company's coal-fired generating units.

CCR surface impoundments contain certain elements, such as arsenic, boron, cadmium, sulfate, vanadium, and others that can, when present in sufficient concentrations, pollute surface water, groundwater, and drinking water. The United States Environmental Protection Agency (EPA) has studied CCRs and their proper management and handling since the 1970s. In 1993, it determined that regulation of coal combustion wastes as a hazardous waste was not warranted, and in 2000 determined that coal combustion wastes should instead be regulated as non-hazardous solid wastes under the Resource Conservation and Recovery Act (RCRA). The EPA first proposed specific regulations for the disposal of CCRs in 2010, and EPA's final rule – the CCR Rule – was promulgated on April 17, 2015. (Tr. vol. 20, 411-12.) The CCR Rule has

been subject to a number of legal challenges and modifications since its promulgation. (Id. at 414-16.) North Carolina also enacted specific statutory requirements for coal ash management in CAMA, which became effective in 2014 and was amended in 2015 and 2016. (Tr. vol. 13, 195.)

The CCR Rule and CAMA introduced new requirements for the management of coal ash. The CCR Rule established location restrictions, design and operating requirements, groundwater monitoring, corrective action, and the closure of certain units, among other requirements. (Tr. vol. 20, 412-13.) CAMA also established a number of requirements, including requirements for groundwater monitoring, corrective action, closure of all surface impoundments, and the provision of water supplies to households neighboring DEC's surface impoundments. (Tr. vol. 13, 197-200.) With regard to the closure of impoundments, CAMA created a risk classification process in order to determine a closure method and deadline for each impoundment. (Tr. vol. 13, 197.) DEC must comply with these new requirements under the CCR Rule and CAMA, which mandate closure of the Company's 17 coal ash basins.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 2-6

The evidence supporting these findings of fact and conclusions is contained in the Company's Application, Form E-1, the testimony of public witnesses, and the testimony and exhibits of DEC witnesses Jessica L. Bednarcik, James Wells, and Marcia E. Williams, Public Staff witnesses Charles Junis and Michael C. Maness, AGO witness Steven C. Hart, Sierra Club witness Mark Quarles, and CUCA witness Kevin W. O'Donnell.

Summary of the Evidence

DEC DIRECT TESTIMONY

DEC witness Bednarcik testified that DEC's CCR compliance actions and costs since January 1, 2018, as well as those that were forecasted, had been reasonable, prudent, and cost-effective. (Tr. vol. 13, 193, 215.) She detailed key closure activities that the Company had undertaken at the Company's CCR sites. At the Allen, Belews Creek, Cliffside, and Marshall Plants, which earned low-risk classifications under CAMA, she stated that the Company began developing preliminary draft closure plans to execute cap-in-place closure. Witness Bednarcik explained that on April 1, 2019, DEQ ordered excavation of these impoundments, and that the Company has appealed the excavation order. She noted that until the appeal is resolved, DEC will execute activities at these sites that would be required for either excavation or cap-in-place closure. (Id. at 202-03.) These activities include acquiring permits and dewatering. (Id. at 205.) Witness Bednarcik concluded that each closure activity described in her testimony and "for which the Company is requesting cost recovery can be traced to a provision of the federal CCR rule, CAMA, or other state regulatory requirement." (Id. at 216.)

INTERVENOR TESTIMONY

Public Staff witness Junis discussed in his testimony a set of historical documents that he testified showed "an evolving body of knowledge over more than 50 years concerning the risk of environmental contamination resulting from storing coal ash in unlined impoundments, and alternative methods of coal ash management." (Tr. vol. 20, 437.) According to witness Junis, these documents

demonstrated that, “by the early 1980s, the electric generating industry knew or should have known that the wet storage of CCR in unlined surface impoundments posed a serious risk to the quality of surrounding groundwater and surface water.” (Id.) In support of his argument, witness Junis cited publications ranging from 1967 to 1988, including manuals published by the Electric Power Research Institute (EPRI) in 1981 and 1982, and a 1988 EPA Report. (Id. at 435-41.) Witness Junis testified further that the Company had stated, in response to a Public Staff data request, that it was “unaware of any CCR analysis performed in response to” the 1981 and 1982 EPRI manuals, the 1988 EPA Report, or the 2004 EPRI Decommissioning Handbook. (Id. at 441.) DEC continued to operate coal ash impoundments at each of its seven coal-powered plants until at least 2012. (Id. at 440.) Specifically, witness Junis testified that the publications cited in his testimony showed that: (1) storage of coal ash in unlined surface impoundments had the potential to contaminate groundwater and surface water, and (2) groundwater monitoring is necessary to show that coal ash has been disposed of safely. (Id. at 437-38.)

Witness Junis testified that despite the available knowledge in the late 1970s and early 1980s with regard to the risks of disposing of coal ash in unlined impoundments, DEC failed to improve and modernize its practices. He argued that given the state of knowledge at the time, “DEC should have installed comprehensive groundwater monitoring well networks in the 1980s to determine if the risk was materializing.” (Id. at 440.) Witness Junis stated that the Company continued to operate its coal ash impoundments at each of its coal-fired power

plants until at least 2012. He added that as a result of the adoption of air emission control technologies, constituents that were previously emitted into the air became part of the waste stream entering the Company's impoundments and landfills. (Id.)

Witness Junis testified that DEC has accumulated significant environmental violations associated with its coal ash impoundments, including unauthorized seeps in violation of its NPDES permits and 10,940 groundwater exceedances in violation of the state's 2L rules. With regard to seeps, he explained that while almost all earthen dams have seeps, DEC's dams impound coal ash wastewater, which cannot be lawfully discharged without a permit. (Id. at 441-42.) He also explained that "engineered" or "constructed" seeps are those that were deliberately constructed. (Id. at 442.) Witness Junis described Special Orders by Consent (SOCs) entered into between DEC and DEQ for seeps at the Allen, Cliffside, Belews Creek, Buck, and Marshall plants. These SOCs imposed upfront penalties of a total of $240,000 as settlement of all alleged violations due to seepage from seven deliberately constructed seeps and 26 non-constructed seeps, and required the Company to accelerate compliance with CAMA. (Id. at 442-43.) Witness Junis testified that the deliberately constructed seeps have been included in the Company's renewed or modified NPDES permits, but argued that including these seeps in DEC's permits "does not retroactively condone them." (Id. at 443.) He stated that their inclusion in a NPDES permit means the seeps must now be monitored, "affording a level of environmental protection that did not previously exist." (Id.)

Witness Junis discussed the state's groundwater standards and explained that an exceedance of the standards at or beyond the compliance boundary that is not due to background levels constitutes a violation of the state's 2L rules. (Id. at 443-44.) He added that "such an exceedance is a violation regardless of whether corrective action is taken." (Id. at 444.) In support of this interpretation of the 2L rules, witness Junis cited an amicus brief filed at the North Carolina Supreme Court by DEQ. (Id. at fn. 56.) Witness Junis stated that, based on DEC's own groundwater monitoring, the cumulative total of groundwater violations at DEC's coal ash impoundments in North Carolina has reached 10,940. He added that the W.S. Lee Plant in South Carolina has reached 1,280 groundwater exceedances. (Id. at 46.)

With respect to groundwater monitoring conducted pursuant to the federal CCR Rule, witness Junis stated that the Company has identified 4,592 testing results determined to be statistically significant increases over background levels for Appendix III parameters, which are the first tier of parameters tested under the CCR Rule's prescribed procedures. (Id. at 446.) He added that under the CCR Rule, DEC has been required to submit an assessment of corrective measures for all its coal-fired power plants, with the exception of Riverbend, as a result of exceedances of background levels and groundwater protection standards. (Id.) Witness Junis also testified that the Company has identified 438 testing results from groundwater downgradient of its coal ash impoundments that have exceeded background levels and groundwater protection standards for Appendix IV parameters. (Id. at 447.)

Witness Junis testified that a majority of DEC's voluntary monitoring wells were installed in the mid-2000s, but that some were installed at the Dan River facility as early as 1993. In addition, he stated that exceedances of the groundwater standards were detected near the on-site landfills at Belews Creek and Marshall as early as 1989. (Id. at 447.) Witness Junis testified that despite the adoption of the 2L rules in 1979 and the publication of the 1982 EPRI manual, which stated that groundwater monitoring is "necessary to provide convincing proof of a safe disposal practice," DEC did not begin groundwater monitoring at some of its facilities until two decades later. (Id. at 448.) He added that the Company did not conduct comprehensive groundwater monitoring "until even later." (Id.)

Witness Junis testified that when asked what actions it took in response to each exceedance, the Company stated that at the time it "was engaged in voluntary groundwater monitoring, it did not have sufficient information to determine natural background levels." (Id. at 449.) Witness Junis argued that "[t]his is further evidence that DEC's groundwater monitoring prior to the 2010s was insufficient to provide convincing proof of a safe disposal practice." (Id. at 450.) He also noted that the Company, in explaining why it did not take further action with regard to exceedances, relied in part on the absence of a DEQ requirement to do more. He asserted that "silence by a regulator did not absolve DEC of its failure to take action . . . nor did it absolve DEC of its failure to install a robust system of wells in the early 1980s . . . ." (Id. at 450-51.) Witness Junis testified that when DEC detected exceedances of the groundwater standards at its coal ash sites, it should have installed sufficient monitoring wells to determine to what extent they

were attributable to the impoundments, to what extent they were attributable to other sources or background levels, and the extent and nature of any potential environmental degradation. (Id. at 451.)

Witness Junis testified that DEC has incurred costs related to its noncompliance with environmental regulations, and that the Company will continue to incur substantial costs to remedy those violations and prevent risks of future violations. He argued that while the Company calls such costs "compliance costs" for meeting the requirements of CAMA and the CCR Rule, "they also reflect DEC's noncompliance with longstanding environmental regulations." (Id. at 451-52.) Witness Junis opined that the evidence shows DEC would have incurred substantial corrective action costs under the state's 2L rules even in the absence of CAMA and the CCR Rule. (Id. at 452.)

Witness Junis next discussed his equitable sharing recommendation. He testified that "[c]ertain costs are so clearly and directly due to the Company's failure to comply with environmental regulations that none of those costs should be assigned to ratepayers." (Id. at 462.) He explained that the Public Staff could not conduct a traditional prudence review of the Company's historical coal ash management, because even where some of the Company's action or omissions appear imprudent, the quantification of costs directly resulting from such acts or omissions would be speculative. He also stated that where DEC's coal ash management was arguably prudent, the Company bears some degree of responsibility for its extensive environmental violations. (Id. at 463.) Furthermore, the overlap of CAMA and the CCR Rule with the preexisting 2L rules prevented

the Public Staff from linking specific remediation actions and associated costs to specific violations, as required for imprudence. (Id. at 466.)

Witness Junis argued that an equitable sharing of the Company's coal ash costs is appropriate in light of the Company's failure to prevent environmental contamination from its coal ash impoundments, in violation of state and federal laws. In addition to the seeps and groundwater violations witness Junis discussed earlier in his testimony, and in addition to the violations admitted in the Company's federal criminal negligence case, witness Junis referred to "numerous dam safety issues" found at DEC's coal ash impoundments immediately following the 2014 Dan River spill and again two years later. (Id. at 463-64.) He added that the Company did not conduct comprehensive groundwater monitoring until DEQ required it to do so under its NPDES permits beginning in 2011. (Id. at 464.) Witness Junis testified that it is notable that the Company's number of groundwater standard violations has increased by 7,849, or 254%, since his testimony in the last DEC rate case. (Id. at 465.)

Witness Junis testified that the Company's failure to comply with environmental regulations with respect to its coal ash impoundments "undoubtedly" contributed to the adoption of both the CCR Rule and CAMA, "which in turn led to significant new compliance costs." (Id. at 465-66.) He noted that the Company's non-compliance with its NPDES permits, the CWA, and the state's 2L rules would have led to cleanup costs from litigation or enforcement actions even if the CCR Rule and CAMA had not been adopted. (Id. at 466.) Witness Junis concluded that "[d]ue to its environmental violations, DEC has a great deal of

culpability for the compliance costs related to remediation and ash basin and storage unit closures, and would likely have incurred substantial coal ash corrective action costs even without the CCR Rule and CAMA, whereas ratepayers are not culpable at all for those costs." (Id. at 466-67.) He added that the equitable sharing of CCR management costs, as further discussed by Public Staff witness Maness, is reasonable. (Id. at 467.)

Lastly, witness Junis compared the Public Staff's equitable sharing recommendation in the DEC and DEP rate cases to that in Dominion's rate cases. He first explained that the extent of groundwater contamination at Dominion's plants was not known to the Public Staff at the time of the Public Staff's testimony in the 2016 Dominion rate case, in which the Public Staff did not recommend equitable sharing, or at the time of the 2017 DEC rate case. He also explained that in Dominion's recent 2019 rate case, Dominion's environmental compliance issues became more apparent, resulting in a recommended 40/60 sharing between ratepayers and shareholders. (Id. at 468-73.) Witness Junis explained the difference in its 40/60 recommendation for Dominion and its 50/50 recommendation for DEC by stating that "the Public Staff believes that Dominion has a poor environmental compliance record, yet one that is better than that of DEC." (Id. at 472.) Witness Junis testified that in the 2019 Dominion rate case, the Commission set a 10-year amortization period for Dominion's coal ash costs, with no return on the unamortized balance, resulting in a sharing that allocated approximately 26% of costs to shareholders and 74% of costs to ratepayers. (Id. at 472-73.) He stated that in the present case, the Public Staff is recommending a

50/50 sharing, and that it is reasonable and appropriate to allocate a higher percentage of coal ash costs to DEC shareholders than to Dominion shareholders "because the environmental violations of DEC are far more extensive and far better documented." (Id. at 473.)

During the hearing, witness Junis explained that the Public Staff had recommended that Dominion shareholders be apportioned 40% of coal ash costs, while in the present case, it was recommending that DEC shareholders be apportioned 50% of coal ash costs, because of the comparison of the records of the utilities. (Id. at 569.) He acknowledged that both DEC and Dominion had unauthorized seeps at their facilities, and that Dominion had self-reported groundwater seepage at the Chesterfield Power Station in 2018. (Id. at 570, 576.) He also acknowledged that while Dominion had been faced with allegations of violations with respect to a hazardous substance release, he was not aware of any such violation at DEC facilities. (Id. at 572-73.) In addition, he acknowledged that Dominion had entered into a consent decree that provided for injunctive relief and pursuant to which Dominion was to pay a $1,400,000 civil penalty. (Id. at 574-75.) Witness Junis noted, however, that the complaint and consent decree pertaining to the seeps and hazardous substance release were filed in March of 2020, well after the completion of the 2019 Dominion rate case, and were therefore not before the Public Staff or the Commission for consideration in that proceeding. (Id. at 575.) He also confirmed that Dominion had groundwater exceedances at its coal ash sites, but that there was evidence of fewer exceedances for Dominion than there had been for DEC. He stated that the Public Staff had asked Dominion's

regulators for information regarding Dominion's groundwater monitoring data, and testified that while both Dominion and DEC are subject to the same monitoring requirements under the CCR Rule, they are subject to different requirements under their respective state laws. (Id. at 580-82.)

Witness Junis testified that the Public Staff conducted a thorough investigation of Dominion, and that the Public Staff relies heavily on both the utility being investigated and the regulators to provide information. (Id. at 576.) He indicated that the Public Staff had been unable to obtain a number of documents that it had requested during the Dominion rate case. (Id. at 584.) He further stated that the Public Staff and the Commission are reliant on the facts before them. (Id. at 578.) Witness Junis testified that the Public Staff had asked Dominion about seeps, environmental compliance, and their groundwater monitoring data, and that the investigation "was exhaustive and very much replicated our investigation of Duke in their prior rate cases." (Id. at 577.) He reiterated that, based on the available evidence, the opinion of the Public Staff is that Dominion has a better environmental record than DEC. (Id. at 584.) On redirect, witness Junis stated, having refreshed his recollection with regard to the Dominion rate case, that Public Staff witness Lucas' testimony in that case did detail the Public Staff's knowledge of the seeps at the Chesterfield Power Plant. (Id. at 89-91.) He further stated that in comparison to the areas of seepage at the Chesterfield Power Station, DEC and DEP together identified nearly 200 seeps. (Id. at 91.) He also discussed the SOCs entered into by DEC for the Allen, Cliffside, Marshall, Belews Creek, and Buck facilities, along with associated penalties. (Id. at 91-92.) In addition, witness Junis

discussed in more detail the investigation that took place with regard to Dominion's environmental compliance record during the 2019 Dominion rate case, emphasizing that the Public Staff had sent follow-up discovery requests and had followed up with the Virginia DEQ. (Id. at 93-94.) Lastly, witness Junis characterized the comparison between the environmental compliance records of DEC and Dominion as qualitative rather than quantitative. (Id. at 94-95.)

During cross-examination, witness Junis was also asked about the cumulative total of 10,940 exceedances that had occurred at the Company's coal ash basins, which had increased from the 3,091 exceedances reported as of the last rate case. (Tr. vol. 21, 12-13.) He was presented with a hypothetical in which DEC is required to install 49 additional wells at one of its retired, dewatered ash basins, and to sample those wells weekly over the course of a year. He was asked whether the plume was basically exactly the same as it had been, despite the significant increase in the number of exceedances because of the additional wells and increased testing frequency. (Id. at 13-17.) Witness Junis stated that because not all the wells would be placed on top of each other, you would now have better defined the extent of the plume in terms of shape, size, and the severity of the concentration of contaminants. He also added that because groundwater is constantly moving, you would be sampling new contaminants, rather than sampling the same column of water. (Id. at 17-18.) He reiterated that the testing that has been conducted at DEC's facilities since the last rate case has been intended to define the extent and severity of the pollution. (Id. at 19.) On redirect,

witness Junis stated that it would not be typical for DEQ to require testing on a weekly basis as posed in the cross-examination hypothetical. (Id. at 97.)

During cross-examination, witness Junis also explained his use of the term "serious risk," which he had used when he testified that the Company knew or should have known that unlined coal ash impoundments "posed a serious risk to the quality of surrounding groundwater and surface water." (Id. at 51.) He explained that the Public Staff understands "serious" as "having important or dangerous possible consequences and risk as the possibility of loss or injury." (Id.) He added that, in the context of his testimony, serious risk means that unlined impoundments "presented a strong possibility of degrading the quality of surrounding groundwater and surface water." (Id. at 51-52.) With respect to the term "dangerous," he referred to the potential health impacts of exceeding the 2L standards, many of which are based on drinking water standards. (Id. at 52.)

With respect to industry standards, witness Junis testified on cross-examination that "given its prominence, DEC and DEP and their historic companies basically helped set industry standard," and that it is a "cyclical defense" to say that you are using the industry standard while also setting the industry standard. (Tr. vol. 21, 52-53.)

Witness Junis testified that his only recommendation regarding what DEC should have done differently is that they should have conducted comprehensive groundwater monitoring in the 1980s. (Id. at 54.) He stated that "you cannot make any other decisions without that information." (Id.) On redirect, he added that it would have been reasonable, as a responsible utility and based on the information

available, to begin groundwater monitoring earlier. (Id. at 100.) He testified that his main issue with the outcome of the Allen studies is that once they were completed, DEC chose to stop monitoring, rather than seeing red flags and recognizing that they could monitor and know for a fact whether there was or was not degradation of the groundwater. (Id. at 54-55.) He also testified that, although there was no strict guidance from DEQ on how to close coal ash impoundments in the 1980s, there were laws and regulations in place, such as the 2L rule, the CWA, and RCRA, that had to be adhered to and that would have likely been the guiding principles when determining proper closure. (Id. at 60-69.)

Witness Junis also testified that a key assumption in the conclusions of the Allen studies—that the Allen site was representative of other DEC sites—was a faulty assumption, especially given how many documents referred to site-specific analyses. (Id. at 72-73.) He added that DEC witnesses Wells, Williams, and Bednarcik had themselves referred to the necessity of site-specific analyses. (Id. at 73.) Witness Junis also testified that the Allen study was clear that there had not been a steady state reached for the actual leachate. The study expected the current conditions of approximately 80% groundwater and 20% leachate to flip to 80% leachate and 80% groundwater, meaning that they expected the concentration of leachate and the constituents of concern to increase. Yet, witness Junis noted, DEC stopped monitoring groundwater despite that conclusion. (Id. at 74.) When asked if he was using hindsight, witness Junis testified that “you could have certainly, from a 1985 eye, reading that report, made that conclusion about

the leachate." He stated "[t]hat is clear as day," and "[t]here is no 20/20 hindsight in that analysis." (Id. at 75-76.)

When asked about the conclusion in the 1988 EPA report that "current waste management practices are adequate to protect the environment," witness Junis stated that this conclusion was based on the information the EPA had at the time, and that the report stated how little groundwater monitoring was occurring at the sites that were surveyed. (Id. at 77.) He testified that the EPA recognized this deficiency, and that is why it continued to study the issue. (Id. at 78.)

In response to Commission questions, witness Junis explained that culpability is based on the Company's duty to comply with environmental regulations and its failure to do so, as evidenced by groundwater violations, unpermitted discharges, and the federal plea agreement for criminal negligence, among other things. (Id. at 101.) He stated that a prudence analysis is "nearly impossible" with the amount of time that has passed and because of the lack of information necessary to determine what the feasible alternative to any imprudent or unreasonable actions would have been. (Id. at 101-02.) He also indicated that in discovery during the DEP rate case, DEP agreed that it would be too speculative to attempt to quantify historical costs.[1] (Id. at 102.) He confirmed that even with unlimited time and resources, other feasible alternatives could not be determined. (Id. at 102-03.) Witness Junis testified that an equitable sharing is appropriate to

[1] Lucas/Maness Public Staff Redirect Exhibit 2 in Docket No. E-2, Sub 1219.

balance the costs between shareholders and ratepayers, and that doing so is within the discretion of the Commission under N.C.G.S. § 62-133(d). (Id. at 102.)

Witness Junis also confirmed that the recommended 50/50 sharing was a qualitative determination based on both witness Maness' testimony and the Company's culpability for environmental noncompliance. (Id. at 113-14.) Witness Maness added that in past Commission orders dealing with nuclear abandonment costs, the Commission imposed roughly a 30/70 sharing via a 10-year amortization with no return on rate base. He stated that the level of sharing can differ from case to case, depending on the facts and circumstances in each case. (Id. at 114-15.) Witness Maness added that the Commission has in the past effectuated a sharing of costs between shareholders and ratepayers without a finding of imprudence on the part of the Companies. (Id. at 125.)

In discussing the equitable sharing recommendation further, witness Junis explained that another factor in this case is that if the Company had done something differently in the past, the costs associated with those actions would have been recovered through rates and tied to customers who actually benefitted from the electric generation. Here, however, he testified that a majority of the costs being requested for recovery are tied to previous customers but will be paid for by present and future customers. (Tr. vol. 22, 43.) Witness Maness added that the costs being incurred now are the result of DEC's past actions or inactions. (Id. at 44.)

Public Staff witness Maness testified that the Public Staff believes that a 50% sharing percentage is appropriate and reasonable for the reasons set forth

by witness Junis, and because there is a history of approval for sharing of extremely large costs that do not result in any new generation of electricity for customers. He noted that such sharing between ratepayers and shareholders has been approved for costs of abandoned nuclear construction and for environmental cleanup of manufactured gas plant facilities. Witness Maness stated that even if the reasons for equitable sharing set forth by witness Junis were not present, the Public Staff still believes that some level of sharing, perhaps comparable to that previously used for abandonment losses on cancelled nuclear generation facilities, would be appropriate and reasonable for DEC's CCR costs. (Tr. vol. 13, 497-501.)

Witness Maness opined that there were several reasons that, independent of culpability, the magnitude and general nature of the CCR costs in this case justified equitable sharing, including the following: first, the total amount of costs incurred during the Deferral Period ($329,656,000, on a system basis, after removal of the adjustments recommended by other Public Staff witnesses) is extraordinarily large; second, it must be remembered that DEC will be incurring significant additional costs in the future, in the billions of dollars; third, much like the equitable sharings that have been approved by the Commission with regard to plant abandonments over the years, the incurrence of these costs will not provide any benefits to customers in terms of additional electric service or improvements in service; fourth, unlike some situations in recent years in which plants have been retired early due to economic reasons, the incurrence of CCR costs has not been the result of an economic analysis that pointed toward an action that would be economically advantageous to ratepayers; and fifth, equitable sharing helps

mitigate the intergenerational inequity of present and future customers paying for costs caused by service to customers in past decades. (Id. at 500-01.)

AGO Witness Hart discussed in detail the regulatory framework applicable to coal ash, including the CCR Rule, CAMA, the 2L rule, and regulatory determinations issued by the EPA. (Tr. vol. 16, 709-26, 731-32.) He testified that until 2011, DEC either did not have suitable background wells or had not done an adequate background evaluation at multiple facilities. He added that DEC's suggestion that high concentrations of constituents were due to background turned out to be invalid. Witness Hart testified that even where a suitable background well was present at a facility, the data did not support that all the 2L groundwater standard exceedances were related to background. (Id. at 729.) He also testified that the only way to determine compliance with the 2L groundwater standards is to sample at or beyond the compliance boundary, and that monitoring within the compliance boundary is intended to provide a warning. (Id. at 730.)

Witness Hart discussed the general history of coal ash impoundments and related environmental contamination. (Id. at 732-34.) He stated that coal ash has high concentrations of toxic metals and other inorganics, and that if toxic compounds such as metals are released into the environment in sufficiently high concentrations, they can pose a risk to human health and ecological receptors. (Id. at 734.) Witness Hart testified concerning the fate and transport of metals in the environment, and provided a number of factors that affect the fate and transport of metals, including the concentration and form of metal, soil properties, and properties of the groundwater. (Id. at 735-38.) He stated that "[i]n general, after a

metal is released to the environment, it will accumulate in soil until the capacity of the soil to retain it is exceeded." (Id. at 736.) Once the capacity of the soil to retain the constituent is exceeded, the metal becomes mobile and migration takes place and it enters the groundwater. Witness Hart stated that once a metal becomes soluble and mobile in groundwater, it can migrate downgradient and potentially impact receptors such as drinking water supply wells and surface waters. (Id. at 736-37.)

Witness Hart also testified regarding the types of waste streams and materials that were disposed of in DEC's coal ash impoundments over time, and the potential effects of waste streams other than coal ash, such as FGD scrubber wastewater and pyrites, can have on impoundments. (Id. at 738-42, 745-47.) For example, he testified that adding other waste streams can have an effect on the "complex geochemical interactions" in the impoundments by adding other chemicals and changing pH, and that "these actions can impact contaminant loading and the fate and transport of other metals and inorganics." (Id. at 745.) He noted industry studies that found that "pyrite can form acidic leachates (sulfuric acid) as a result of pyrite oxidation in the basins which results in higher concentrations of sulfates, and metals such as iron, nickel, and arsenic." (Id. at 746.)

Witness Hart testified regarding the process that occurs when coal ash is placed into an impoundment and leaches into the groundwater. (Id. at 742-45.) He stated that over time, "more leachate entering the groundwater system can lead to higher concentrations and further migration distances in groundwater." (Id. at 743.)

Witness Hart discussed several primary factors that contribute to groundwater contamination from coal ash impoundments, including: the mass of ash and concentration of metals and other organics present in the ash, the length of time the impoundment has been in operation, the hydraulic head, and the composition of the soil underlying the impoundment. (Id. at 744-45.)

Witness Hart testified that the electric industry, including DEC, was "generally aware of the potential for leaching of metals from coal ash and associated actual or potential groundwater contamination," citing to publications ranging from 1980 to 2009, including a 1980 report published by the EPA and the Tennessee Valley Authority, the 1988 EPA Report, and a 1991 EPRI report. (Tr. vol. 16, 747-53.) Witness Hart also reviewed a number of internal DEC documents with regard to actual or potential groundwater contamination from its coal ash basins and DEC's concerns, and summarized a set of such documents ranging from 1984 to 2014. (Id. at 753-67.) For example, he discussed the 1984 investigation at the Allen facility. He stated that results of leachate tests from multiple DEC facilities reported in the study indicated relatively higher levels of arsenic and selenium in most samples, though results across different leachate tests were not consistent. He also stated that results of groundwater analyses at the Allen facility indicated that concentrations of arsenic and selenium were detected above the 2L groundwater standard in two wells, but that the groundwater impacts did not extend downgradient from the impoundments. Witness Hart testified that the study showed there was a leachate plume emanating from the ash basin, but that downgradient migration was limited at the time. (Id. at 754-55.)

Witness Hart also discussed a February 13, 1997 letter from Duke Power to its insurance carriers, in which Duke Power notified its insurance carriers about a number of potential environmental claims, including claims related to coal ash at its coal-fired power plants. The letter stated that groundwater sampling indicated exceedances of the groundwater standards at Allen, Belews Creek, Dan River, Marshall, and WS Lee. He added that the letter stated that the contamination at Belews Creek was from a landfill, but that no other specifics were provided in the letter regarding the source of the exceedances. (Id. at 755.)

Witness Hart testified that steps can be taken to minimize groundwater contamination at active coal ash impoundments, including: converting the facility to dry fly ash and bottom ash handling, frequently removing coal ash from the impoundment, eliminating wastewater streams and hydraulic loading from other sources, installing a liner, lowering the water level, dewatering the impoundment to reduce hydraulic load, and ultimately closing the impoundment. He indicated that all these options take time to complete and have significant costs associated with them. (Id. at 767.) Witness Hart testified that prior to CAMA and the CCR Rule, DEC had considered dry ash handling for those facilities that had not already converted to dry ash handling, as well as closure of ash basins. (Id. at 768.)

Witness Hart provided a summary of groundwater monitoring data for each of DEC's facilities. (Id. at 769-820.) He concluded that at some facilities, groundwater monitoring indicated contamination from the Company's coal ash impoundments as early as the 1990s, and that by the early 2000s, it was clear that there were documented damage cases from coal ash impoundments, and that

EPA's assessments could lead to the closure of impoundments. (Id. at 821.) He also concluded that by 2003, DEC knew that addressing its coal ash impoundments by conducting groundwater monitoring and considering dry ash conversions would reduce long-term risks and liabilities. (Id.) Witness Hart stated that there is evidence that the addition of FGD wastewaters to coal ash impoundments contributed to additional groundwater impacts. (Id. at 822.)

According to Witness Hart, exceedances within the compliance boundary at the Company's North Carolina facilities, and exceedances of the MCLs at the WS Lee facility in South Carolina, should have triggered a "real evaluation of background conditions," the installation of monitoring wells at the compliance boundary, and additional monitoring wells to determine the extent of impacts once exceedances above the 2L groundwater standards were confirmed. He stated that the Company had instead waited for regulatory agencies to identify concerns. (Id. at 823.) He stated that despite knowledge of groundwater contamination and the changing regulatory environment, DEC "made little effort to develop plans and preparation for closing the ash basins until it was forced to do so after the Dan River release and subsequent CAMA and CCR regulations." (Id. at 823-24.) He contended that once DEC knew it had groundwater issues, it "failed to determine the extent of groundwater impacts, reliably establish background concentrations, and perform adequate receptor evaluation." He further testified that DEC's inattention to problems and delay in taking responsive actions increased the costs it is seeking for CCR-related activities today. (Id. at 825-26.)

In his supplemental testimony, witness Hart provided his analysis related to his proposed disallowance for the costs of providing alternate water supplies. He also explained his recommended adjustment in which he estimated the reduction in costs if DEC had responded earlier to the presence of groundwater impacts at its coal ash impoundments with remediation and closure activities similar to those it started in 2014 and that continue today. He further explained that his calculated costs were based on the time value of money starting at different points in time, from the late 1980s until 2010, and that they were likely an underestimation of the potential cost reductions. (Id. at 824-29.)

Sierra Club witness Quarles testified regarding the Company's historical knowledge. With respect to the scientific community, he stated that "[t]he risks of groundwater contamination from unlined coal ash ponds were understood as early as the late 1970s," citing to a 1976 Argonne National Laboratory Report, a 1979 report by Arthur D. Little and the EPA, and a 1979 Los Alamos Report. (Tr. vol. 18, 35.) With respect to the EPA, he stated that the agency has recognized the risks to groundwater associated with coal ash disposal and the importance of groundwater monitoring since 1979, pointing to solid waste regulations under the Resource Conservation and Recovery Act (RCRA). He also cited to the 1980 and 1988 EPA Reports. (Id. at 35-36.) Lastly, with respect to the electric industry, witness Quarles testified that EPRI recognized the risks associated with coal ash disposal in unlined impoundments and the need to monitor groundwater at coal ash disposal sites, citing to the 1981 and 1982 EPRI Manuals. (Id. at 37-39.)

On cross-examination, when asked if it was appropriate to take "snippets" from a historical document and present it as supporting a proposition "on which the study came to a contrary conclusion," witness Quarles responded that such "snippets . . . are important sentences that are included in the documents related to the risks associated with coal combustion waste disposal." (Tr. vol. 18, 71.) He further testified that context is important when reviewing such documents, stating that, for example, some of the studies cited by DEC witness Williams in her testimony looked at the use of surface impoundments related to oil and gas, or municipal wastewater, and that such documents would also have language discussing areas more relevant to the surface impoundments typical of the Company. (Id. at 72-73.) He also testified on cross-examination that the 1982 EPRI Manual was meant, in part, to enable a utility to determine whether or not it was contaminating the groundwater and whether it should upgrade a facility. (Id. at 83-84.)

Witness Quarles testified that the Company's continued operation of unlined surface impoundments without adequate groundwater monitoring for decades after the industry recognized the risks associated with unlined coal ash impoundments was unreasonable and could be expected to result in the introduction of coal ash constituents in surface water and groundwater. (Tr. vol. 18, 30, 50.) He stated that disposal options that could lessen the risks associated with coal ash disposal, such as dry ash handling systems, conversion of impoundments to landfills, and the use of liners, were available in the 1980s, and that liners were the rule by the 1990s. (Id. at 39-40.)

Witness Quarles testified that the Company's failure to take action following the 1984 investigation at the Allen facility was unreasonable. (Id. at 30-31.) He stated that the investigation identified a leachate plume in the groundwater and served as a warning that unlined coal ash impoundments leaked and posed a risk to groundwater quality. He added that the Company did not reach a conclusion about the ability of soil to attenuate or prevent migration of constituents away from the coal ash impoundments, and that the Company therefore had no data to support its belief that soil attenuation capacity would mitigate contamination. (Id. at 45-46.) He provided several reasons why it was unreasonable for the Company to conclude in 1984 that soil attenuation capacity would prevent the migration of contaminants over time. (Id. at 47-49.) Witness Quarles further testified that the Company decided not to conduct groundwater monitoring at the Riverbend facility based on its incorrect assumption that attenuation would protect against the migration of coal ash constituents. (Id. at 49.) He stated that the Company incorrectly assumed that the Allen and Riverbend sites were similar enough to warrant not installing groundwater monitoring wells at Riverbend, adding that the Company also assumed incorrectly that "aquifer and soil geochemical conditions would not change over time, ignoring the fact that the contaminant mass loading to the subsurface would increase over time as the impoundments aged and the geochemical conditions would also change." (Id. at 50.)

With regard to the 1985 Arthur D. Little Report, witness Quarles testified that the testing showed that arsenic concentrations in groundwater beneath the Allen site exceeded drinking water standards. He stated that the report

"[n]evertheless" concluded that "impacts were expected to be 'insignificant,' apparently looking only at impacts to the adjacent surface waterbody but not to groundwater quality." (Id. at 43.) Witness Quarles noted several reasons the Company's reliance on the 1985 Arthur D. Little Report for its decision not to conduct groundwater monitoring at its coal ash sites was unreasonable. For example, he stated that the report acknowledged that "steady-state groundwater conditions at the Allen site had not yet been reached in downgradient groundwater monitoring wells—meaning that the full contaminant plume had not yet reached downgradient wells and contamination concentrations could get much worse." (Id. at 44.) In addition, he stated that "the report concluded that increasing constituent concentrations in downgradient wells 'would be expected,'" and that "available data 'cannot support a precise estimate of future groundwater quality.'" (Id.)

Witness Quarles explained that the Company began voluntary monitoring of groundwater at the Dan River facility in 1993, at the Cliffside facility in 1995, and at its other facilities between 2004 and 2006. He stated that the monitoring results indicated exceedances of the 2L groundwater standards at each site within the first year or two after monitoring began, with the exception of Cliffside. He added that upon learning of the exceedances, the Company did not take any action to limit the introduction of coal ash constituents into the groundwater or abate the contamination, and instead took the position that the groundwater monitoring results "appeared consistent with natural-occurring conditions." (Id. at 42.)

According to witness Quarles, "[t]he only prudent option for learning whether a given impoundment was causing contamination of water resources was to install

and sample monitoring wells." (Id. at 50.) He testified that the construction or expansion of unlined coal ash impoundments after the mid-1970s was unreasonable. Witness Quarles also testified that the continued operation of unlined coal ash impoundments after the 1980s was unreasonable. He argued that "[t]he ample information available to the Company regarding the risks associated with unlined disposal unit operations should have led the Company to begin to transition away from wet handling of coal ash much sooner," and that "at the very least," the Company should have begun groundwater monitoring much sooner than it did. (Id. at 50-51.)

With regard to the impacts of DEC's unlined impoundments, witness Quarles testified that coal ash is impacting the groundwater at each of the Company's facilities, and that contamination has migrated off-site at several sites. He stated that in many cases, rather than taking action to eliminate or mitigate the contamination, DEC has instead purchased affected properties or provided alternative drinking water sources. (Id. at 51.) Witness Quarles then discussed in detail groundwater contamination at the Company's Allen facility. (Id. at 52-57.) He also testified that the costs associated with excavation and groundwater monitoring likely would have been lower if DEC had converted its facilities to dry disposal in lined landfills sooner. (Id. at 59.) Witness Quarles summarized that DEC's "inaction resulted in more widespread contamination of the state's groundwater resources, jeopardy to present and future drinking water sources, the need for alternative drinking water supplies, and millions of tons more ash to be dewatered, excavated, and redisposed of, all driving higher cleanup and risk reduction costs." (Id. at 62.)

CUCA witness O'Donnell testified that the North Carolina legislature passed CAMA in 2014 in response to the Dan River Spill. (Tr. vol. 20, 59, 61-64.) He stated that on May 14, 2015, DEC, DEP, and Duke Energy Business Services pled guilty to nine violations of the Clean Water Act, including unauthorized discharges of pollutants from its coal ash basins via seeps into adjacent surface waters. (Id. at 60-61.) Witness O'Donnell also testified that CAMA is more stringent than the CCR rule. (Id. at 64.) He stated that he disagreed with Duke's position that consumers should pay all the costs of coal ash cleanup, and stated that "Duke management made specific decisions that resulted in the coal ash spill in North Carolina that, in turn, led to the creation of CAMA." (Id. at 66.) He recommended that DEC not be allowed to recover coal ash costs associated with any plant that is not subject to the federal CCR Rule but is subject to CAMA. He further recommended that to the extent any site is no longer receiving coal ash, remediation costs should not be paid for by ratepayers in this case or any future cases. (Id. at 70.) In summary, witness O'Donnell testified that the Commission should disallow the incremental costs associated with CAMA versus the federal CCR Rule. (Id. at 27.)

DEC REBUTTAL TESTIMONY

In her rebuttal testimony, witness Bednarcik updated her direct testimony to note that on December 31, 2019, the Company entered into a settlement agreement (Settlement Agreement) with DEQ and a number of environmental groups. She explained that the Settlement Agreement provides for closure of the nine remaining CCR basins owned by DEC and DEP. Seven of the nine basins—including two at the Allen Steam Station, one at Belews Creek Steam Station, and

two at the Cliffside Energy Complex—will be excavated and the ash moved to on-site lined landfills. For the other two basins, including one at Marshall Steam Station, uncapped basin ash will be excavated and moved to lined landfills. Witness Bednarcik noted that the Settlement Agreement calls for expedited state permit approvals, keeping projects on a rapid timeline and reducing the total estimated cost to close the remaining basins by roughly $1.5 billion as compared to the April 1, 2019 DEQ order requiring full excavation at all sites. (Tr. vol. 24, 49-50.)

In response to the Public Staff's recommended 50/50 equitable sharing disallowance, witness Bednarcik pointed out that the recommendation is not tied to any finding of unreasonableness or imprudence, but to culpability for environmental degradation requiring expensive remediation and the enormity of the costs. (Id. at 96-97.) She noted Public Staff witness Junis' admission of the impossibility of conducting a prudency audit of the Company's CCR activities. (Id. at 96.) Witness Bednarcik stated that the Commission has rejected this equitable sharing approach several times, and that in Sub 1146, as in this case, the Public Staff was unable to identify any cost that was imprudent or connected to an imprudent action. (Id. at 97-98.)

Witness Bednarcik also responded to the contentions of witnesses Junis, Hart, and Quarles that the Company's CCR practices lagged behind those of industry, contending that the Company’s historical CCR practices were in line with those of industry and similarly situated utilities in neighboring states. (Id. at 98-100.) In response to the historical documents cited by witnesses Junis, Hart, and

Quarles, witness Bednarcik argued that this “small handful of papers” would not have given a utility adequate reason to change its CCR practices. (Id. at 98-99.) She testified that “[i]n an apparent attempt to cast doubt over DE Carolinas’ use of unlined basins, Mr. Junis, Mr. Hart, and Mr. Quarles cite a small handful of papers published between 1967 and 1985 which discuss potential issues associated with coal ash disposal and the importance of developing and implementing appropriate controls.” (Id. at 98.) She further testified that “the publications do not provide sufficient, if any, conclusions or certainty to prompt a utility to undertake the costly effort of changing its storage practices.” (Id. at 98-99.)

In response to witness Junis' statistics on the use of lined impoundments in the 1988 EPA Report, witness Bednarcik noted that DEC last constructed a new ash basin in 1982. She noted that witness Junis failed to account for site-specific conditions, which is an essential consideration, and she argued that he presented no credible evidence to show that DEC’s engineering and design of its impoundments was not consistent with industry practice and regulatory requirements at the time. Witness Bednarcik contended that the intervenor witnesses were viewing these issues based on hindsight, which she described as “the filter of a 21st century lens when no such clarity existed in real time.” (Id. at 99.)

Witness Bednarcik also disagreed with the assertion that the Company should have constructed lined units instead of expanding the existing unlined impoundments, pointing to the expense, the need to maintain the existing unlined ponds, the inconsistency with then current industry practices, and the risk of

disallowance of the cost. (Id. at 100-01, 103.) Based on a review of the report and materials presented by DEC witness Bonaparte analyzing coal-fired plants in South Carolina, Virginia, and Georgia, witness Bednarcik indicated that only five of the 63 CCR impoundments identified in the report were lined. (Id. at 99-100.) In addition, she stated that of the 53 impoundments constructed in or before 1982, as was Buck, only one was lined. Thus, witness Bednarcik concluded that the Company's practices were similar to utilities in neighboring states. (Id. at 100.) Witness Bednarcik contended that before the CCR Rule or CAMA, there was no justification for the Company to change its practices, which were compliant with existing state and federal law. (Id. at 101.) She also noted that no regulator had suggested a change in its practices during that time. (Id.) Witness Bednarcik testified that based on these factors, and in the absence of laws or regulations mandating closure or excavation or guidance from regulators, she would have had no basis to advocate for CCR removal or for the recovery of those costs. (Id. at 101-02.)

With respect to the testimony of CUCA witness O'Donnell, witness Bednarcik noted that the arguments made in his testimony were the same offered by him in Sub 1146. Witness Bednarcik adopted the rebuttal testimony of DEC witness John Kerin in that proceeding on the issues and arguments made by witness O'Donnell, stating that "[b]ecause [witness O'Donnell's] arguments are unchanged from the 2017 case, the Company's response to it is likewise unchanged." (Id. at 102.)

In her supplemental rebuttal testimony, witness Bednarcik addressed the supplemental testimony of AGO witness Hart and argued against his suggestion that the Company could have reduced costs by beginning closure at an earlier date. According to witness Bednarcik, it is impossible to predict with any certainty what type of approach DEC would have pursued historically with respect to its coal ash basins given the then-existing regulatory landscape, available technology, evolving industry best practices, and other factors. (Id. at 105-07.)

Witness Bednarcik also filed supplemental testimony responding to the Commission's July 23, 2020 Order Requiring Duke Energy Carolinas, LLC and Duke Energy Progress, LLC to File Additional Testimony on Grid Improvement Plans and Coal Combustion Residual Costs. In addition to providing additional information regarding costs associated with closure of the Company's coal ash impoundments, witness Bednarcik discussed the Settlement Agreement the Company reached with DEQ and environmental groups on December 31, 2019. She explained that a key premise of the Settlement Agreement was that the parties agree that "closing the coal ash impoundments at the Allen, Belews Creek, Cliffside, Marshall, Mayo, and Roxboro Steam Stations in the manner provided for in the Settlement Agreement . . . is reasonable, prudent, in the public interest, and consistent with law." (Id. 112-14.)

Witness Bednarcik also responded to the Commission's question regarding the Company's ability to estimate the incremental costs of excavating, rather than capping-in-place, remaining ash at the Company's designated "low-risk" CCR basins. She explained that the Company did not incur any incremental cost as a

result of the Settlement Agreement with respect to the costs it is seeking to recover in the instant rate case, except that "the costs the Company incurred to prepare plans for closure by excavation were approximately $140,000 to $480,000 more per site than the costs it incurred to prepare plans for closure by cap-in-place." (Id. at 115.) She noted that all of the site work performed for which costs are included as part of this rate case would also be required for closure by excavation. (Id.) According to witness Bednarcik, "it is impossible to identify with any degree of certainty the incremental costs that the Company is likely to incur as it proceeds to excavate, rather than cap-in-place, the CCR basins at Allen, Belews Creek, Cliffside, and Marshall" under the terms of the Settlement Agreement. (Id.)

DEC witness Wells testified with regard to whether the Company knew or should have known about the risks of coal ash impoundments to groundwater. He stated that unlined coal ash impoundments were the accepted approach when DEC constructed its basins, and that the construction of and continued use of the basins was reasonable and prudent. In support of his argument, witness Wells cited to Commission orders in the last DEC and DENC rate cases that found that unlined basins were generally accepted method of disposal in the past. (Tr. vol. 27, 28.) Witness Wells asserted that even before CCR impoundments were regulated by the EPA and state environmental regulators that state utility regulators "were well aware of, and allowed, the continued use of unlined ash basins to store CCR." (Id. at 29.)

Witness Wells testified that "[c]ertainly, the Company and its environmental regulators were aware that unlined impoundments, in concept, had the potential to

impact surrounding groundwater and surface water in the 1980s." (Id. at 30.) He added, however, that he did not believe that the general knowledge of potential for impacts equates to whether the impoundments actually posed a significant risk of environmental harm. He stated that "[w]hat was widely accepted at the time was that most impacts were insignificant, if they materialized at all, and largely depended on regional and other factors." (Id. at 30.) Witness Wells testified that it would not have been a "proportionate" response to engage in costly corrective action measures to a potential risk, given the "evolving body of scientific knowledge" at the time. (Id. at 31.)

Witness Wells argued that the intervenors "cherry-pick[ed]" statements from historical documents to advance their arguments, and that their testimony lacked context and perspective. For example, Public Staff witness Junis and Sierra Club witness Quarles cited to the 1979 report written by Arthur D. Little and the EPA. While witness Wells conceded that the report identifies potential risks associated with CCR impoundments, he asserted that the paper is clear in its conclusion that environmental impacts should be evaluated on a case-by-case basis and are dependent on site-specific factors. He also testified that the follow-up to the 1979 report, the site-specific evaluation at Allen and other non-DEC sites known as the 1985 Arthur D. Little Study, found that no "major" environmental effects had occurred at any of the sites, including Allen. (Tr. vol. 27, 33-34.) With respect to the 1981 EPRI Manual discussed by intervenors, witness Wells stated that the document was designed to aid with the development of new CCR facilities, and that it did not call for the removal or closure of existing, unlined coal ash

impoundments. With respect to the 1982 EPRI manual referenced by Public Staff witness Junis, witness Wells argued that "[w]hile the 1982 manual does provide alternatives to the use of surface impoundments, it does not recommend immediate changes to site waste disposal practices." (Id. at 34.) Lastly, witness Wells testified that a 1987 study at the Riverbend facility "showed that CCR at the site had the potential to impact groundwater but concluded that those impacts would likely be minor," adding that the study provided further support for the Company's decision to continue operating its existing, unlined impoundments." (Id. at 35.)

DEC witness Wells testified that the Public Staff took a similar position in the DEC 2017 Rate Case when it proposed an "equitable sharing" of CCR costs, which would have resulted in a 50% disallowance of deferred CCR costs. (Id. at 25.) He noted that the Commission, however, did not accept the Public Staff's argument in that case. (Id., citing 2017 DEC Rate Case Order at 274.) Witness Wells also testified that the Public Staff offered a similar argument for equitable sharing proffered by witness Lucas in the DENC 2019 Rate Case and the Commission similarly did not adopt the Public Staff's argument in that case. (Id. at 25, citing 2019 DENC Rate Case Order at 94-95.)

Witness Wells also testified that no intervenor in this case attempted to quantify discrete costs that are attributable to imprudence by the Company or that the Company could have avoided through different CCR management practices in the past. Instead, witness Wells asserted that intervenors have relied on hindsight analysis to state that either (a) the Company knew or should have known about

the risks of unlined impoundments, or (b) the Company should have conducted more comprehensive groundwater monitoring, should not have used ash basins to treat other site-generated wastewaters, should have converted to dry ash handling, should have closed the unlined ash basins, or should have taken some other unspecified action in response to groundwater impacts. (Id. at 27.)

Witness Wells asserted that even before CCR impoundments were regulated by the EPA and state environmental regulators, state utility regulators "were well aware of, and allowed, the continued use of unlined ash basins to store CCR." (Id. at 29.) He further asserted that, "[f]rom 1967 until 2009, the Commission had the sole authority to regulate utility dams, including all of the dams that formed DE Carolinas' ash basins." (Id.) In support of his assertion that the Commission actively allowed the operation of CCR impoundments, witness Wells cited to Docket No. E-100, Sub 23, in which the Commission received and reviewed inspection reports of the ash basins every five years. (Id. at 29-30.)

Witness Wells testified that he does not believe that the general knowledge of potential impacts of unlined impoundments on groundwater and surface water equates to whether the impoundments actually posed a significant risk of environmental harm. He stated that "[w]hat was widely accepted at the time was that most impacts were insignificant, if they materialized at all, and largely depended on regional and other factors." (Id. at 30.) Witness Wells stated that it would not have been a "proportionate" response to engage in costly corrective action measures to a potential risk, given the "evolving body of scientific

knowledge" at the time. (Id. at 31, citing Public Staff witness Junis Direct Testimony in the last DEC Rate Case at Vol. 40, p. 11.)

While witness Wells conceded that the 1979 report written by Arthur D. Little and the EPA identifies potential risks associated with CCR impoundments, he asserted that the paper is clear in its conclusion that environmental impacts should be evaluated on a case by case basis and are dependent on site specific factors. He stated that the 1985 Arthur D. Little Study found that no major environmental effects had occurred at any of the sites in the study, including Allen. (Id. at 33-34.) When asked about the 1985 Arthur D. Little Study on cross-examination, witness Wells stated that the testing showed that "[t]here are some values that exceed what were the background -- what were the published standards for various contaminants, including manganese and iron, which have a naturally occurring contribution." (Id. at 221.) He added that at the time, background levels had not been established. He stated that the report was concluding that there was no downgradient migration of those contaminants above the drinking water level standard, "with a real focus on the primary MCLs, and even more specific to arsenic." (Id.) He also testified that the report was trying to determine whether the contaminants could reach a receptor or present a risk to public health or the environment. (Id.) He added that "we're not in violation of the [groundwater standards] until we begin to see an impact outside the compliance boundary." (Id. at 230.)

Witness Wells was also asked about the findings in the 1985 Arthur D. Little Study that certain tracer constituents were at elevated concentrations versus

background concentrations at the downgradient wells. (Id. at 223.) Witness Wells responded that those were naturally occurring elements that were not being regulated in the early 1980s for potential to impact public health, but rather for aesthetic reasons and other concerns. (Id. at 224-25.) When asked if monitoring at those wells had been discontinued in 1982, he stated that he did not know when the wells were discontinued, but testified that "you're reviewing this conclusion [in the Arthur D. Little study] that there is no risk . . . [t]hat supported what they were seeing with respect to removal of groundwater wells." (Id. at 231-32.) He testified that Duke's testing at Allen was voluntary, and that the conclusion that there was not a significant impact on groundwater "supported Duke's determination as to what, if any, additional groundwater monitoring [they] needed to do in that area going forward." (Id. at 236.)

Witness Wells testified that DEC's practices were consistent with the 1981 EPRI Manual because it was forward-looking, and DEC did not construct unlined ash basins after the early 1980s. Witness Wells also asserted that the 1982 EPRI Manual did not recommend immediate changes to waste disposal practices. (Id. at 34-35.) Several years later, DEQ requested that DEC perform an evaluation of groundwater impacts at Riverbend, which, when completed, was known as the 1987 Riverbend Study. Witness Wells asserted that this study provided support for the Company's continued use of unlined impoundments because it concluded the impacts to the groundwater were likely to be minor. (Id. at 35.)

Witness Wells argued that the Company took measured steps to assess risks. State-level regulations regarding groundwater did not come into effect in

South Carolina until 1977 and in North Carolina in 1979. And in 1978, the Company partnered with EPA to study groundwater at Allen and to evaluate the performance of ash basins across the system. Witness Wells stated that the environmental regulators at DEQ and DHEC issued NPDES permits and, consistent with DEQ's phased approach to implementing groundwater monitoring assessments, groundwater monitoring was not required at all sites at the same time. (Id. at 36-37.)

Witness Wells provided a history of groundwater monitoring requirements and findings from DEQ regulators starting in the 1980s through the passage of CAMA. Following the 1988 EPA Report, the Company began monitoring landfills at Belews Creek and Marshall, and exceedances were primarily associated with iron, manganese, and pH, which are naturally occurring constituents. In 1993, groundwater monitoring requirements were added to the NPDES permits for Dan River and W.S. Lee and witness Wells testified that the data did not indicate the basins were materially impacting groundwater. In the mid-2000s, the Company began voluntary groundwater monitoring at its other coal ash sites and initial sampling results showed exceedances of pH, iron, and manganese. In addition, those results showed exceedances of boron at Marshall in 2007 and Riverbend in 2010. Around 2009, DEQ began adding groundwater requirements to all NPDES permits as they were reissued or modified. In 2011, DEQ issued a policy memo for identifying exceedances and developing corrective action plans. (Id. at 39-40.)

Witness Wells asserted that DEQ, which possessed the expertise and authority to regulate and require monitoring and corrective action at any time after

1984, first added monitoring requirements to the Company's NPDES permits in 1993, and did not require groundwater monitoring in all NPDES permits until 2013. Thus, he argued, it is not reasonable for Public Staff witness Junis to assert that the Company should have implemented groundwater monitoring at all of its sites in the 1980s. He added that neither witness Junis nor witness Quarles as part of their "hindsight positions" explained to what extent the Company should have taken further specific action. (Id. 43-44.)

Witness Wells further asserted that no intervenor identified with enough specificity discrete actions or omissions that constitute mismanagement by the Company. Instead, witness Wells argued that the intervenor witnesses were attempting to substitute hindsight for the judgement of environmental regulators specifically charged with such oversight. (Id. at 48-49.) Witness Wells asserted that it would not have been reasonable to take drastic remedial measures in the past. In response to whether the Company should have converted to dry ash handling in the 1980s, witness Wells cited to the EPA effluent limitations guidelines developed in November 1982, with regard to which the EPA had stated that "the high cost of retrofitting [did] not justify the additional pollutant reductions." (Id. at 50.) Witness Wells stated, however, that in one instance, the evidence warranted conversion to dry ash handling prior to the promulgation of EPA regulations in 2015: Belews Creek converted to dry ash handling in 1984 as part of an effort to address surface water quality impacts at Belews Lake. (Id. at 51.)

With regard to whether the Company should have ceased using or closed its unlined basins at an earlier date, witness Wells stated that there was no

environmental impetus to stop using or to close the basins. He asserted that "the regulatory uncertainty caused by the EPA's 2010 draft CCR Rule meant that closure prior to 2014 would have been premature and financially irresponsible." (Id. at 54.) Witness Wells further asserted that neither DEQ nor DHEC ordered DEC to cease using or to close any basins prior to 2014, nor did they require DEC to retrofit any existing impoundments, close any impoundments no longer receiving CCR, or excavate CCR from existing impoundments. (Id.)

Witness Wells disagreed with witness Junis that the existence of groundwater exceedances beyond the compliance boundary are the result of the Company's mismanagement of its coal ash basins. (Id. at 56.) Witness Wells asserted that the Company has taken every action required by state environmental regulators to address groundwater impacts as they have been identified. Additionally, with regard to seeps, witness Wells stated that seepage is common, expected, and necessary to maintain the stability of an earthen dam. Witness Wells testified that DEQ and the Commission were aware of seeps from the basins well before the CCR Rule or the passage of CAMA, and that DEQ did not consider them to be a priority for NPDES permitting. (Id. at 57-59.)

With regard to witness Junis' testimony that the number of violations for groundwater exceedances has increased since the 2017 Rate Case, witness Wells stated that the number of exceedances, even if they constitute violations of the 2L rules, are not indicative of mismanagement or imprudence. Witness Wells testified that the closure of all its coal ash basins was triggered prior to the 2017 Rate Case and was not due to groundwater impacts. Witness Wells argued further that

witness Junis' testimony that DEC's compliance record has gotten worse since 2017 and that there is more evidence of violations is misleading because the violations he cites are the result of more intensive monitoring, new wells installed, and changed compliance boundaries since 2017. (Id. at 63.) Witness Wells asserted that by quantifying the groundwater violations as a representation of groundwater contamination, "[witness Junis] seeks to punish the Company for prudently meeting its CCR Rule and CAMA obligations to collect groundwater samples to characterize groundwater impacts." (Id. at 64-65.) With regard to witness Junis' comparison of DEC and DENC, witness Wells argued that "DE Carolinas' compliance record could have been improved if DE Carolinas had done a poorer job with recordkeeping or performed less comprehensive monitoring." (Id. at 66.) He continued by asserting that a simple direct comparison of quantifiable environmental records is "clearly inappropriate" and fails to justify that DENC has a better compliance record. (Id.)

Witness Wells stated that since 2017, DEC has made substantial progress to address seeps and groundwater impacts around the ash basins. For example, it has addressed seeps through NPDES permits and Special Orders by Consent with DEQ, and has submitted closure plans and corrective action plans and entered a settlement agreement with DEQ and environmental groups. (Id. at 66-69.) Witness Wells stated that "[a]fter the passage of CAMA and even with decades of earlier data, it took DE Carolinas and DEQ over five years of sustained effort to decide what kinds of information were necessary to support decision-making, and to collect the information and present it in the form of corrective action

plans." (Id. at 69.) He added that DEC has been successful in its efforts toward closure of all basins because it had "a clear mandate in the CCR Rule and CAMA, dedicated and skilled employees, and financeable and regulatory stability." (Id.)

Regarding witness Wells' conclusion in his pre-filed rebuttal testimony that the Company did not have evidence in the 1980s of significant impacts of its unlined ash ponds, he was asked at the hearing how many of DEC's facilities had groundwater monitoring wells in the 1980s. (Id. at 287.) Witness Wells responded that there was the voluntary monitoring conducted at Allen in partnership with the Arthur D. Little Study, voluntary monitoring at W.S. Lee with EPRI, and landfill-related monitoring at the Marshall and Belews sites in the late 1980s. (Id. at 288-90.)

At the hearing, Witness Wells also testified that the installation of pollution control devices such as scrubbers changed the nature of the waste stream being disposed of in the basins. (Id. at 293.) Witness Wells further testified that any changes in the waste stream would have been looked at continuously, and reviewed and approved by regulators on a five-year cycle consistent with the water discharge permit. (Id. at 292-93.)

Witness Wells was asked at the hearing about the Commission's authority over dam inspection reports from 1967 to 2009. In response to questions about the nature of the reports made to the Commission, witness Wells conceded that they were intended to assess dam safety and integrity, and that they were not intended to be water quality inspections. He acknowledged that the authority to

regulate water quality during this time remained the purview of DEQ. (Id. at 295-96.)

With regard to constructed seeps and toe drains, witness Wells was asked whether state law prohibited discharges into waters of the state without a permit and whether the engineered seeps constructed as part of the dam were authorized in any of the Company's NPDES permits. Witness Wells opined on whether seeps were point sources carrying pollutants to waters of the United States, and stated that from the 1970s until today, there has been an evolution of what a point source is under the Clean Water Act. (Id. at 298-99.) He asserted that when the EPA's 2010 Hanlon memo indicated that the seeps may be subject to permitting, Duke invited DEQ to its sites and told DEQ that permitting the seeps would be an appropriate step, and that the agency disagreed. (Id. at 299-300.) He further stated that DEQ believed at that time that permitting seeps was not a priority and revisited that decision in 2014. (Id. at 301.)

With regard to their non-constructed seeps, witness Wells testified that in 2014, when DEC and DEP admitted to having over 200 seeps, as detailed in the 2015 Joint Factual Statement (Hart Exhibit 3), there was no regulatory clarity on the permissibility of those types of seeps. Witness Wells stated that DEC and DEP took steps to survey the sites and identify areas of wetness, and that those areas of wetness may not actually be seeps, and could be seasonal, stormwater, or wetlands, or may not contain constituents from the impoundments. (Id. at 304-06.) Witness Wells conceded that even if seeps are seasonal, they can still be unauthorized discharges if they are unpermitted, and that the Special Order by

Consent for Riverbend (Public Staff Wells/Williams Rebuttal Cross Examination Exhibit 6) specifically stated that DEC is responsible for unauthorized discharges of wastewater from the area around the impoundments at Riverbend. (Id. at 308-09.)

At the hearing, witness Wells was asked about the assertion in his pre-filed rebuttal testimony that during the period from 1967 to 2009, when the Commission had authority to regulate dam safety, "[n]ot once during that time did the Commission or Public Staff ever determine or opine that the continued use of surface impoundments to store CCR was imprudent." Witness Wells was asked specifically whether he understood the role of the Public Staff to investigate the reasonableness of rates charged by public utilities. Witness Wells replied: "I'm not familiar with the Public Staff's specific role. I would agree with that. But I understand they look at a lot of things to understand whether they agree with the costs and the rates that the Company has applied for." (Id. at 311.) He stated that, from a dam safety perspective, the Commission was involved, regulators were involved, and Duke was not operating in a vacuum. (Id. at 312-13.) However, witness Wells conceded that the Company is ultimately responsible for management of coal ash and the Company's environmental compliance. (Id. at 314.)

The rebuttal testimony of DEC witness Williams provided an overview of the federal government's study and regulation of CCRs, as well as an overview of North Carolina laws and regulations pertaining to CCRs. She started with an overview of coal ash regulation prior to the passage of RCRA and proceeded to

explain the evolution of coal ash regulation after RCRA had been enacted. She also discussed effluent guidelines under the CWA, the Water Infrastructure Improvements for the Nation Act, CAMA, and the 2L rules. (Id. at 87-103.)

Witness Williams testified regarding historical knowledge about the environmental impacts of coal ash storage in unlined impoundments. She stated that in order to assess the level of knowledge at a particular point in time, one must evaluate the "weight of evidence" available at the time, "not only a limited number of isolated reports, or parts of those reports, that discuss some 'potential' for risk." (Id. at 145.) She defined the "weight of evidence" as "the integrated assessment of available information and data on a given topic." (Id. at 142, fn 90.) Witness Williams testified that, "[w]hen considering available knowledge, it is important to include not only the knowledge of [DEC] but also the knowledge of government public health and environmental officials . . . ." (Id. at 141.) She stated that in her opinion, the intervenors selectively referred to various documents without weighing the broader set of available knowledge at the time. She also stated that the intervenors appeared to downplay or overlook the role of regulations, and that the fact that neither the use of liners nor the installation of groundwater monitoring systems was mandated by state or federal regulations was an important factor in assessing the reasonableness of DEC's historic activities. In addition, witness Williams testified that the intervenors failed to assess the state of industry practices at the time. (Id. at 141-42.)

According to witness Williams, the EPA in 1993 determined that the risk from coal ash management did not warrant the establishment of regulations that

would have modified the manner in which DEC was managing its coal ash. She added that the EPA based this determination on its review of available information, including the reports from the late 1970s to early 1980s that were cited by intervenors. She testified that the EPA's 1993 determination was made after a review of state regulatory authorities, and with the knowledge that most surface impoundments were unlined and did not have groundwater monitoring. She added that if the knowledge about potential groundwater contamination was as well understood as Sierra Club witness Quarles contended by the early 1980s, there would not have been such a high percentage of industrial surface impoundments and oil and gas waste impoundments operating without liners and groundwater monitoring as of the mid-1980s. (Id. at 145-46.) Similarly, she testified that the use of liners and groundwater monitoring was not common for coal ash impoundments and other industrial surface impoundments, citing the 1988 EPA Report, a 2001 EPA report entitled "Industrial Surface Impoundments in the United States," and the 2010 Proposed CCR Rule. (Id. at 147-48.)

Witness Williams also provided testimony specifically addressing the historical documents cited by the intervenors. (Id. at 149-53, 155-57.) For example, she discussed the 1979 Arthur D. Little Report and asserted that it "does not conclude that all ash ponds should be lined or that all ash ponds require groundwater monitoring to prevent environmental harm to groundwater." (Id. at 149-50.) She also discussed the 1981 EPRI manual, stating that intervenors' use of the document as a basis to argue that leachate from coal ash impoundments is of concern due to the possibility that heavy metals can enter the groundwater and

contaminate drinking water "is a relatively weak statement, indicating the absence of data and knowledge, not the certainty of it." (Id. at 150.) She added, in addition to other critiques, that the document was written as guidance for new disposal facilities and was not applicable to existing operating facilities. (Id. at 151.) She also disagreed with the intervenors' assessment of the 1982 EPRI Manual, stating that it found that it may be premature for any utility to update its existing disposal facilities, and that the manual relied heavily on federal documents that were mis-cited. (Id. at 152.) With respect to the 1985 Arthur D. Little Study, witness Williams stated that the report concluded that no major environmental effects had occurred at any of the six sites, including DEC's Allen facility. (Id. at 153.)

Witness Williams testified that "[v]irtually any waste management unit, regardless of its design or operational practices, has the 'potential' to release constituents to groundwater under some circumstances." (Id. at 154.) She added that "asserting that DE Carolinas knew ash ponds generally had the 'potential' to contaminate groundwater, even if true, does not tell you anything about what DE Carolinas did or did not know about the likelihood for any particular ash pond it operated to contaminate groundwater at levels that were understood, at the time, to equate to environmental harm." (Id.) Witness Williams contended that "despite the existence of some literature that may point to a 'potential' for land disposal of waste to result in environmental harm to groundwater, there was not a general awareness that most unlined ash ponds would result in environmental harm to groundwater." (Id. at 158.) She then discussed a general lack of information about

industrial waste management and the subsurface environment "well into the 1980s." (Id. at 158-60.)

On cross-examination, witness Williams stated that "the knowledge at the time was not sufficient to say those coal ash basins were understood that they were going to result in contamination of groundwater above 2L standards or above health protective levels." (Id. at 197.) She further disagreed that the EPRI manuals represented the state of industry knowledge at the time. (Id. at 203-07.) She added, with regard to both the 1981 and 1982 EPRI Manuals, that EPRI was "just trying to share the information as to what could potentially be happening," and that while the manuals did state that groundwater monitoring was "necessary to provide convincing proof of a safe disposal practice," groundwater monitoring was not required by federal regulations or any of the Company's permits. (Id. at 205, 208.) Witness Williams testified that the EPRI manuals "didn't represent either industry standards or what ultimately was deemed necessary to happen to protect groundwater at that time based on information at that time." (Id. at 207-08.) She also stated that after the 1981 EPRI manual was issued with guidance on groundwater monitoring, the EPA realized the guidance was "naïve" and not capable of easily being translated in complex situations. (Id. at 211-12.) She added that the EPA released its own guidance manual for groundwater monitoring in 1986, which it updated in 1992. (Id. at 212-13.)

Witness Williams argued that DEC acted properly in its management of coal combustion residuals. She stated that until the passage of CAMA and the promulgation of the CCR Rule, operators of coal ash basins faced uncertainty with

regard to what actions needed to be taken. She testified that even after a rule becomes final, the cost of compliance is uncertain. She asserted that site-specific clarity was not achieved until court approval on February 5, 2020, of the settlement dated December 31, 2019, pertaining to the Company's challenge to DEQ's April 2019 excavation order. (Id. at 104.) According to witness Williams, because of the uncertainty surrounding the regulation of coal ash, the owners and operators of coal ash impoundments acted prudently in waiting until after CAMA and the CCR Rule became law to take specific actions in upgrading or closing the impoundments as long as they were working with environmental regulators to address any site-specific environmental issues. (Id. at 105.) She then discussed seven factors that she testified "compound uncertainty in predicting the ultimate shape of EPA regulation," and further discussed regulatory uncertainty. (Id. at 108-33.)

Witness Williams also discussed damage cases identified by the EPA from CCR disposal in landfills and coal ash impoundments. She stated that EPA's 2007 Notice of Data Availability had identified 24 damage cases and 43 potential damage cases. She explained that:

> With regard to groundwater, seventeen of the damage cases were to groundwater and five or six of those were determined to be from unlined ash ponds. That is against a universe of approximately 600 ash ponds, the large majority of which were over 25 years old. And, as of 2004, EPA estimated that 62 percent of ash ponds were unlined. Against this number of unlined ash ponds, the number of confirmed pond damage cases to groundwater from these units was quite small.

(Id. at 132) On cross-examination, however, witness Williams conceded that out of the "universe" of approximately 600 coal ash units, some of which were lined, and some of which were unlined, there were 135 potential damage cases on which the EPA actually gathered or received information. She further conceded that the EPA only evaluated 85 of those cases. Out of those, 24 were determined to be proven damage cases, and 43 were determined to be potential damage cases. Witness Williams, however, testified that she did not consider that to be a significant number of cases, arguing that the "proper way to analyze it is to look at how many damage cases they found and compare it to the universe, not compare it to other damage cases." (Id. at 261-70.)

Witness Williams testified regarding evaluations conducted by DEC of its coal ash leachate in the late 1970s and early 1980s. She stated that the Company performed detailed groundwater monitoring studies at its Allen facility starting in 1978 and going through the early 1980s. She testified that these studies indicated that the groundwater at the Allen facility met EPA's solid waste criteria for the protection of groundwater. She stated that the 1984 Allen study, which summarized the Allen groundwater data, leachate data from its eight plants, and information on Piedmont soils, concluded that none of Duke's ash classified as RCRA hazardous waste, and that Duke's disposal of coal ash in unlined impoundments "would have no significant impact on groundwater or surface water that received that groundwater." (Id. at 134-35.) She also testified that the 1987 Riverbend study concluded that the ash basins at Riverbend "would not have an adverse impact over the operating life of the basins." (Id. at 135.) On cross-

examination, she reiterated that the Allen studies and the Riverbend study "on the whole indicate, based on the attenuation study, based on groundwater monitoring, . . . that there was not a significant impact to groundwater," and that "in the future, it was not anticipated that there would be." (Id. at 233.) She stated that based on Duke Energy's studies and EPA's 1988 Report to Congress, "Duke reasonably and prudently would have believed that its unlined ash basins would not result in groundwater contamination at levels that would result in damage." (Id. at 136.) She further testified that, in her opinion, "Duke's decision to continue to operate its ash ponds while waiting for the finalization of the CCR rule, and CAMA, was reasonable and prudent." (Id. at 137.)

With regard to witness Junis' argument that DEC should have installed comprehensive groundwater monitoring systems in the early 1980s, witness Williams argued that the knowledge wasn't available at the time. (Id. at 211-13.) She stated that there was very limited groundwater monitoring at waste management units, including coal ash impoundments, and that research was just beginning on effective and protective ways to monitor groundwater. (Id. at 136.) According to witness Williams, groundwater monitoring "was at a very early stage of sophistication." (Id. at 239-40.) She stated that "it's not clear in that early time frame, that punching tons of additional wells would have provided the kind of information that you're hoping that Duke could have gotten from that." (Id. at 247.) Likewise, she testified that "there wasn't a tremendous effort to get people to go punch holes in the ground everywhere to get information that at the time was still not entirely helpful to regulatory decision-making." (Id. at 246-47.)

Witness Williams contended that the intervenors appeared to downplay or overlook the role of regulations, and that the fact that neither the use of liners nor the installation of groundwater monitoring systems was mandated by state or federal regulations was an important factor in assessing the reasonableness of DEC's historic activities. In addition, witness Williams testified that the intervenors failed to assess the state of industry practices at the time. She asserted that "[i]n my almost 50 years of environmental experience, even in the absence of regulations, it is very unusual to see large parts of an industry continue to handle waste in a manner likely to lead to environmental harm once knowledge of that environmental harm is generally confirmed." (Id. at 142.)

Witness Williams testified that DEQ had regulatory authority over DEC's coal ash impoundments for decades. She argued that the fact that DEQ did not require liners, closure of the impoundments, or groundwater monitoring earlier than it did was a strong indication that the Company's operations were considered to be reasonable and protective by DEQ. (Id. at 143-44.) She also argued that if EPA's information had demonstrated a risk that was generally not being addressed by the states, EPA would have moved forward with a recommendation for national minimum standards requiring liners and groundwater monitoring well before it promulgated the final CCR Rule in 2015. (Id. at 145-46.) She further testified that in evaluating whether a company operated reasonably, it is appropriate to compare it to others in the same or similar industries, citing the 1988 EPA Report to show that the majority of coal ash surface impoundments in the United States were unlined at the time, and that the EPA stated in its 2010 proposed CCR Rule that

62 percent of surface impoundments at that time were unlined. She also cited to 1988 Report to show that 65% of surface impoundments at the time did not have groundwater monitoring. Witness Williams stated that state agencies such as DEQ were in the best position to determine situations in which existing impoundments needed to upgrade to liners or install groundwater monitoring systems. (Id. at 147-48.)

Witness Williams testified that an assessment of whether a particular coal ash impoundment was likely to contaminate groundwater at levels understood at the time to equate to environmental harm was necessarily site-specific, "as a host of factors including the permeability of soils, the vertical distance between the waste and the aquifer, the amount and type of waste being managed, the depth and direction of groundwater can all affect the potential of an ash pond to leach to groundwater." (Id. at 154.)

Witness Williams testified that beginning around 1980, the EPA began collecting information on instances of environmental damage from industrial waste management, including groundwater contamination. (Id. at 159-60.) She stated that in its 1988 Report to Congress, the EPA detailed a "relatively small number of damage cases and even a smaller number of damage cases that involve contamination of groundwater from coal ash ponds." (Id. at 160.) She added that where the damage cases involved the exceedance of a drinking water standard, the EPA noted that "the total number of exceedances is quite small compared to the total number of monitoring wells and samples gathered." (Id., quoting the 1988 EPA Report to Congress at 5-67.) She also testified that the EPA concluded in its

report that the "actual potential for exposure to human and ecological populations was likely to be limited because ground water in the vicinity of utility waste disposal sites is not typically used for drinking water and the contaminants tend to be diluted in nearby surface water bodies." (Id. at 161.) She concluded that this led to the EPA's conclusion that "current waste management practices appear to be adequate for protecting human health and the environment" and its decision in 1993 not to regulate CCR as a hazardous waste. (Id. at 161, quoting the 1988 EPA Report to Congress at 7-11.)

Witness Williams next addressed witness Hart's contention that the Company's costs are higher today than they would have been had the Company undertaken reasonable and prudent actions to address coal ash before the 2014 Dan River spill. She argued that the Company could have incurred potentially significant unwarranted costs if it had conducted closure activities prior to having regulatory certainty pursuant to CAMA and the CCR Rule. (Id. at 162.)

Witness Williams discussed the 2L rule, describing it as a remedial requirement and explaining that while compliance laws and regulations "seek to prevent . . . activities from resulting in harm to the environment," remedial laws "seek to address environmental harm that is resulting from past or ongoing activities." (Id. at 166-67.) She stated that punishing or penalizing a party for an exceedance under the 2L rules "would be very problematic." (Id. at 171.) Instead, she argued that such exceedances are used to trigger the investigation and potential remediation required under the rule. She testified that the number of DEC's exceedances, as discussed by witness Junis in his testimony, is "entirely

dependent on how frequently the Company conducted groundwater sampling," and that the number of exceedances would be significantly higher if the company sampled daily than if it sampled weekly. She stated that treating exceedances as violations with associated penalties would create a disincentive for parties to sample frequently or comprehensively. (Id. at 168-71.)

During the hearing, witness Williams disagreed that once the 2L rule was adopted in 1979 and groundwater standards were in place, that the Company had a responsibility to assess whether or not it was meeting those groundwater standards and to take action based upon that knowledge. She testified that it was a joint responsibility, and that, "in fact, it was a responsibility of the regulatory agency." She added that if the regulatory agency believed the design and operational requirements of existing facilities were inadequate to meet the groundwater standards, the permits should have included additional requirements. Witness Williams stated that in her experience, if groundwater monitoring was an expected requirement, it would be written into the regulations or individual permits. (Id. at 192-94.)

Witness Williams was also asked whether it was her position that the absence of regulatory action on the part of DEQ is an endorsement of the Company's practices. She testified that she believed it was an indication of what the knowledge base was at the time, and that the knowledge at that time was not sufficient to say that the Company's coal ash basins were going to result in contamination of groundwater above the state groundwater standards or health protective levels. She added that the states, Congress, and EPA had higher

priorities, including identifying and addressing hazardous waste facilities and open dumps. (Id. at 196-98.) Witness Williams conceded that whether or not coal ash impoundments were a priority with DEQ, they still had to comply with regulations and permits that were specific to their facilities. She stated that "clearly, if they violated those standards, . . . working with the regulator, they would have had to address what needed to be done . . . ." (Id. at 199.) She added, however, that "addressing an exceedance is different than saying they were required to monitor the groundwater." (Id.)

During the hearing, witness Williams conceded that waste does not have to be a hazardous waste in order to have a potential impact on groundwater. (Id. at 215.) Witness Williams also conceded that, while the 1984 study conducted at Allen concluded that "Duke's disposal of wet coal ash would have no significant impact on groundwater or surface water that received that groundwater," the study only included groundwater monitoring data from one of DEC's sites—the Allen facility. (Id. at 216.) She added that leachate analyses were conducted at DEC's other facilities. (Id.) She also confirmed that her testimony indicated that the impacts of coal ash disposal are site-specific. She testified that Piedmont soils "fit within a certain class of materials," and that many of the factors relevant to the impacts of coal ash disposal are "similar between the set of DEC facilities that were all located in similar geology." (Id. at 217-18.)

Witness Williams was also asked about her testimony that "in the absence of site-specific information to the contrary, it is my opinion that it would be reasonable and prudent in this pre-2000 period for an owner of an existing ash

pond without liners or without an ongoing groundwater monitoring system to continue to operate the ash ponds." Specifically, she was asked how the Company would have discovered site-specific environmental issues such as groundwater contamination without monitoring at each site. Witness Williams testified that you may see impacts on fish health in surface water, vegetation impacts, or a nearby or on-site drinking water well with taste and odor problems. She added that if there was a pattern of what was being identified, that the regulatory agency would typically then require that groundwater monitoring wells be installed. (Id. at 244-46.)

DISCUSSION AND CONCLUSIONS

Historical Knowledge

First, the Commission acknowledges the Company's assertion that unlined coal ash impoundments were an accepted approach when DEC constructed its impoundments. The Commission agrees, and accepts that the Company's approach to coal ash basin construction was reasonable and consistent with that of other electric utilities in the 1950s, 1960s, and perhaps even the 1970s. This fact, however, does not address the question of whether DEC knew or should have known, by the early 1980s, that unlined coal ash impoundments had the potential to contaminate groundwater and surface water. Likewise, while both witnesses Wells and Williams assert that DEQ and the EPA allowed the continued use of unlined ash basins until promulgation of CAMA and the CCR Rule, this assertion does not bear on whether or not the Company knew or should have known that unlined impoundments had the potential to contaminate the surrounding

environment. Nevertheless, the usage and prospects of unlined impoundments declined with the promulgation of environmental laws and regulations in the 1970s, such as the Clean Water Act in 1972, the Steam Electric Power Generating Effluent Guidelines and Standards in 1974, the Resource Conservation and Recovery Act in 1976, and the 2L Rules in 1979.

The Commission is persuaded that the historical documents cited by the intervening parties, many of which were industry publications, academic publications, and governmental reports, represent an awareness that began to accumulate as early as the late 1970s that unlined coal ash impoundments had the potential to contaminate groundwater and surface water. It is evident that by the early 1980s, this awareness was not merely speculation or on the fringes of academia or industry. Rather, the knowledge regarding the potential risks associated with coal ash disposal had grown to such an extent that EPRI, an electric utility industry group, published two manuals with guidance for assessing, addressing, and preventing such risks—the 1981 EPRI Manual and the 1982 EPRI Manual. The Commission disagrees with the assertion of witness Wells that intervenors "cherry-picked" statements from historical documents. The Commission agrees with witness Quarles that context is important when reviewing such documents, and is of the opinion that important information can be found throughout a report, manual, or study.

Witness Williams argued that the EPRI manuals were not representative of industry knowledge at the time, and that they were "just trying to share the information as to what could potentially be happening." The Commission does not

find this argument persuasive, as the publication of a manual by an industry group would necessarily represent the information the Company had available to it at the time. Furthermore, the other documents cited by the intervening parties likewise showed the potential for contamination from unlined impoundments—the EPRI manuals were not the lone sources of such knowledge at the time. The Commission also notes that "shar[ing] the information as to what could potentially be happening" with respect to coal ash disposal appears to be precisely what the intervenors contend the EPRI manuals were intended to do.

Witness Williams testified that, in her opinion, the intervenors selectively referred to various documents without weighing the broader set of available knowledge at the time. She did not, however, provide any documents or publications from the late 1970s or early 1980s that contradicted the idea that unlined coal ash impoundments had the *potential* to contaminate groundwater and surface water. Witness Wells conceded in his testimony that the Company "certainly" was aware that its impoundments had the potential to contaminate the environment, but that he did not believe that the general knowledge of potential for impacts resolved the question of whether the Company's impoundments actually posed a significant risk of environmental harm. Likewise, witness Williams argued that "asserting that DE Carolinas knew ash ponds generally had the 'potential' to contaminate groundwater, even if true, does not tell you anything about what DE Carolinas did or did not know about the likelihood for any particular ash pond it operated to contaminate groundwater at levels that were understood, at the time, to equate to environmental harm." The question of what the Company knew about

actual contamination at its impoundments is discussed in the Equitable Sharing section below.

Based on the foregoing and the entire record, the Commission finds and concludes that the Company knew or should have known by the early 1980s that the wet storage of CCR in unlined impoundments had the potential to contaminate surrounding groundwater and surface water.

Equitable Sharing

The Commission also concludes that, contrary to the testimony of DEC witness Bednarcik, the Company's operation of its coal ash impoundments prior to the CCR Rule and CAMA was not consistent with existing state and federal law.

It is clear that North Carolina through its 2L rules prohibited exceedances of the groundwater standards beginning in 1979, and while the rules were indeed revised to include remedial measures, they are not solely remedial, as contended by DEC witness Williams. A straightforward reading of the rules, as presented in Hart Exhibits 8 and 10, shows that the 2L rules both prohibit exceedances and provide requirements for corrective action. Furthermore, the testimony and evidence provided by witnesses Junis, Hart, and Quarles demonstrate that DEC was aware of exceedances at its coal ash impoundments, beginning with the Allen facility in the late 1970s and early 1980s, and continuing with its other sites as it implemented groundwater monitoring in the 1990s and 2000s. As provided in witness Junis' testimony and Junis Exhibits 11 and 12, the Company has accumulated a total of 10,940 exceedances at its North Carolina sites and a total of 1,280 exceedances at its W.S. Lee site in South Carolina. The Commission is

persuaded that these exceedances represent mounting evidence of the extent of the contamination caused by DEC's coal ash impoundments. As explained by witness Junis, these exceedances do not represent sampling of the same water over and over—rather, the Company is sampling different contaminants as groundwater flows, and is defining the extent and severity of the contamination plumes at each site. Furthermore, although Company witness Wells emphasizes the exceedances of naturally occurring substances such as pH, iron, and manganese in his testimony, it is apparent in the record that background levels have been exceeded and that other constituents account for the Company's exceedances as well, including arsenic, lead, and mercury.[2] The Company has also identified exceedances during its detection and assessment monitoring pursuant to the federal CCR Rule. Furthermore, the extent and severity of groundwater contamination is confirmed by the robust groundwater remediation approach, including extraction and treatment and clean water infiltration, proposed to DEQ in the Company's updated Corrective Action Plans.

With respect to the 2L rules, the Commission agrees with witness Junis that an exceedance of the 2L standards at or beyond the compliance boundary and above background levels constitutes a violation of the 2L rules. The Commission notes that this is also DEQ's interpretation of the rules, as provided in DEQ's recent amicus brief before the North Carolina Supreme court.[3] As the state agency tasked

[2] Junis Exhibit 11.

[3] Junis Exhibit 10.

with regulatory oversight over the 2L rules, DEQ's interpretation of the regulations should be given great weight.

Likewise of concern to the Commission, witness Wells testified that DEC has taken every action required by DEQ and CAMA to address groundwater impacts. In fact, DEC litigated for years against the DEQ efforts to obtain corrective action through its state court enforcement action brought in 2013. Moreover, the 2L regulations require first and foremost that groundwater exceedances be prevented, whereas witness Wells touted the virtue of the Company's efforts to clean up its violations. The Commission finds that the large extent of groundwater violations is not a model of compliance as the Company witnesses claim; rather, it shows a widespread failure to comply.

The record is also clear that the Company was not in compliance with its NPDES permits, as evidenced by unauthorized discharges, or seeps, from its coal ash impoundments, in violation of N.C.G.S. § 143-215.1. There is substantial evidence in the record of both deliberately constructed seeps and non-engineered seeps at DEC's facilities. Such evidence includes the lawsuit filed by DEQ in 2013 for unlawful discharges at DEC's impoundments,[4] the Joint Factual Statement in the federal criminal case against DEC and DEP,[5] the SOCs entered into between DEC and DEQ for the seeps at the Allen, Cliffside, Belews Creek, Buck, and

[4] On August 17, 2013, DEQ filed a lawsuit against DEC in the Mecklenburg Superior Court for environmental violations at all seven of DEC's coal-fired power plants in North Carolina. See Junis Exhibit 17, Docket No. E-7, Sub 1146.

[5] Hart Exhibit 3.

Marshall plants,[6] and the independent audits conducted at each facility.[7] The enforcement action filed by DEQ in 2013 gave clear warning to DEC that it must correct its illegal seeps, yet most of its coal ash sites were still out of compliance five years later, as shown by the Final Audit Reports.

The Commission next considers whether the Company is "culpable" for the violations of environmental laws and regulations discussed above. The Commission understands the term "culpable" in this context to mean that the Company had a responsibility or duty to comply with environmental laws and regulations, and failed to do so. As established earlier in this Order, the Company knew or should have known of the risks of unlined surface impoundments by the early 1980s. The Commission is persuaded that despite its knowledge of this potential risk, the Company failed to practice adequate risk management. The Company argues that knowledge of the potential risk of contamination did not equate to knowledge of any actual risk at its facilities, but that is precisely the point. A responsible utility would have assessed the risk of contamination at its facilities. As discussed in the testimonies of witnesses Junis, Hart, and Quarles, industry manuals in 1981 and 1982 specifically noted the importance of conducting groundwater monitoring at coal ash impoundments. The Commission notes that this is true of the 1981 EPRI manual even though it was aimed at new facilities, as that particular guidance was logically applicable to all impoundments, not just new impoundments.

[6] Junis Exhibits 7-9.

[7] Junis Exhibit 14.

The Company points to the testing conducted at Allen between 1979 and 1982, the leachate testing conducted in the same timeframe, and the associated 1984 and 1985 reports to argue that the Company voluntarily conducted an assessment and properly concluded that DEC's coal ash impoundments would have no significant impact on groundwater or surface water. The Commission notes that Company witnesses Wells and Williams stated numerous times in their testimony that assessing the impacts of coal ash impoundments on groundwater and surface water is a site-specific determination, with factors such as soil permeability, the vertical distance between the waste and the aquifer, and the depth and direction of groundwater potentially affecting the potential for coal ash to leach into groundwater. Yet, the Company argues that groundwater monitoring conducted at the Allen facility was sufficient to make a conclusion about the impacts of its impoundments at each of its facilities. The Commission is in accord with witness Junis' testimony that such evaluations are necessarily site-specific, and that the Company should have conducted an assessment at each site. The Commission also notes that the Company chose to use as its representative facility one of its newest coal ash impoundments, with the impoundment at Allen only having begun operation in 1972.[8]

Intervenors also pointed to a number of deficiencies with respect to the 1984 and 1985 Allen studies and the conclusions drawn from them, as detailed herein and in the record. For example, witness Junis testified that the Company should have seen the 1985 study as a red flag, as it expected the concentration of

[8] Junis Exhibit 4.

leachates to increase, which would then migrate and degrade the groundwater quality. Witness Quarles likewise testified that the investigation at Allen identified a leachate plume in the groundwater and served as a warning that unlined coal ash impoundments leaked and posed a risk to groundwater quality. Witness Quarles stated that it was unreasonable for the Company to conclude in the 1984 study that soil attenuation capacity would prevent the migration of contaminants over time, and also indicated that the testing showed that arsenic concentrations in groundwater beneath the Allen site exceeded drinking water standards, but that the report's conclusions appeared to look only at impacts to the adjacent surface waterbody and not to groundwater quality.

Because of the numerous deficiencies identified by intervenors and the importance of site-specific evaluations as acknowledged by the Company, and because the 1984 and 1985 Allen studies relied on testing from 1979-1982 for an impoundment that had only been in operation since 1972, the Commission concludes that it was not reasonable for DEC to rely on the studies at Allen to support a conclusion that there would be no significant impact to groundwater or surface water from coal ash impoundments at any of its eight facilities.

The Commission also notes that despite Company witness Williams' testimony that the knowledge and development of groundwater monitoring techniques were inadequate in the early 1980s, the Company continued to rely on the results of its testing at Allen, which was conducted between 1979 and 1982, until 2004, when it installed new wells and detected exceedances. The 1987 Riverbend study, which was based on leachate testing and not groundwater

monitoring, relied on the results of the 1979-1982 testing at Allen. The Company furthered its reliance on the Allen studies by arguing that the 1987 Riverbend study provided support for the Company's continued use of unlined impoundments because of its conclusion that impacts to the groundwater were likely to be minor. The Commission emphasizes that intervenors have also raised questions with respect to the accuracy of the leachate testing conducted for the 1987 Riverbend study and the failure to assess the groundwater as a way to validate conclusions pertaining to the leachate and soil attenuation properties. In sum, the Commission is persuaded by the testimony of the parties and the entire record that the Company was not reasonable in relying on the Allen studies or the Riverbend study for its decision to not conduct groundwater monitoring at each of its facilities.

Further, with respect to witness Williams' testimony regarding the state of knowledge of groundwater monitoring in the early 1980s, the Commission is of the opinion that a responsible utility would have conducted groundwater monitoring as best as it was able with the knowledge it had available to it at the time, including working with Arthur D. Little, EPRI, and regulators. The Commission notes that the Company, however, seemed to historically over-rely on testing conducted at only one site, only to argue now that groundwater monitoring techniques were not understood or developed enough to justify even attempting to test at its other sites.

The record shows that although the Company continued to collect evidence of exceedances at its coal ash impoundments throughout the 1990s, it did not begin comprehensively monitoring the groundwater at its facilities until the mid to

late 2000s.[9] The Commission further notes that, as presented in the testimony and exhibits of witness Junis and as discussed later in this Order, the Company had not fully established background levels at all of its plants until the mid- to late-2010s.[10] The Commission is of the opinion that the failure of the Company to conduct monitoring at each facility at a much earlier date, given the knowledge it had of potential impacts in the early 1980s and the red flags raised by the testing at the Allen site, was unreasonable.

It is also evident, as testified to by intervenor witnesses and confirmed by witness Wells during the hearing, that the nature of the waste stream changed over time as the Company installed air pollution control devices, thereby diverting new and different types of waste into the coal ash impoundments. Although these new waste streams contributed to constituent loading and had the potential to change the pH within the impoundments and mobilize metals, the Company continued to operate its coal ash impoundments in the same manner as it had before.

The Company raised several defenses with respect to its inaction, particularly in the 1980s. First, it argued that its coal ash management practices were consistent with industry practice at the time. Industry practice, however, does not relieve DEC of its responsibility to practice adequate risk management at its coal ash impoundments. The record clearly shows that there was some understanding of groundwater risk well before industry standards changed. Furthermore, the salient fact is that once 2L regulations were adopted in 1979, the

[9] Junis Exhibit 18.

[10] Junis Exhibit 20.

Company had a legal duty to prevent groundwater contamination, and also a duty after 1984 to take corrective action where contamination did occur. Following standard industry practice did not relieve DEC of its legal duty to comply with North Carolina's 2L groundwater standards or act responsibly with respect to its ash basins, and as a prominent utility in the Southeast, the Company would have been among those setting the industry standard.

The Company implied that its historical inaction with respect to its coal ash management practices is partially attributable to other parties. For example, Company witness Wells stated that "intervenors downplay that DE Carolinas' environmental regulators, utility regulators, and intervenors themselves were participants in the Company's long history of coal-fired generation in the Carolinas." The Company asserted that DEQ did not require groundwater monitoring at the Company's facilities in the 1980s, and that it first began adding monitoring requirements to the Company's NPDES permits in 1993, with all the facilities' NPDES permits requiring monitoring only in 2013. The Commission is persuaded, however, that inaction on the part of a regulator does not relieve DEC of its duty to comply with the 2L regulations and practice adequate risk management. DEC witness Wells admitted during cross-examination that the Company is ultimately responsible for its management of coal ash and compliance with environmental regulations, and the Commission concludes that the Company had the responsibility to assess the risk of contamination at its coal ash sites, rather than wait for a directive to do so by DEQ.

Likewise, Company witness Wells referred to the Commission's authority over dam safety inspection reports between 1967 and 2009 to argue that DEQ and the Commission were aware of seeps from the Company's basins well before the CCR Rule and CAMA. During cross-examination, however, he conceded that the reports were intended to assess dam safety and integrity, and that they were not intended to be water quality inspections. Again, the Commission emphasizes that the Company alone was ultimately responsible for compliance with environmental regulations and for the management of its coal ash impoundments.

Witness Williams also contended that the Company acted prudently in waiting until after CAMA and the CCR Rule became law to take specific actions in upgrading or closing the impoundments as long as they were working with environmental regulators to address any site-specific environmental issues. The Commission, however, emphasizes that the Company has had a duty to comply with the 2L rules since 1979—that requirement, indeed, had been quite certain for more than three decades before CAMA and the CCR Rule were enacted and promulgated, respectively. While CAMA and the CCR Rule did undoubtedly provide the Company with certainty regarding methods of closure and corrective action, the Commission is of the opinion that regulatory requirements are ever changing, and that waiting decades to take action with respect to the Company's coal ash impoundments even though the Company was already obligated to comply with the 2L rule and was aware of potential and actual contamination at its coal ash sites was unreasonable.

The Company also accused intervenors of using "hindsight bias" to unfairly judge and criticize the Company's historical coal ash management practices. Upon a review of the entire record, however, the Commission is of the opinion that the Company failed to provide any specific examples of the intervenors' reliance on hindsight. Rather, it appears that intervenors were careful to only apply the knowledge that was available at the time to their assessments of the Company's actions and inactions. In the absence of evidence to the contrary, the Commission concludes that the intervenors' assessment of the Company's historical coal ash management practices was appropriate and did not rely on hindsight.

The Company's position that its coal ash costs were necessary to comply with the CCR Rule and CAMA misses an essential point. The Company's extensive environmental violations, occurring at all its former and current coal-fired power plants across the Carolinas, would have required remediation at considerable expense even without the CCR Rule and CAMA. The CCR Rule and CAMA were simply responses to the extensive environmental damage caused by the storage of coal ash in impoundments, including structural collapses and groundwater contamination. It would be inequitable and poor public policy to conclude that enactment of the CCR Rule and CAMA should shield DEC from cost responsibility for its violations. Certainly, there is no indication that the EPA or the General Assembly intended to shield the Company from this cost responsibility.

With regard to the question of culpability, and as discussed herein, the Commission concludes that the Company had a duty to comply with the state's 2L rules and its NPDES permits pursuant to N.C.G.S. § 143-215.1, and that it failed

that duty. Furthermore, the Commission concludes that the Company's historical inactions—namely, its failure to conduct groundwater monitoring at each of its facilities and take appropriate action based on the results obtained—render the Company culpable for its extensive environmental violations. These environmental violations have directly and indirectly led to significant costs for remediation and closure, for which the Company is requesting recovery from ratepayers.

With respect to the Public Staff's equitable sharing argument, the Commission finds and concludes that it is fair and reasonable to share coal ash-related costs between shareholders and ratepayers. The Commission agrees with the Public Staff that a traditional prudence review is precluded in the case of the Company's coal ash costs due to the virtual impossibility of conducting a comprehensive review of Company records over the 1970s to early 2000s timeframe, the difficulty in determining alternative actions, and the difficulty in quantifying historical costs. Aside from the specific prudence disallowances recommended by the Public Staff, the Commission concludes that it is appropriate to apply equitable sharing to the remaining coal ash costs incurred by the Company from January 1, 2018 through January 31, 2020.

The Commission further agrees with the Public Staff's position that culpability is a relevant factor that the Commission has the discretion to consider in setting rates, pursuant to N.C.G.S. § 62-133(d). Culpability is fact and case-specific, and, in the present case, is due to the Company's failure to comply with longstanding legal and regulatory requirements, resulting in costly remediation and closure requirements. As explained by witnesses Junis and Maness, the Public

Staff's equitable sharing recommendation is based in part on the Company's culpability for its failure to comply with environmental laws and regulations for the protection of groundwater and surface water, and in part on the magnitude and nature of the costs. Witness Maness explained that equitable sharing is reasonable and appropriate in light of the Commission's history of cost sharing between shareholders and ratepayers for certain unusual costs of large magnitude, including the costs of abandoned nuclear construction and manufactured gas plant remediation. As such, he testified that some percentage of equitable sharing would be appropriate even in the absence of culpability.

The Company's challenge to the Public Staff was framed in terms of a prudence analysis, which is different from the Public Staff's equitable sharing position. Imprudent acts or omissions would give rise to a 100% disallowance of specific costs under N.C.G.S. 62-133(b). The equitable sharing of coal ash costs is instead based on DEC's failure to comply with environmental laws and regulations, which shows Company culpability without regard to imprudence. It is also based on the magnitude and extraordinary nature of the costs, which are factors underlying previous equitable sharing decisions of the Commission. For equitable sharing, as opposed to prudence, the applicable statute is G.S. 62-133(d).

The role of the Commission in general rate case proceedings is to set rates that are fair and reasonable for the utility and its customers, within the parameters set forth in the North Carolina General Statutes. These parameters include the provisions of N.C.G.S. § 62-133(a), which provides that "the Commission shall fix

such rates as shall be fair both to the public utilities and the consumer," and also N.C.G.S. § 62-133(d), which provides "[t]he Commission shall consider all other material facts of record that will enable it to determine what are just and reasonable rates." These statutory provisions are in addition to the ratemaking formula in N.C.G.S. § 62-133(b). A total disallowance of certain costs under N.C.G.S. § 62-133(b), on the grounds that those costs are unreasonable, is subject to the prudence standard. The prudence standard examines whether the utility's actions and decisions were reasonable based on what it knew or should have known at the time of decisions, actions, or omissions that led to the costs in question.

In contrast, the exercise of Commission discretion under N.C.G.S. § 62-133(d), including a decision for equitable sharing, is lawful where "other material facts of record" justify an adjustment necessary to achieve "reasonable and just rates." Unlike the cost-oriented prudence standard under N.C.G.S. § 62-133(b), a rate-oriented equitable sharing decision under N.C.G.S. § 62-133(d) does not require the identification of particular or specific costs as resulting from an imprudent decision or act of the utility. N.C.G.S. § 62-133(d) allows for an equitable sharing when otherwise prudent costs would be unreasonable or unjust to include in rates. Because the equitable sharing option alters the normal practice of allowing prudent, and reasonable costs into rates, it should be applied only in unusual circumstances where material facts of record support equitable sharing as the way to achieve reasonable and just rates. For purposes of this proceeding, the Commission finds that "other material facts of record" justify an equitable sharing of CCR expenditures.

Based on the foregoing and the entire record, the Commission finds and concludes that equitable sharing of the coal ash remediation costs, net of disallowances, between ratepayers and investors is fair and reasonable pursuant to N.C.G.S. § 62-133(d), which provides that "[t]he Commission shall consider all other material facts of record that will enable it to determine what are reasonable and just rates." The Commission agrees that culpability is a relevant factor in determining what are "reasonable and just rates" for the recovery of CCR-related costs, and concludes that it would be unjust to require ratepayers to bear the entirety of the deferred coal ash costs where those costs include corrective actions to remedy the Company's environmental violations. The Commission also finds and concludes that, even in the absence of culpability, some level of sharing would be appropriate and reasonable in this proceeding due to the magnitude and extraordinary nature of the coal ash closure and remediation costs.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 7

The evidence supporting this finding of fact and conclusions is contained in the Application, Form E-1, and the testimony and exhibits of DEC witnesses Jessica L. Bednarcik and James Wells, Public Staff witnesses Charles Junis, Michelle M. Boswell, and Michael C. Maness, AGO witness Steven C. Hart, Sierra Club witness Mark Quarles, and CUCA witness Kevin W. O'Donnell.

Summary of the Evidence

DEC DIRECT TESTIMONY

In her direct testimony, DEC witness Jessica Bednarcik testified that DEC is seeking recovery of CCR expenses incurred from January 1, 2018 through June 30, 2019, and costs to be incurred through January 31, 2020, related to reasonable, prudent, and cost-effective approaches to comply with applicable regulatory requirements. (Tr. vol. 13, 193.) Witness Bednarcik testified that pursuant to CAMA, the low-risk impoundments[11] at Belews Creek shall be dewatered and closed either by excavation or by cap-in-place, pending NC DEQ's approval of the closure plan, as soon as practicable, but no later than December 31, 2029. (Id. at 198-99.) Witness Bednarcik provided site details and a description of the work performed at the Belews Creek site in Bednarcik Exhibit 6, which states, in part, that "[t]he tasks that DE Carolinas has performed and will perform from January 1, 2018 through January 31, 2020 are a continuation of the activities for which costs were approved in the prior DE Carolinas rate case" and that "[t]hese activities and associated costs continue to be necessary, appropriate, and consistent with applicable regulatory requirements." (Exh. vol. 15, 347.) Witness Bednarcik concluded that the closure activities described in her testimony for each site were necessary to comply with regulatory obligations, that processes are utilized to ensure costs "are not exorbitant, unnecessary,

[11] Initially classified as intermediate-risk and later revised to low-risk after the "establishment of permanent water supplies and rectification of dam safety deficiencies." (Tr. vol. 13, 198.)

wasteful, or extravagant," and that the Company has properly managed the activities to ensure compliance with appropriate deadlines. (Tr. vol. 13, 216-19.)

INTERVENOR TESTIMONY

Public Staff witness Junis recommended the disallowance of costs incurred at the Belews Creek plant for groundwater extraction and treatment. He testified that costs to remedy environmental violations where the costs exceeded what CAMA would have required in the absence of violations should be disallowed from recovery in rates, which is consistent with the Public Staff's position in the Sub 1146 rate case and the pending appeal before the North Carolina Supreme Court. At the Belews Creek plant, DEC installed wells and appurtenances for the extraction and treatment of groundwater at a cost of $298,433. Witness Junis testified that groundwater extraction and treatment would not be required by CAMA or prior regulations, nor would it be necessary, if DEC had not caused substantial violations of the state groundwater quality standards. (Tr. vol. 20, 404.)

In his testimony in the present rate case, Public Staff witness Junis incorporated by reference his testimony from the Sub 1146 rate case regarding the groundwater quality at Belews Creek, groundwater extraction and treatment performed by DEC, and associated costs. In the Sub 1146 rate case, witness Junis testified that DEQ had assessed a $25.1 million penalty for violations of 2L groundwater standards at the Sutton plant, and that DEP had contested the findings of the assessment in a petition filed at the Office of Administrative Hearings (OAH). On September 29, 2015, the DEP petition for contested case was dismissed pursuant to a settlement agreement with DEQ. In the settlement

agreement, Duke Energy admitted no wrongdoing, but agreed to pay a $7 million penalty to DEQ and to accelerate the remediation of coal ash at DEC's Belews Creek plant and DEP's Sutton, Asheville, and H.F. Lee plants. The remediation work for Belews Creek included extraction wells to pump groundwater in an effort to slow offsite migration from the ash basins. (Docket No. E-7, Sub 1146, Tr. vol. 26, 713-14.)

Witness Junis summarized that DEC contaminated the groundwater at the Belews Creek plant in violation of the 2L rules, and was issued a Notice of Violation for the contamination. The settlement signed by the Company states in part: "data show constituents associated with the ash basins at concentrations over the 2L standards . . . have migrated off site," and "[e]xtraction wells will be used to pump the groundwater to arrest the offsite extent of the migration." (Tr. vol. 20, 456.)

Witness Junis testified that DEC is extracting and treating groundwater at the Belews Creek plant because it is responsible for contaminating the groundwater with coal ash constituents such as arsenic, boron, chromium, manganese, selenium, and others. The Public Staff's position continues to be that DEC should not place these costs on ratepayers. (Id. at 457.)

Witness Junis noted that in its Sub 1146 Order, the Commission stated that it "declines to find that [DEQ's settlement agreement with DEC] evidences violation of environmental obligations."[12] The Order further stated that "there is insufficient evidence that DEC would have had to engage in any groundwater extraction and

[12] Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction, Docket No. E-7, Sub 1146, at 297.

treatment activities absent the obligations imposed upon it by CAMA and/or the CCR Rule," and that "the assertion that DEC's 'violations' resulted in the DEQ Settlement Agreement and in groundwater extraction and treatment costs that would not otherwise have been incurred is incorrect and not supported by the evidence."[13] Witness Junis asked that the Commission take a fresh look at the treatment of groundwater extraction and treatment costs in this case. (Id. at 458.)

Witness Junis stated that DEC has a cumulative total of 3,972 groundwater violations at the Belews Creek plant,[14] including 1,926 groundwater violations at the time of the Sub 1146 rate case.[15] He testified that from a factual standpoint, there was no reason for DEC to extract and treat groundwater unless the groundwater was contaminated, and the exceedance reports show that the groundwater was contaminated by DEC's coal ash impoundment. From a legal standpoint, witness Junis testified that counsel advised him that it is an error to conclude that CAMA or the CCR Rule would have required extraction and treatment of the groundwater at Belews Creek if there were no violations of groundwater quality standards. (Id. at 458-59.)

Witness Junis recommended that the expenditures for groundwater extraction and treatment at the Belews Creek plant not be included in DEC's pro forma adjustment set forth in the E-1, Item 10, NC-1103. He recommended that these costs be disallowed because they are due solely to environmental violations

[13] Id. at 300.
[14] Junis Exhibit 11.
[15] Junis Exhibit 20, Docket No. E-7, Sub 1146.

and they exceed the amount of costs required for CAMA compliance in the absence of environmental violations. (Id. at 459-60.)

AGO witness Hart testified that exceedances of the 2L standard for iron and manganese were detected in a groundwater monitoring well adjacent to a portion of the ash basin at the Belews Creek site in 1989, and that exceedances of the 2L standard for iron and manganese were detected in downgradient groundwater monitoring wells outside of the ash basin waste boundary and within the compliance boundary in 2007. He further testified that concentrations of boron increased "dramatically" over the 2L standard beginning in 2009, and that manganese concentrations continued to increase in the subsequent years. (Tr. vol. 16, 779.) Additional exceedances of the 2L standard for other constituents, cobalt and vanadium, were detected in 2015 after the analyte list was expanded. (Id. at 780.)

DEC REBUTTAL TESTIMONY

In her rebuttal testimony, DEC witness Bednarcik testified that the Company has cumulatively incurred $1,793,511.72 related to its extraction well system at Belews Creek. A large portion of these costs – $1,495,078.43 – were recovered as part of the Sub 1146 rate case, and the Company is seeking to recover the remaining costs of $298,433.29 in the instant case. Witness Bednarcik stated that the Public Staff recommended disallowance of rate recovery for the cost of extraction wells and groundwater treatment at Belews Creek in the 2017 rate case, and the Commission "rightly rejected the proposed disallowance, finding the Company's CCR expenses . . . were reasonably and prudently incurred." (Tr. vol.

24, 91.) She disagreed with Public Staff witness Junis' contention that the cost of extraction wells and treatment at Belews Creek should be disallowed because such costs would not have been necessary under CAMA without violations of the state groundwater standards. (Id.)

Witness Bednarcik testified that "[b]ecause the measures undertaken at Belews Creek were reflected in the Sutton Settlement Agreement, they were moved up in time from when they would have otherwise been required, but DE Carolinas would have installed extraction wells at Belews Creek in order to comply with CAMA even without the Sutton Settlement Agreement." (Id. at 91-92.) She also referenced language from the Sub 1146 Order that stated, "the assertion that DE Carolinas' 'violations' resulted in the [Sutton Settlement Agreement] and in groundwater extraction and treatment costs that would not otherwise have been incurred is incorrect and not supported by the evidence." (Id. at 92.) Witness Bednarcik further asserted that witness Junis' reliance on the fact that groundwater exceedances measured at Belews Creek have "increased from 1,926 in 2017 to 3,972 today" was "indicative of a basic misunderstanding of the 2L exceedance/violation process." (Id.) Witness Bednarcik concluded that an increase in 2L exceedances does not suggest an increase in groundwater contamination around the Belews Creek Plant, but rather is to be expected and shows ongoing sampling and compliance with CAMA. (Id. at 92-93.)

On cross-examination, witness Bednarcik was asked whether CAMA or the CCR rule would have required groundwater extraction and treatment at Belews Creek if the Company did not have exceedances at or beyond the compliance

boundary. Witness Bednarcik conceded that the extraction wells were installed at Belews Creek "because [DEC] had . . . exceedances beyond the compliance boundary." (Id. at 127.) Furthermore, witness Bednarcik agreed that, in general, groundwater and the constituents carried in groundwater flow through and past monitoring wells over time. When asked to confirm that sampling groundwater at the same well over time does not equate to sampling the same water over and over again, she responded that "it depends on when you do the sampling and the flow rate of that specific site." (Id. at 128.)

DISCUSSION AND CONCLUSION

With regard to groundwater extraction and treatment costs at Belews Creek, the Commission is persuaded by the arguments made by the Public Staff in support of a disallowance. There is sufficient evidence to show that there were and continue to be exceedances of the 2L groundwater quality standards at or beyond the compliance boundary at Belews Creek. For example, the Company's groundwater monitoring reports show exceedances of 2L groundwater quality standards at or beyond the compliance boundaries.[16] As shown in Junis Exhibit 11, DEC has violated the regulatory limits for constituents listed in 2L and IMAC standards and federal maximum contaminant levels at the Belews Creek plant 3,972 times. No party, including DEC, contested the number of groundwater exceedances presented by witness Junis.

[16] Junis Exhibit 11.

In addition, groundwater detection and assessment monitoring results submitted by DEC pursuant to the CCR Rule show exceedances of the groundwater protection standards.[17] The 2016, 2017, 2018, and 2019 Environmental Audit reports, summarized in Junis Exhibit 13, also show groundwater exceedances at Belews Creek, and indicate that the exceedances are due to the ash basins.[18] The Environmental Audit reports indicate exceedances of the following constituents at or beyond the compliance boundary: antimony, arsenic, beryllium, boron, cadmium, chromium, cobalt, iron, manganese, nickel, pH, selenium, sulfate, thallium, TDS, vanadium, and zinc. The Environmental Audits were conducted by independent consultants, reporting to Duke Energy and the Court Appointed Monitor, as a condition of the Company's federal probation. Furthermore, the Sutton Settlement Agreement stated that the Belews Creek plant demonstrated off-site groundwater impacts.[19] Importantly, the Commission notes that, as discussed earlier in this Order, DEQ has confirmed its position that an exceedance of the 2L standard at or beyond the compliance boundary constitutes a violation of the 2L rules.[20]

The wording in the Sutton Settlement Agreement makes clear the need to mitigate the impacts of contaminated groundwater coming from Duke Energy ash basins and impacting property adjacent to Duke Energy's plant sites:

[17] Junis Exhibits 15-16.
[18] Junis Exhibit 13.
[19] Junis Exhibit 29 at 6, Docket No. E-7, Sub 1146.
[20] Junis Exhibit 10.

II. DUKE ENERGY'S OBLIGATIONS

A. Consistent with 15A NCAC 2L .0106 Duke Energy shall implement accelerated remediation at the Sutton Plant on the following terms and conditions:

(1) Duke Energy will commence installation of extraction wells on the eastern portion of the Sutton Plant property where data show constituents associated with the ash basins at concentrations over the 2L standards ("Constituents of Interest") have migrated off site.

(2) Extraction wells will be used to pump the groundwater to arrest the off-site extent of the migration. The pumped groundwater will be treated as needed to meet standards and returned either to the ash basin or the discharge canal.

(3) This extraction and treatment system will be installed as soon as practicable following receipt of all permits and approvals from DEQ, the issuance of which will occur as soon as practicable. This accelerated groundwater remediation is in addition to and shall be performed concurrent with the coal ash impoundment closure obligations set forth in CAMA.

(4) The extraction wells shall remain operational until such time as Duke Energy demonstrates through sampling, analysis, and appropriate modeling, and subject to DEQ's written concurrence, that off-property constituents of interest have been remediated to 2L Standards and there is no reasonable potential for future off-site migration.

(5) As part of accelerated remediation, DEQ agrees that dry ash can be removed from the head of the ash basins under a construction storm water permit and shall expedite such construction storm water permit in order for Duke Energy to commence the removal of ash which is the source of the constituents of interest from the Sutton Plant. DEQ will issue construction storm water permits for Sutton plant within 10 days of receiving Duke Energy's complete application. Only dry ash from the head of the ash basins will be removed with no impact to wastewater treatment or water levels in the basins. DEQ shall use its best efforts to complete the process of the issuance of the NPDES permit modification at the Sutton Plant to allow for the removal of water and ash beyond the areas covered under the construction storm water permit from the Sutton Plant.

B. Consistent with 15A NCAC 2L .0106 Duke Energy shall implement accelerated remediation at the Asheville Plant,

> Belews Creek Plant, and H.F. Lee Plant, which are the only three other Duke Energy facilities that demonstrated offsite groundwater impacts in isolated areas that are not impacting private wells in the Comprehensive Site Assessments conducted pursuant to CAMA. Such accelerated remediation shall be tailored to each facility's unique characteristics.

(Emphasis added.) The purpose of the Belews Creek extraction wells is to arrest the off-site spread of coal ash constituents, in exceedance of 2L standards, coming from the Belews Creek plant, and DEC witness Bednarcik admitted during cross-examination that the extraction wells were needed because of groundwater contamination beyond the compliance boundary.

The Commission also finds relevant the Corrective Action Plan (CAP) Update for the Belews Creek Steam Station, dated December 31, 2019, referenced by witness Wells in his rebuttal testimony.[21] The report states that "[t]he groundwater remediation approach presented in this CAP Update can be implemented under either [basin closure-in-place or closure-by-excavation] to achieve 02L .0202 groundwater quality standards at the 500 foot compliance boundary within approximately 13 years after system start up and operation, based on groundwater modeling simulations."[22] The CAP Update further states, "A robust

[21] Corrective Action Plan Update, Belews Creek Steam Station (Dec. 31, 2019) (filed in this docket on November 3, 2020, pursuant to the Commission's November 2, 2020 Order Granting Public Staff's Motion to Take Judicial Notice of Testimony and Exhibits Presented by Witnesses During Duke Energy Progress, LLC, Hearing and Additional Documents, and Requiring Public Staff to File Electronic Versions of Duke Energy Carolinas, LLC's Corrective Action Plans). In his rebuttal testimony, DEC witness Wells testified that, in December 2019, DE Carolinas submitted to DEQ groundwater CAPs for Allen, Belews Creek, Cliffside, and Marshall. The CAPs include extensive descriptions of site conditions, major modelling efforts for each site, determinations of background threshold values (BTVs), Human Health and Ecological Risk Assessments, and evaluations of potential surface water impacts, among other things. In light of this work, witness Wells asserted that DEC has great confidence in its understanding of site groundwater dynamics and in its ability to address groundwater conditions through appropriate corrective action. (Tr. vol. 27, 67-68.)

[22] Id. at ES-2.

groundwater remediation approach planned for the Site includes actively addressing [constituents of interest] with concentrations greater than applicable standards at or beyond the compliance boundary using a combination of groundwater extraction combined with clean water infiltration and treatment" and includes the following preferred remediation system: 10 existing vertical extraction wells northwest of the ash basin, 113 new vertical extraction wells north and northwest of the ash basin, 47 vertical clean water infiltration wells north and northwest of the ash basin, and one horizontal clean water infiltration well northwest of the ash basin.[23] This document demonstrates the extent of remediation necessary to address the groundwater contamination caused by DEC's coal ash impoundment at the Belews Creek site. Of particular interest is the estimate that it will take approximately 13 years to bring the Company into compliance with the 2L rules at Belews Creek.

Based on the entire record, the Commission finds and concludes that the costs incurred of $298,433 at the Belews Creek plant for groundwater extraction and treatment should be disallowed. There is clear evidence that there were and continue to be violations of the state's groundwater quality standards at Belews Creek, and DEC has admitted that the groundwater extraction wells were installed because of exceedances beyond the compliance boundary of its ash basin at the Belews Creek plant. Furthermore, these violations resulted in costs that would not otherwise have occurred under CAMA or the CCR Rule. The Commission is persuaded that it would be unreasonable to charge ratepayers for costs of

[23] Id. at ES-3.

environmental violations over and above the costs required to comply with CAMA in the absence of environmental violations.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 8

The evidence supporting these findings of fact and conclusions is contained in the Application, Form E-1, the testimony of public witnesses, and the testimony and exhibits of DEC witnesses Jessica L. Bednarcik, James Wells, and Marcia E. Williams, Public Staff witnesses Charles Junis, Michelle M. Boswell, and Michael C. Maness, AGO witness Steven C. Hart, Sierra Club witness Mark Quarles, and CUCA witness Kevin W. O'Donnell.

Summary of the Evidence

DEC DIRECT TESTIMONY

In her direct testimony, DEC witness Jessica Bednarcik testified that from September 2016 to July 2018, she held the position of Special Assignment Leader in the Environmental, Health and Safety department and managed the provision of permanent water required by North Carolina House Bill 630. (Tr. vol. 13, 192.) She testified that DEC is seeking recovery of CCR expenses incurred from January 2018 through June 30, 2019, and costs to be incurred through January 31, 2020, related to reasonable, prudent, and cost-effective approaches to comply with applicable regulatory requirements. (Id. at 193.) Witness Bednarcik testified that the 2016 CAMA amendments required the Company to provide permanent replacement water supplies to all homeowners with drinking water supply wells located within a one-half mile radius of the compliance boundaries of each of the

Company's coal ash impoundments. She added that CAMA provided a preference for permanent replacement water supplies by connection to public water systems, as opposed to the installation of filtration systems, CAMA provided, however, that homeowners may elect to receive filtration systems, and that DEQ may determine that connection to a public water supply to a particular household would be cost prohibitive, resulting in the installation of a filtration system. (Id. at 199.)

Witness Bednarcik testified that to comply with the 2016 CAMA amendments, DEC has incurred costs for permanent water supplies, including costs for "the planning, design, and installation of municipal water mains and/or service lines; the planning, design and installation of water treatment systems; and taxes and fees for permitting and connection of the water lines and water treatment systems." Costs also included communications to homeowners and the development of reports required by DEQ to certify completion of the permanent water supply provision. (Id. at 205.)

INTERVENOR TESTIMONY

Public Staff witness Junis recommended disallowance of recovery in rates for the costs to provide bottled water and permanent alternative water supplies to neighboring properties. (Tr. vol. 20, 404.) Witness Junis first testified that the Public Staff had confirmed that the expenditures for bottled water provided to households in the vicinity of DEC plants during the period of January 2018 through November 2019, in the amount of $856,034 on a system basis, including the bottled water itself, the delivery company, personnel associated with the delivery, and the consulting firm that managed the overall bottled water delivery program, had been

excluded by DEC in its pro forma adjustment set forth in the E-1, Item 10, NC-1103. He stated that the adjustment aligned with the Public Staff's recommendation in this case, as well as the Commission's decision to disallow such costs in the Sub 1146 rate case. (Id. at 460.)

With regard to permanent alternative water supplies, Witness Junis testified that the Company was required to connect eligible residential properties to municipal water systems per N.C. Gen. Stat. §130A-309.211(c1). He recommended that the costs for the period of January 2018 through November 2019, in the amount of $16,882,665 on a system basis, be disallowed by exclusion from DEC's pro forma adjustment set forth in the E-1, Item 10, NC-1103. Witness Junis further testified that as an alternative to connections to municipal water systems, N.C.G.S. §130A-309.211(c1) allowed for the installation, operation, and maintenance of water filtration systems. Witness Junis recommended that the costs for the period of January 2018 through November 2019, in the amount of $962,524 on a system basis be disallowed. Lastly, witness Junis testified that the Company had voluntarily connected businesses and residential properties that were otherwise not eligible under CAMA to permanent alternative water supplies. Witness Junis explained that the Company had excluded the voluntary costs from the rate request, and he therefore recommended that no adjustments with regard to those voluntary connections were necessary. (Id. at 460-61.)

Witness Junis asserted that the costs for permanent alternative water supplies—both the public water supply connections and the filtration systems—and the bottled water costs discussed above were the direct result of the legislature

deciding that coal ash constituents from DEC's impoundments created an unacceptable risk to people's groundwater wells in the vicinity of the coal ash impoundments. He noted that in the last rate case, the Commission had determined that the costs for bottled water supplies should be disallowed. He further referenced Commissioner Clodfelter's dissent in the Sub 1146 Order, in which Commissioner Clodfelter stated that, like the bottled water costs, costs for permanent alternative water supplies should be disallowed. (Id. at 461.)

As discussed in greater detail earlier in this Order, witness Junis provided evidence in his testimony of violations of state and federal laws and regulations that have resulted from DEC's management of its impoundments, including, but not limited to, federal criminal misconduct, unlawful surface water discharges in violation of N.C. Gen. Stat. § 143-215.1, and exceedances of groundwater quality standards at all of DEC's coal ash sites. (Id. at 463-64.)

Witness Junis testified in summary that the costs to connect eligible residential properties to permanent alternative water supplies and, alternatively, the installation, operation, and maintenance of water treatment systems, as required by CAMA, should be excluded from rate recovery. He stated that these costs, in the amount of $17,845,189, are the direct result of the legislature deciding that DEC's coal ash management had created an unacceptable risk to people's groundwater wells in the vicinity of the impoundments. He testified that the permanent alternative water supplies serve the same purpose as bottled water—protecting neighbors surrounding the coal ash impoundments from contamination

risks—and therefore should be excluded from cost recovery just as bottled water costs have been excluded. (Id. at 476.)

AGO witness Hart testified that the requirement under CAMA to connect all households to alternate water supplies was likely a result of DEC's delay in addressing groundwater impacts. He asserted that it is “unheard of for a company to have to connect properties to alternate water when those water supplies are not impacted, as is maintained by DEC.” (Tr. vol. 16, 826.) Witness Hart stated that he believed the connections were “warranted by law because DEC, once it knew it had groundwater issues, failed to determine the extent of groundwater impacts, reliably establish background concentrations, and perform adequate receptor evaluation.” (Id.) He testified that, instead of taking these reasonable actions, “DEC contended that there were no water supply well receptors in the area of its facilities and maintained that position despite there being no indication that it performed comprehensive receptor surveys until required to do so under CAMA.” (Id.) Witness Hart concluded that the permanent water supply costs were directly related to DEC's delay in evaluating groundwater impacts and, therefore, recommended that the related costs in the amount of $17,527,070 should not be included in DEC’s recovered costs. (Id.)

Sierra Club witness Quarles testified that “[i]n numerous cases, rather than initiating corrective actions to eliminate or mitigate [groundwater] contamination,” Duke Energy companies have purchased affected properties or provided

alternative drinking water sources.[24] (Tr. vol. 18, 51.) He then provided several examples:

> For example, at the Sutton site, DEP removed two public drinking water wells from service and provided an alternative supply. At the H.F. Lee site, DEP purchased the land within 500 feet of the site. At the Mayo site, DEP purchased property immediately downgradient of its ash basin. Both DEC and DEP have provided bottled water to residents near ash sites. In Indiana, Duke Energy bought and demolished one home and connected others to the municipal water supply.

(Id.)

Witness Quarles testified in summary that DEC's "inaction resulted in more widespread contamination of the state's groundwater resources, jeopardy to present and future drinking water sources, the need for alternative drinking water supplies, and millions of tons more ash to be dewatered, excavated, and redisposed of, all driving higher cleanup and risk reduction costs." (Id. at 62.)

CUCA witness O'Donnell testified that the Commission should disallow the incremental costs associated with CAMA versus the federal CCR Rule. (Tr. vol. 20, 27.)

DEC REBUTTAL TESTIMONY

In her rebuttal testimony, DEC witness Bednarcik testified that N.C.G.S. § 130A-309.211(c1) required DEC to establish permanent replacement water supplies for each household that has a drinking water supply well located within a one-half mile radius from the established compliance boundary of a CCR

[24] Duke Energy Senior Management Committee, Ash Basin Closure Update at 46, 65 (Jan. 13, 2014) (AGO Fountain Cross Exhibit 6, Docket No. E-7, Sub 1146).

impoundment and that the requisite replacement water supply can be achieved either through connection to public water supplies or, in certain circumstances, through installation of a filtration system at the household. (Tr. vol. 24, 93-94.) Witness Bednarcik further testified that the requirement exists even absent the existence of a 2L exceedance for qualifying households, and that it also applies to households outside the half-mile radius where such exceedances were identified. (Id. at 94.)

Witness Bednarcik noted that Public Staff witness Junis "argues that the permanent alternative water supply expenses are analogous to the costs the Company incurred to provide temporary bottled water supplies to customers and should, therefore, be disallowed." (Id. at 95.) In rebuttal, witness Bednarcik contended that the Commission had the opportunity to deny recovery of the alternative water supply and water treatment system costs on the same grounds as the temporary bottled water cost disallowance in the Sub 1146 rate case, but that the Commission's decision to grant rate recovery of such costs in that case shows that the expenses were incurred to comply with CAMA and are equally appropriate for recovery in the present rate case. (Id.)

In response to AGO witness Hart's testimony that the permanent replacement water supply requirements under N.C.G.S. § 130A-309.211(c1) were likely enacted in response to DEC's delay in addressing groundwater impacts, witness Bednarcik testified that subsection (c1) was enacted as an amendment to CAMA in July 2016, less than two years after the General Assembly passed the original law. She added that it was "nonsensical to suggest that the Company

delayed taking action following the passage of CAMA," because CAMA contains detailed provisions for corrective action, including addressing any groundwater impacts, and requires that any such action must first be subject to the review and approval of DEQ. (Id. at 95.) Witness Bednarcik testified that "history demonstrates that the environmental regulatory regime is an ever-evolving body of law, and it would be impossible to connect CAMA or any of its provisions to any singular underlying act" by the Company. (Id. at 96.)

On cross-examination, witness Bednarcik testified that the provision of permanent water supplies pursuant to CAMA is not contingent upon an exceedance at the homeowner's well, and that whether it was shown that the groundwater at neighboring "homes was impacted by coal ash constituents . . . didn't matter." (Id. at 130.) Regarding the groundwater quality of neighboring homeowners, she stated that the groundwater models and data do not indicate a risk. (Id. at 132.) Witness Bednarcik testified that there was a lot of groundwater data being collected and shared with DEQ prior to the CAMA amendments in 2016, and that background levels at each of the sites were being evaluated by DEQ "during the 2014/2015 time period," but that she did not know if or when background concentration levels were established and approved. (Id. at 133.)

In his rebuttal testimony, DEC witness Wells testified that "[g]roundwater contamination at [the DEC sites] does not threaten human health and safety." (Tr. vol. 27, 57.) He further testified that groundwater contamination "has not migrated to drinking water wells and there is no pathway to human exposure." (Id.) Witness Wells expanded by stating that groundwater contamination has not caused

damage to property and that the exceedances are “almost entirely confined to DE Carolinas’ property, close to the basins.” (Id. at 58.) He testified that groundwater assessment requires the installation of a large number of wells and an understanding of the groundwater flow and “contaminant fate and transport” over a large area. Witness Wells further testified that “[a]fter the passage of CAMA and even with decades of earlier data, it took DE Carolinas and DEQ over five years of sustained effort to decide what kinds of information were necessary to support decision-making, and to collect the information and present it in the form of corrective action plans.” (Id. at 69.)

In her rebuttal testimony, DEC witness Marcia Williams testified that AGO witness Hart “without justification” recommended removal of the costs for permanent water supply connections. (Id. at 179.) She further contended that it was “speculative and not supported by evidence or experience” for witness Hart to conclude that an earlier action by DEC would have led to different remedial requirements in North Carolina, including precluding the enactment of the permanent water supply requirement. (Id.)

Discussion and Conclusions

With regard to the permanent alternative water supply and treatment system costs, the Commission is persuaded in part by the arguments made by the AGO and gives substantial weight to the arguments made by the Public Staff in support of a disallowance. As discussed in greater detail in the Evidence and Conclusions for Finding of Fact No. 7, there is sufficient evidence to show that there were and continue to be exceedances of the 2L groundwater quality standards at or beyond

the compliance boundary at all of DEC's active and retired coal-fired power plants. The requirement to provide permanent alternative water supplies to neighboring households is meant to protect those neighbors from risks presented by the groundwater contamination stemming from DEC's coal ash impoundments, which is expected to take years to remediate.

Subsection (c) of 2014 CAMA required the owner of a coal combustion residuals surface impoundment to conduct a survey that would identify all drinking water supply wells within one-half mile downgradient from the established compliance boundary of the impoundment and initiate sampling and water quality analysis as required by DEQ. Furthermore, if the sampling and water quality analysis indicated that water from a drinking water supply well exceeds groundwater quality standards for constituents associated with the presence of the impoundment, it provides that the owner shall replace the contaminated drinking water supply well with an alternate supply of potable drinking water within 24 hours, and an alternate supply of water that is safe for other household uses within 30 days, of the Department's determination that there is an exceedance of groundwater quality standards attributable to constituents associated with the presence of the impoundment.

The Commission is persuaded that when the North Carolina legislature passed the CAMA amendment requiring the provision of alternative water supplies, it was to protect neighboring homeowners from the risks posed by the groundwater contamination caused by DEC's coal ash impoundments. Regardless of whether such contamination has or will reach neighboring groundwater wells, the fact

remains that a requirement to provide permanent alternative water supplies would not exist were it not for the Company's groundwater contamination, which extends beyond the compliance boundary in violation of the state's 2L rules at each of the Company's active and retired coal-fired power plants. The Commission is also of the opinion that its rationale behind disallowing the costs of bottled water in the last rate case applies in the same manner to the permanent alternative water supply costs recommended for disallowance in the current proceeding, and that, just as bottled water costs were disallowed, permanent alternative water supply costs should be disallowed, as well.

Based on the entire record, the Commission finds and concludes that it would be unreasonable to charge ratepayers for the costs of permanent alternative water supplies and treatment systems. The specific costs identified in this case are $16,882,665 for public water supply connections and $962,524 for filtration systems, for a total of $17,845,189 on a system basis, and the Commission finds that these costs should be disallowed. These costs have been incurred as a result of the North Carolina legislature mandating the provision of alternative water supplies in order to protect neighboring homeowners from the groundwater contamination from DEC's coal ash impoundments, and it would be unreasonable to place these water supply costs on ratepayers. Just as the Commission denied cost recovery for bottled water costs in the last rate case proceeding, the Commission now denies recovery of the costs associated with the provision of permanent alternative water supplies.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 9-11

The evidence for these findings of fact and conclusions is found in the Company's Application, Form E-1, and the testimony and exhibits of DEC witness Bednarcik and Public Staff witnesses Garrett and Maness.

DEC DIRECT TESTIMONY

DEC witness Bednarcik is the Vice President of Coal Combustion Products, Operations, Maintenance and Governance for DEBS. She has held the position since 2019. (DEC Tr. vol. 13, 191-92.) Witness Bednarcik testified on cross-examination that she did not have any first-hand experience with the negotiation of the Charah Master Contract. (Id. at 224-25.)

In her direct testimony, witness Bednarcik stated that in 2014 Duke Energy executed a contract with Charah to dispose of coal ash from DEC's Riverbend site and DEP's Sutton, Cape Fear, H.F. Lee, and Weatherspoon sites. According to witness Bednarcik, the contract required Duke Energy to provide a "minimum amount" of coal ash to be disposed of by Charah. Witness Bednarcik further testified that, as a result of amendments to the CAMA, Duke Energy altered its closure strategy after entering into the Charah Master Contract and, therefore, did not send the amount of ash contracted for. Witness Bednarcik testified that this resulted in the termination of the Charah Master Contract which, in turn, led Duke Energy to incur a fulfillment fee of $80 million, $46,329,946 of which was allocated to DEC for costs incurred and anticipated to be incurred by Charah associated with ash from its Riverbend site. (Id. at 212.)

Witness Bednarcik opined that it was reasonable and prudent for DEC to enter into a contract with Charah that could result in the imposition of a fulfillment fee. She testified that, it is "common and reasonable" to require a "minimum investment from the company receiving the service" where an agreement requires a contractor to develop large infrastructure and that Charah's "infrastructure arrangements" in the context of the Charah Master Contract included purchasing land, permitting, rail construction, and landfill and leachate system construction. (Id. at 213.)

INTERVENOR TESTIMONY

Public Staff witness L. Bernard Garrett is a licensed professional engineer. He has 30 years of experience engineering coal ash management projects and has performed services such as landfill design, permitting, and construction, and landfill closure design, permitting, and construction. (Tr. vol. 20, 199.)

On behalf of the Public Staff, witness Garrett investigated the prudence and reasonableness of the costs DEC incurred at its two high-priority sites, Riverbend and Dan River, by reviewing the testimony and work papers of DEC witnesses Bednarcik and Immel, conducting discovery regarding the actions taken and costs incurred by the Company at its high-priority sites, and participating in site visits and conference calls with DEC personnel. Based on his investigation, witness Garrett recommended that the Commission disallow $46,142,699 in costs DEC seeks to recover related to the fulfillment fee the Company paid to Charah. (Id. at 201-04.)

In his testimony, witness Garrett engaged in an in-depth analysis of the Charah Master Contract. He opined that Duke Energy was not financially

committed to Charah at the time it executed the contract and cited several excerpts from the contract in support, including the following excerpts from page one of the contract and Section 2.2 on page B-6 of Exhibit B to the contract, respectively:

[BEGIN CONFIDENTIAL]

[redacted]

[redacted]

[END CONFIDENTIAL]

(Id. at 206-07; emphasis in original.)

Witness Garrett testified that it was not until Duke Energy issued Purchase Order **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]** Witness Garrett testified that the Company was not financially committed for ash to be disposed of at a second site, the Sanford Mine, because no purchase order was issued for ash to be disposed of there. (Id. at 208-09.)

Witness Garrett explained that the Termination provisions of the Charah Master Contract became effective on May 29, 2019, and that as of that date, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** were delivered. (Id. at 209-10.)

[BEGIN CONFIDENTIAL] [redacted]

[redacted]

[25] Confidential Garrett Exhibit 1.

[redacted]

[END CONFIDENTIAL] Witness Garrett testified that the Prorated Costs referenced in the Termination provisions were calculated using two components: **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]

[END CONFIDENTIAL] (Tr. vol. 20, 211-12.)

Witness Garrett testified that the part of the definition of **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 214-15.)

When asked on cross-examination whether the sentence in **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted] **[END CONFIDENTIAL]** (Id. at 335-41.)

Witness Garrett opined that in order for the calculation of the Prorated Percentage to "achieve the intended and reasonable purpose" of compensating Charah for the costs it incurred to perform under the contract the denominator used to calculate the Prorated Percentage should be the quantity of ash authorized by purchase orders. Based on this opinion and the quantity of ash authorized to be disposed of by actual purchase orders, witness Garrett performed the following alternative Prorated Percentage calculation: **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** Applying his alternative Prorated Percentage calculation to development costs[26] which he calculated to be **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 215-16.)

[26] Confidential Garrett Exhibit 2.

Witness Garrett testified that he would allocate all of the Prorated Costs to the DEC's Riverbend Station because **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** Witness Garrett noted that the cost per ton of his recommended $187,247 fulfillment fee allocated to DEC was $11.40, whereas the cost per ton of the $46,329,946 fulfillment fee allocated to DEC that the Company sought to recover was $2,820.70. (Id. at 217.)

Witness Garrett testified that upon termination of the Charah Master Contract, Duke Energy did not follow the pricing methodology established in the Charah Master Contract. Rather, Duke Energy asked Charah to supply the land acquisition, development, closure, post-closure monitoring, and leachate collection and disposal costs, if any, for which it sought reimbursement, which Charah asserted totaled **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** Witness Garrett further testified that it appeared Duke Energy had reviewed and excluded some of the costs supplied by Charah on the basis they were not development-related, and arrived at a total of **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** He stated that the significant disparity between the costs asserted by Charah and those arrived at by Duke Energy was "evidence of the significant flaws in the Termination provisions of [the Charah Master Contract] and of the unreasonableness and imprudence of Duke Energy's execution of the contract." (Id. at 219-20.) On cross-examination, **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]." **[END CONFIDENTIAL]** (Id. at 343.)

Witness Garrett reviewed each "Permit to Operate, Approval to Commence Operations" issued by DEQ for the development and operations at the Brickhaven Mine and the "Partial Closure Notifications" submitted by Charah to DEQ. Based on those documents, witness Garrett determined that Charah developed Brickhaven "only as reasonably necessary to accommodate the phased ash volumes authorized under the applicable purchase orders" and did not incur costs before purchase orders were issued. Witness Garrett also determined based on his analysis and his expert, professional judgment that $82,313,644 was a reasonable cost for the work Charah completed at the Brickhaven Mine that was reimbursable under the Development portion of the Unloading/Development/Placement $/ton price set out in the Charah Master Contract. Witness Garrett testified, "Given that Charah was paid approximately **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** under the development portion of the Unloading/Development/Placement $/ton price, I conclude that Charah was reasonably reimbursed for the actual development cost incurred at Brickhaven under the Development portion of the Unloading/Development/Placement $/ton price in the purchase orders." (Id. at 224-26.) As an alternative, and assuming the Commission gave substantial weight to the settlement and Prorated Costs calculations of Duke Energy and Charah, applying the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** Prorated Percentage calculated by the Company, which he found to be unreasonably high,

to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, the development costs he calculated in Confidential Garrett Exhibit 2, witness Garrett concluded that the fulfillment fee should equal the following Prorated Costs calculation: **[BEGIN CONFIDENTIAL]** [redacted]." **[END CONFIDENTIAL]** (Id. at 227.)

On redirect examination, witness Garrett testified that **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]

[END CONFIDENTIAL] (Id. at 362-63.)

DEC REBUTTAL TESTIMONY

In her prefiled rebuttal testimony, DEC witness Bednarcik provided an explanation of Duke Energy and Charah's decision to include the fulfillment fee provisions in the Charah Master Contract. She stated, as she did in her prefiled direct testimony, that the Charah Master Contract required Duke Energy to "provide a minimum amount of coal ash for disposal at Charah's Brickhaven and Sanford Clay Mines." She asserted that "This arrangement reflected the fact that Charah, at the time of contracting, did not own sufficient land to accommodate the ash it was being engaged to manage." She testified that **[BEGIN CONFIDENTIAL]**

[redacted]

[redacted] ." **[END CONFIDENTIAL]** (Id. at 54-55.)

In response to witness Garrett's proposal that **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** witness Bednarcik testified, "while Mr. Garrett is correct that DE Carolinas was not financially committed to provide Charah with quantities of ash for *excavation* beyond those identified in the purchase orders, the Company was still financially obligated to make Charah whole for [P]rorated [C]osts per the [P]rorated [C]ost [T]riggering [E]vent definition in the Master Contract." (Id. at 57; emphasis in original.) She further testified that **[BEGIN CONFIDENTIAL]** [redacted] ." **[END CONFIDENTIAL]** (Id. at 57-58; emphasis in original.)

Witness Bednarcik testified that, for contracts that require a contractor to invest a large amount of capital in order to be able to perform its obligations under the contract, it is common practice to include fulfillment fee-related terms and conditions. (Id. at 59.) However, on redirect examination in the E-2, Sub 1219, rate case hearing, when confronted with the response to discovery served by the Public Staff requesting examples of projects other than the Brickhaven and Sanford structural fill projects that have required a minimum investment, witness Bednarcik agreed that the DEP provided just one example in response. Witness Bednarcik further agreed that the example provided, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** (DEP Tr. vol. 17, 454-56.)

Witness Bednarcik testified that Duke Energy' inclusion of a **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** (Tr. vol. 24, 61.) On

cross-examination, witness Bednarcik testified **[BEGIN CONFIDENTIAL]** [redacted] ." **[END CONFIDENTIAL]** (Tr. vol. 25, 36-37.) Witness Bednarcik acknowledged that **[BEGIN CONFIDENTIAL]** [redacted] . **[END CONFIDENTIAL]** (Id. at 32-33, 35-36.)

On cross-examination by the Public Staff regarding **[BEGIN CONFIDENTIAL]** [redacted]

[redacted] ." **[END CONFIDENTIAL]** (Tr. vol. 24, 171-72.)

Witness Bednarcik further testified on cross-examination that **[BEGIN CONFIDENTIAL]** [redacted] ." **[END CONFIDENTIAL]** She added that, **[BEGIN CONFIDENTIAL]** [redacted] ." **[END CONFIDENTIAL]** (Id. at 175.) Regarding **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]." **[END CONFIDENTIAL]** (Id. at 196-97.)

Witness Bednarcik was asked on cross-examination **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[END CONFIDENTIAL] (Id. at 176-78.)

Witness Bednarcik was also asked on cross-examination **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[27] DEC Bednarcik Confidential Rebuttal Exhibit 1.

[redacted]

[END CONFIDENTIAL] (Id. at 187.)

When asked on cross-examination **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted] **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**

[redacted] **[END CONFIDENTIAL]** (Id. at 188-89.)

Witness Bednarcik testified on several occasions during her cross-examination that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 172, 192.)

On cross-examination, witness Bednarcik was presented with **[BEGIN CONFIDENTIAL]** [redacted]

[redacted] **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**

[redacted]. **[END CONFIDENTIAL]** (Tr. vol. 25, 28-32.)

In response to questions from the Commission, witness Bednarcik acknowledged **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** (Id. at 64-65.) Witness Bednarcik also agreed that **[BEGIN**

[30] Garrett Confidential Exhibit 6.

CONFIDENTIAL] [redacted].

[END CONFIDENTIAL] (Id. at 78.)

COMMISSION REVIEW OF EVIDENCE AND CONCLUSIONS

The Commission in this proceeding is asked to address the reasonableness and prudence of DEC's coal ash costs. Unreasonable costs, which may include costs resulting from imprudence, are properly disallowed under N.C.G.S. § 62-133(b). The Commission has stated the prudence standard as follows:

> the standard for determining the prudence of the Company's actions should be whether management decisions were made in a reasonable manner and at an appropriate time on the basis of what was reasonably known or reasonably should have been known at that time. The Commission agrees that this is the appropriate standard to be used in judging the various claims of imprudence that have been put forth in this proceeding . . . and adopts it as the standard to be applied herein. The Commission notes that this standard is one of reasonableness that must be based on a contemporaneous view of the action or decision under question. Perfection is not required. Hindsight analysis -- the judging of events based on subsequent developments — is not permitted.

78 North Carolina Utilities Commission Report, 238 at 251-52 (1988).

Under prevailing procedural and evidentiary standards, the Company's expenditures should be presumed to be reasonable and prudent until an objecting party provides evidence suggesting to the contrary, at which point the Company

[31] Garret Confidential Exhibit 5.

bears the burden of proof to substantiate the reasonableness of the expenditures. When the matter under review involves the reasonableness and prudence of a known and discrete expenditure made at a definite point in time, it is appropriate to require that parties challenging that expenditure come forward with some evidence that reasonable alternatives were available and to quantify the amount of the alleged error. *See State ex rel. Utils. Comm'n v. Conservation Council of North Carolina,* 312 N.C. 59, 320 S.E.2d 679 (1984).

Prudence of Charah Fulfillment Fee

Public Staff witness Garrett's general premise is that DEBS acted unreasonably and imprudently when it entered into a contract with Charah for the disposal of coal ash from its Riverbend Station at the Brickhaven Mine as agent for and on the behalf of the Companies. Specifically, witness Garrett concluded that the Termination provisions of the contract, most significantly, a Prorated Percentage calculation, contained fundamental flaws and ambiguities that resulted in DEC paying an unreasonable and imprudent fulfillment fee, which was determined through settlement negotiations, not the contract provisions.

Witness Garrett based his conclusion on his 30 years of experience engineering coal ash management projects, and his thorough analysis of the Charah Master Contract and subsequent amendments, purchase orders issued by Duke Energy, documents issued by DEQ, and documents submitted by Charah to DEQ, among other sources.

Witness Garrett determined through his analysis of Permits to Operate issued by DEQ and Partial Closure Notifications submitted by Charah to DEQ that

$82,313,644 was a reasonable cost for the work Charah completed at the Brickhaven Mine that was reimbursable under the Development portion of the Unloading/Development/Placement $/ton price set out in the Charah Master Contract. Based on his calculation of the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**

Based on his understanding that **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]** Witness Garrett testified that he **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]**

On cross-examination during her live testimony, witness Bednarcik testified for the first time in the proceeding that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]**

Both witness Garrett and witness Bednarcik testified that **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]**

The Commission gives greater weight to the testimony of Public Staff witness Garrett than to that of DEC witness Bednarcik. In reaching this determination, the Commission recognizes witness Garrett's extensive experience engineering coal ash management projects, and his comprehensive analysis of the **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** The Commission further notes that, by her own admission, witness Bednarcik did not have any first-hand experience with the negotiation of the Charah Master Contract. Furthermore, witness Bednarcik was unable to support several key assertions, including her assertion that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]**

Based on the entire record, the Commission finds and concludes that Duke Energy's execution of the Charah Master Contract containing the Termination provisions, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** was unreasonable and imprudent

and resulted in Duke Energy's payment of an unreasonable and imprudent fulfillment fee. The Commission finds and concludes that there were prudent and feasible alternatives available to Duke Energy that would have avoided the requirement that Duke Energy pay the $80 million fulfillment fee. For example, Duke Energy could have drafted the **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** The Commission finds and concludes that it is appropriate that the Company bear the cost of $46,142,699 for its unreasonable and imprudent actions, as opposed to recovering those costs in rates and earning a return at the expense of ratepayers.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 12-14

The evidence supporting these findings of fact and conclusions is found in the Application, Form E-1, and the testimony and exhibits of DEC witness Bednarcik and Public Staff witnesses Garrett and Maness.

Summary of the Evidence

DEC DIRECT TESTIMONY

In her direct testimony, DEC witness Bednarcik testified that DEC is seeking recovery of CCR expenses incurred from January 1, 2018, through June 30, 2019, and costs to be incurred through January 31, 2020, related to what she contended were reasonable, prudent, and cost-effective approaches to comply with applicable regulatory requirements. (Tr. vol. 13, 193.) Witness Bednarcik testified that, pursuant to CAMA, the Company was required to close the high-priority-designated Dan River and Riverbend sites by excavation by August 1, 2019. (Id. at 197.) She stated that, during of period from January 1, 2018, through May 20, 2019, 1,426,200 tons of ash were excavated from the Primary and Secondary Ash Basins at the Dan River site and either disposed of in the on-site landfill or sent to Roanoke Cement for beneficial reuse. Additional material, which did not meet CCR landfill standards, was sent off-site for disposal. Witness Bednarcik further testified that the excavation of coal ash from the impoundments at Dan River was completed on May 20, 2019, and the process of closing the on-site CCR landfill has begun. (Id. at 209.)

Witness Bednarcik provided site details and a description of the work performed at Dan River Station in Bednarcik Exhibit 11, which states in part,"[t]he tasks that DE Carolinas has performed and will perform from January 1, 2018 through January 31, 2020 are a continuation of the activities for which costs approved in the prior DE Carolinas rate case," and "[t]hese activities and associated costs continue to be necessary, appropriate, and consistent with

applicable regulatory requirements." Witness Bednarcik concluded that the closure activities described in her testimony for each site were necessary to comply with regulatory obligations, that processes are utilized to ensure costs "are not exorbitant, unnecessary, wasteful, or extravagant," and that the Company has properly managed the activities to ensure compliance with appropriate deadlines. (Tr. vol. 13, 216-19.)

INTERVENOR TESTIMONY

On behalf of the Public Staff, witness Garrett recommended a partial disallowance, in the amount of $29,250,905, of costs incurred at the Dan River site for ash excavation and disposal. (Tr. vol. 20, 204.)

Witness Garrett testified that DEC issued an invitation on October 3, 2016, to bid on a contract for the Phase 2 excavation and transportation of coal ash from the Primary and Secondary Ash Basins at the Dan River site to the on-site landfill.[32]

[BEGIN CONFIDENTIAL] [redacted]

[32] "Sequence 1 & 2 excavation ash includes all ash known at the time to be located in the impoundments (the Primary Basin, Secondary Basin, and Intermediate Dike) and was subject to a closure date of August 1, 2019, under CAMA. This schedule provided a contingency of approximately 12 months for CAMA compliance." (Id. at 231.)

[33] Confidential Garrett Exhibit 12.

[redacted]. **[END CONFIDENTIAL]** (Id. at 230-31.)

On September 14, 2018, DEC sent Parsons a letter stating it would terminate the contract effective October 12, 2018. The letter did not provide an explanation for the termination. **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 233-34.)

[34] Confidential Garrett Exhibit 13.

[35] Confidential Garrett Exhibit 15.

Based on the Semi-Annual Report,[36] witness Garrett testified that approximately 1.4 million tons of ash were moved between June 1, 2017, and September 1, 2018, and that there appeared to be periods of time when no ash was moved. (Id. at 231.) On cross-examination, witness Garrett further clarified that Parsons was not cumulatively behind schedule until May of 2018. (Id. at 273.)

Witness Garrett testified that Parsons faced extenuating circumstances that resulted in delays in the original work schedule, which he described as follows:

> From March 15, 2017, to May 30, 2017, no ash was moved by Parsons because the landfill was not yet ready to receive ash. After issuance of a Permit to Operate by NCDEQ on May 30, 2017, Parsons was authorized to begin the Sequence 1 & 2 excavation.
>
> (Id. at 230.)
>
> The total precipitation for 2018 was 70.91 inches, as compared to an average annual precipitation of 45.56 inches. There were relatively high precipitation months in May, July, August, and September of 2018, which coincide with Duke Energy's termination of the Contract 9 20588 and the purchase orders.
>
> (Id. at 232.)

Witness Garrett further testified that delays started before Parsons was selected and continued as described in the authorized change orders, which he summarized as follows: **[BEGIN CONFIDENTIAL]**

[36] Semi-Annual Report on Closure and Excavation Asheville, Dan River, Riverbend, and Sutton dated July 31, 2019. Available at https://www.duke-energy.com/_/media/pdfs/our-company/ash-management/192394--seminnual-report-on-closure.pdf?la=en (last visited October 22, 2020).

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[END CONFIDENTIAL] (Tr. vol. 20, 236-37.)

On cross-examination, witness Garrett testified that DEC was "responsible for the discharge of all wastewaters from the Dan River site." (Id. at 263.) Regarding DEC's responsibilities for wastewater management and assistance to Parsons, witness Garrett responded:

> I believe that Parsons' performance on the project was significantly limited by the permitted discharges to the city of Eden, which Duke sought to increase from 0.3 MGD to 0.6 MGD in October of 2018 while simultaneously submitting to DEQ, a request to utilize outfall

[37] Confidential Garrett Exhibit 18.

[38] DEC response to Public Staff Data Request No. 193-1(a)(ii) in Docket No. E-7, Sub 1214.

002, which gave them the ability to discharge 1.5 MGD of interstitial water.

(Id. at 271.)

And I believe the most significant challenge facing Parsons was wet ash. And I believe Ms. Bednarcik even discussed this in her testimony about how you can't -- you can't excavate, and you certainly can't landfill and meet compaction requirements on wet ash. The ash must be dried. And if you're limited in the quantity of water that you can discharge from the site, you can't achieve adequate dewatering to maintain any type of production schedule.

(Id. at 272.)

[BEGIN CONFIDENTIAL] [redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 235-36.)

Witness Garrett testified that, due to the delays in the excavation schedule, it would have been reasonable and prudent for DEC to seek an extension under the CAMA Amendment, which provides a procedure for an impoundment owner to request a variance if compliance with the closure deadline cannot be achieved. The Public Staff requested through discovery that DEC, "indicate whether the Company requested a variance from NCDEQ to the regulatory deadline for the Dan River excavation and closure." In response, DEC stated, "The Company did not request a variance from NCDEQ to the regulatory deadline because the scheduled completion date of May 31, 2019, had sufficient margin for regulatory compliance."[39] Witness Garrett asserted that the response did not sufficiently address and, moreover, materially contradicted the concerns DEC repeatedly expressed about meeting the August 1, 2019 closure deadline that led to its termination of its contract with Parsons. (Id. at 237-38.) Witness Garrett noted that DEP submitted an application on November 16, 2018, for a variance to extend the CAMA closure deadline for the impoundments at its high-priority Sutton site by six months and DEQ granted an extension of four months. (Id. at 239.)

On cross-examination, witness Garrett testified that, unless DEC believed it had not made good faith efforts to comply with the applicable deadline, it could have met the three requirements to be granted a variance by DEQ pursuant to

[39] Garrett Exhibit 19.

N.C.G.S. § 130A-309.215.(a1).[40] (Id. at 269.) When asked on cross-examination whether the project was completed before the CAMA deadline after the change from Parsons to Trans Ash, witness Garrett answered, "[o]nly after incurring their costs that I have documented in my testimony, which were above and beyond costs that were the basis of their decision to switch to TransAsh." (Id. at 270.) Witness Garrett testified that, relative to the cost incurred by DEC to recover Trans Ash's schedule, requesting a variance from DEQ would have taken little effort. (Id. at 266.)

Witness Garrett testified that, as of September 2018, DEC had several options to address the schedule issues and chose to continue excavation with a new contractor at a premium cost in an attempt to meet the CAMA closure deadline of August 1, 2019. He noted that the discovery of an additional 460,000 cubic yards of ash was a significant contributing factor to the cost premiums. He further noted that the delays caused by the additional ash were within DEC's control, unlike the zoning, permitting, and adverse weather delays, because it was DEC's responsibility to accurately quantify the ash to be excavated and define the scope of work for the contractor to meet CAMA compliance deadlines. (Id. at 240-41.)

[BEGIN CONFIDENTIAL] [redacted]

[redacted]

[40] "The owner of the impoundment shall also provide detailed information that demonstrates (i) the owner has substantially complied with all other requirements and deadlines established by this Part; (ii) the owner has made good faith efforts to comply with the applicable deadline for closure of the impoundment; and (iii) that compliance with the deadline cannot be achieved by application of best available technology found to be economically reasonable at the time and would produce serious hardship without equal or greater benefits to the public."

[redacted]. **[END CONFIDENTIAL]** (Id. at 241.)

Witness Garrett testified that, while Trans Ash was performing the excavation, DEC issued a series of revisions to the contract payments due to difficulties Trans Ash encountered during the project and issued a new purchase order for an entirely new scope of work to condition the ash prior to excavation and transport. Witness Garrett recommended disallowance of the cost for **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]." **[END CONFIDENTIAL]** In addition, witness Garrett recommended disallowance of the cost for **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** Witness Garrett testified that there were other, less costly options available to DEC to address the delays in the excavation schedule, and he did not believe the new scope of work and change order costs described above were reasonable or prudent. (Id. at 242-44.)

Witness Garrett provided a summary of the costs incurred by DEC related to the Phase 2 excavation, transportation, and placement work at Dan River and his recommended disallowances as shown below:

Table No. 1 **[BEGIN CONFIDENTIAL]**

[redacted]	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

[redacted] **[END CONFIDENTIAL]** Witness Garrett summarized the reasons for his recommended disallowance of $29,250,905 on a system basis of costs for basin closure at the Dan River plant as follows:

1. DEC had the opportunity to set a performance bond in the initial contract with Parsons but did not. This bond would have insured DEC against losses created by Parsons.
2. DEC had the opportunity to require security when it realized Parsons was falling behind schedule but did not.
3. DEC could have imposed back-charges on Parsons for work completed by Trans Ash but did not.
4. DEC overpaid Parsons for contract revisions as described above.
5. As a result of firing Parsons and hiring Trans Ash, DEC paid an unreasonable premium to have the scope of work completed, including the settlement.
6. DEC overpaid Trans Ash for contract revisions . . . as described above.
7. DEC paid a premium to complete the excavation of ash that was not subject to CAMA requirements before the CAMA closure deadline.
8. DEC paid a premium to complete the excavation of ash that was not in the original plan before the CAMA closure deadline rather than seek a variance to the statutory deadline. Requesting a variance from NCDEQ would have taken little effort and offered potential cost savings.

He concluded that, had DEC sought and obtained an extension to the CAMA closure deadline, as it did at Sutton, the premium costs he recommended for disallowance would not have been incurred. (Id. at 247-48.)

DEC REBUTTAL TESTIMONY

In her rebuttal testimony, DEC witness Bednarcik testified that on October 3, 2016, the Company had requested bids for the Phase 2 excavation and transportation of coal ash from Dan River Station to the on-site landfill and ultimately entered into a contract with Parsons that contemplated completion of the

work by January 1, 2019, well within the CAMA deadline of August 1, 2019. (Tr. vol. 24, 62-63.) She testified that it was difficult to estimate the amount of ash to be excavated and the Company regularly refined its estimates, which increased during the project **[BEGIN CONFIDENTIAL]** [redacted]." **[END CONFIDENTIAL]** She contended that the margin between the estimated completion date and CAMA closure deadline was included for uncertainties such as additional ash. (Id. at 63-64.) On cross-examination, she admitted that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 153-55.)

Witness Bednarcik testified that Parsons encountered a variety of delays that slowed its excavation work and that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 63-65.) On cross-examination, witness Bednarcik read, **[BEGIN CONFIDENTIAL]** [redacted]

[redacted] **[END CONFIDENTIAL]** (Id. at 151.)

Witness Bednarcik described how the Company worked with Parsons to address and remedy the continued delays, but after determining that Parsons was unable to show that "it was equipped to properly excavate the CCR impoundments at Dan River, let alone in accordance with CAMA's required timeline," Duke terminated the contract. She explained that the Company then contracted with Trans Ash, which had excavated ash at the Sutton site. To complete the work and **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 65-68.)

On cross-examination, witness Bednarcik acknowledged that DEC set the milestone schedule for Parsons to follow to complete the excavation at Dan River, which was included in the contract documents. (Id. at 139.) After reviewing the Semi-Annual Report on Closure and Excavation dated July 31, 3019, and the attached graph,[42] witness Bednarcik described the graph of the cumulative amounts to be excavated according to the contract milestones, which increased over time, and the actual excavation by Parsons, which fell behind cumulatively in beginning May 2018. Witness Bednarcik acknowledged that, as excavation progresses into lower parts of the impoundments, the ash becomes wetter and that the ash at Dan River was wetter than anticipated. She asserted, however, that the

[41] Confidential Garrett Exhibit 15.

[42] Public Staff Bednarcik Rebuttal Cross Examination Exhibit 1.

Company worked with the contractor to determine the actions necessary to dry the ash and maintain production rates. (Id. at 140-45.)

In response to Public Staff witness Garrett's contention that DEC should have negotiated a performance bond with Parsons, witness Bednarcik asserted that performance bonds are difficult to enforce, would not mitigate schedule risk, and would be inappropriate where there was a statutory deadline. (Id. at 69-70.) She argued that the Company acted reasonably **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 69-71.)

In response to witness Garrett's assertion that the Company should have imposed back-charges on Parsons for the work completed by Trans Ash, she testified that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 71.) She noted, "other protective terms in the Parsons Master Contract that mitigated costs from the delays caused by Parsons," for example, **[BEGIN CONFIDENTIAL]** [redacted]." **[END CONFIDENTIAL]** (Id. at 72.)

In response to witness Garrett's claim that the Company overpaid for revisions to Parsons' purchase orders, witness Bednarcik stated that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 72-73.) Witness Bednarcik argued that, instead of DEC paying an "unreasonable premium" as witness Garrett contended, **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 73.) Contrary to her testimony that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 157-58.)

Witness Bednarcik asserted that **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 74-75.)

Witness Bednarcik also disputed witness Garrett's contention that **[BEGIN CONFIDENTIAL]** [redacted]." **[END CONFIDENTIAL]** (Id. at 75-77.)

In response to the argument that the Company paid a premium to excavate ash from Ash Stack 2 that was not subject to CAMA, witness Bednarcik testified that **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** She contended that "[a]ll dam decommissioning excavation prior to May 2019 was performed in order to access the ash underneath the Intermediate Dike and Primary Basin vertical expansions," and, therefore, witness Garrett's testimony "should be ignored, and his associated recommended disallowances rejected." (Id. at 77-78.)

On cross-examination, witness Bednacrik agreed that **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]." **[END CONFIDENTIAL]** (Id. at 164-67.)

Witness Bednarcik disagreed with witness Garrett that a variance from the CAMA deadline would have offered potential cost savings. She testified that it was reasonable to conclude that, before requesting an extension, the Company would **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** In support of her conclusion, witness Bednarcik referenced DEP's November 16, 2018 request for a variance to the CAMA deadline at its Sutton Station. She stated that, before requesting the variance from DEQ, "DE Progress implemented the 'best available technology' in

an attempt to meet the deadline, such as requiring work 24 hours a day five days a week to exemplify DE Progress' need for a variance." Accordingly, she argued the contention "that DE Carolinas would have saved costs if it continued working with Parsons and requested a variance from DEQ is without merit and fails to consider the statutory requirements of CAMA." (Id. at 78-80.)

DISCUSSION AND CONCLUSION

Prudence of Dan River Closure Costs

With regard to the excavation, transportation, and placement costs at Dan River, the Commission is persuaded by the arguments made by the Public Staff in support of a disallowance. There is sufficient evidence to show that the Company mismanaged the project, including the contracts and change order requests, that it failed in its responsibilities to facilitate the completion of the work by the contractor, and that there were alternatives that were both less costly and feasible.

The Commission finds the testimony of witness Garrett informative and persuasive regarding the significant and numerous delays faced by Parsons during the excavation of the basins and placement of the ash in the on-site landfill. Witness Garrett's testimony demonstrates that some of the circumstances leading to these delays, including DEC's material underestimation of the amount of vegetative material, coal ash, and impacted soils to be excavated, including from the Primary and Secondary Basins, Intermediate Dike, Ash Stack, and Dam Embankment, existed before Parsons mobilized and began its work at the site. The Commission finds that, prior to entering into the contract with Parsons and setting milestones for the excavation, it would have been reasonable and

appropriate for the Company to accurately assess the quantity of materials to be excavated from the basins and embankments.

Witness Garrett's testimony also demonstrates that the zoning, permitting, and adverse weather delays Parsons experienced were exacerbated by delays caused by the additional ash and deficient wastewater treatment and disposal that were within DEC's control. His testimony also shows that the Company did not adequately support Parsons to successfully complete the contract work, and that it fired Parsons and then hired and worked with Trans Ash in a preferential manner, including providing increased wastewater capabilities, expanded scope of work, and monetary incentives.

The Commission finds unpersuasive the Company's argument that a variance to the CAMA closure deadline for the high-priority Dan River site was unnecessary and unjustifiable. Witness Bednarcik asserted that, before requesting a variance at Dan River Station, the Company would have had to take comparable steps to the steps DEP took before requesting a variance of the CAMA deadline at its Sutton Station. The Commission also does not agree that DEQ's decision to grant DEP a variance to the closure deadline at Sutton Station is evidence that taking lesser steps would not qualify an impoundment owner for a variance. Rather, DEQ determined that DEP had "Supplied detailed information indicating that compliance with the deadline cannot be achieved by application of best available technology found to be economically reasonable at the time and would

produce serious hardship without equal or greater benefits to the public."[43] Furthermore, given that DEC notified Parsons of its decision to terminate the Parsons Master Contract on September 14, 2018, before DEP submitted a request for a variance at Sutton Station on November 16, 2018, and before DEQ granted DEP's request on March 26, 2019, the Commission does not find persuasive any suggestion by witness Bednarcik that DEC's decision not to pursue a variance at Dan River was based on DEQ's decision regarding the Sutton variance request. The Commission notes that the Company detailed its efforts and the associated costs to recover from delays in the excavation schedule to meet the closure deadline, and contended at the same time that there was no expectation that the deadline would not be met. The Company's arguments lead to the logical conclusion that, either the increased costs were avoidable with an extension of the deadline, or unjustified because the deadline could be met.

The Commission also finds relevant the fact that DEP applied for the variance to extend the deadline to close the surface impoundments at its Sutton Station on November 16, 2018, at least two months after September 2018 when witness Garrett recommended the Company should have sought a variance at Dan River. An application for a variance to the closure deadline at Dan River would not have precluded a variance request at Sutton, or vice versa. The Commission finds and concludes that DEC's lack of due diligence to seek a cost-saving variance to extend the closure deadline was unreasonable. Furthermore, the Commission

[43] DEC Garrett and Moore Cross Examination Exhibit 2, Decision Granting in Part Variance with Conditions dated March 26, 2019.

finds and concludes that it would have been reasonable and appropriate for the Company to request a variance of the CAMA closure deadline at the Dan River Station and to secure adequate treatment and/or disposal options for wastewater generated from ash dewatering and conditioning activities associated with the excavation.

Based on the entire record, the Commission finds and concludes that the Company's management of the basin closure at its Dan River Station was unreasonable and imprudent due to its failure to accurately assess the amount of ash to be excavated, its unnecessary and costly change of contractors, its handling of change order requests, and its expansion of the scope of work under its contract with Trans Ash. The Commission further finds and concludes that the costs the Company incurred as a result of these acts and omissions were similarly unreasonable and imprudent. The Commission also finds and concludes that the alternatives advocated by the Public Staff were feasible and less costly than the course of action selected by the Company. Based on the foregoing, the Commission concludes that $29,250,905 should be disallowed on a system basis for premium basin closure costs at Dan River Station.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 15-17

The evidence supporting these findings of fact and conclusions is found in the Application, Form E-1, and the testimony and exhibits of DEC witness Bednarcik and Public Staff witnesses Garrett and Maness.

Summary of the Evidence

DEC DIRECT TESTIMONY

In her direct testimony, DEC witness Bednarcik testified that DEC is seeking recovery of CCR expenses incurred from January 1, 2018, through June 30, 2019, and costs to be incurred through January 31, 2020, related to what she contended were reasonable, prudent, and cost-effective approaches to comply with applicable regulatory requirements. (Tr. vol. 13, 193.) She stated that the Company's "Buck [Station] was selected as one of three Duke Energy sites for the installation of a beneficiation project pursuant to CAMA, therefore, the Company will be closing the impoundments at Buck by excavation." Witness Bednarcik further testified that "DE Carolinas will be utilizing the SEFA STAR technology to process the ash from Buck," and that "Construction of the beneficiation plant began in May 2018." (Id. at 207.) Witness Bednarcik acknowledged on cross-examination that she had only been in her position as Vice President of Coal Combustion Projects, Operations, Maintenance and Governance for approximately seven months when she filed her direct testimony in this proceeding and that she was not involved in the RFI for the technology for the beneficiation facilities or the Request for Proposals (RFP) for the engineering, procurement, and construction of the beneficiation facilities. (Id. at 224-26.)

Witness Bednarcik provided site details and a description of the work performed at the Buck site in Bednarcik Exhibit 9, which states, in part, "The tasks that DE Carolinas has performed and will perform from January 1, 2018 through

January 31, 2020 are a continuation of the activities for which costs approved in the prior DE Carolinas rate case," and "These activities and associated costs continue to be necessary, appropriate, and consistent with applicable regulatory requirements." Witness Bednarcik noted that DEC had incurred $94,877,353 in costs for Beneficiation Facility Construction between January 1, 2018, and June 30, 2019. (Tr. vol. 13, 209.) She concluded that the closure activities described in her testimony for each site were necessary to comply with regulatory obligations, described processes the Company utilized to ensure costs "are not exorbitant, unnecessary, wasteful, or extravagant," and stated that the Company has properly managed the activities to ensure compliance with appropriate deadlines. (Id. at 216-19.)

INTERVENOR TESTIMONY

On behalf of the Public Staff, witness Moore recommended a partial disallowance in the amount of $67,809,160 of costs incurred for the construction of the beneficiation facility at Buck Station. (Tr. vol. 20, 173-74.)

Witness Moore testified that in 2016 the North Carolina General Assembly amended CAMA, among other things, to add N.C.G.S. § 130A- 309.216 regarding ash beneficiation projects. He noted that part (a) states in part:

> On or before January 1, 2017, an impoundment owner shall (i) identify, at a minimum, impoundments at two sites located within the State with ash stored in the impoundments on that date that is suitable for processing for cementitious purposes and (ii) enter into a binding agreement for the installation and operation of an ash beneficiation project at each site capable of annually processing 1 300,000 tons of ash to specifications appropriate for cementitious products, with all ash processed to be removed from the impoundment(s) located at the sites.

Part (b) requires Duke Energy to identify an additional beneficiation site on or before July 1, 2017, and part (c) sets the closure deadline for intermediate and low-risk impoundments at ash beneficiation sites as no later than December 31, 2029. (Id. at 175-76.)

Witness Moore testified, "On August 11, 2016, Duke Energy Business Services, LLC, as an agent for and on behalf of DEC and DEP (Duke Energy), advertised the Request for Information (RFI) for the Beneficiation of Ponded Ash into Concrete Specification Ash." **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 177-78.)

As shown in Confidential Moore Exhibit 2, SEFA's response to the RFI specifically named **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]

[END CONFIDENTIAL] (Id. at 179-80.)

In response to a Public Staff data request, DEC clarified that SEFA provided a construction estimate for the STAR facility in the amount of $64 million in response to the RFI, which included "approximately $14.8M in SEFA engineering and Project Indirect cost, as well as $50.2M for [Engineering, Procurement, and Construction] Direct Construction cost and balance of plant procurement." (Id. at 178.) Witness Moore testified that the Company subsequently increased the construction cost estimate. The Company's December 31, 2016, ARO cost spreadsheet, **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 180-81.)

Witness Moore testified that the Company did not contract with H&M for the construction of the Buck beneficiation facility. In response to a Public Staff data request, DEC indicated that **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]

[END CONFIDENTIAL] (Id. at 182.)

Witness Moore testified that DEBS advertised an RFP for the engineering, procurement, and construction of the three beneficiation units dated **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 182-83.)

While witness Moore originally testified that he was unable to determine whether there were any design modifications that would account for the increase in construction costs between the H&M estimate and the Zachry estimate, after he filed his testimony in this proceeding, additional relevant information was presented by the Company in rebuttal and discovered through data requests. As shown in Confidential Moore Exhibit 6, in October 2017, the Duke Adjustments to Construction Base Estimate increased substantially from **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 183-84.)

On redirect examination, witness Moore testified that, using the Company's responses to data requests, he had performed an analysis in summary table form which accurately compares the scope of work and facility components contemplated by the H&M estimate and the initial Zachry contract amount. Witness Moore explained that he accomplished this by removing or adding components identified by the Company as necessary to achieve comparable facilities.[44] As shown in Confidential Public Staff Garrett and Moore Redirect Exhibit 1, the Company indicated in discovery responses that the H&M estimate included **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 358-60.)

Witness Moore concluded that the Company's selection of Zachry to construct the beneficiation unit at the Buck Station for the amount contracted was not reasonable or prudent. (Id. at 187-88.) In support of his conclusion, he testified:

[44] On cross-examination, witness Bednarcik confirmed that the figures shown in the Confidential Public Staff Garrett & Moore Redirect Exhibit 1 were derived from the Company's response to Public Staff Data Request 231-19(c) on her prefiled rebuttal testimony. (Tr. vol. 25, 43-44.)

H&M had constructed similar facilities designed by SEFA and **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** Readily available articles state that capital costs for SEFA's beneficiation unit at Winyah Station in South Carolina, which is capable of processing similar quantities of ponded ash, were approximately $40 million**.** See **Moore Exhibit 7**. Duke Energy's selection of Zachry to construct the beneficiation unit at the Buck Station more than doubled the construction cost when compared to the combination of H&M's cost estimate plus Duke Energy's adjustment.

As shown in Moore Exhibit 4, SEFA's Vice President of Market Development and Research, Jimmy Knowles, indicated that $50 million represented the "high end of the price range for thermal facilities at large coal-fired plants." The article quoted Knowles as stating, "The cited all-in cost above would be for a large plant, probably with a maximum feed rate of 500,000 tons per year," and "The design for an ash beneficiation plant at any of the Duke Energy sites in NC would probably be similar in size." (Tr. vol. 20.)

Witness Moore did not take issue with the Company's decision to award the engineering contract to SEFA, the subsequent change orders submitted by SEFA and Zachry, or the costs associated with those change orders. (Id. at 186-87, 190.)

Witness Moore testified that when the Company received the construction estimate from Zachry and learned that the estimated cost for the STAR facilities would be far higher than originally estimated, it should have attempted to mitigate the costs. He testified that there were a number of feasible options available to the

Company to achieve mitigation of costs, including the following: 1) sending the construction contract out for bid again to a broader group of companies, 2) entering into three separate contracts for the construction of one STAR facility each and further divided the construction of each STAR facility into separate contracts for the various components of each facility, 3) seeking statutory relief from the CAMA Amendment's beneficiation requirements from the General Assembly,[45] and/or 4) seeking guidance from DEQ regarding the availability of a waiver or compromise, and the consequences of non-compliance with the beneficiation requirements of the CAMA Amendment. (Id. at 188-89.)

Based on his determination that the Company's selection of Zachry to construct the beneficiation unit at the Buck Station for the amount contracted was unreasonable and imprudent, witness Moore recommended that the Commission disallow $67,809,160 of the construction costs for the Buck beneficiation facility. The disallowance amount is the difference between the Company's reasonable expectation of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, which is the sum of H&M's cost estimate of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, and Zachry's initial total contract amount of **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 191.)

[45] For example, "a statutory relief option exists in the context of the Renewable Energy and Energy Efficiency Portfolio Standard in NC. Gen. Stat. § 62-133.8(i)(2), and that DEC and other electric power suppliers have utilized this option multiple times to seek delays in certain requirements related to swine and poultry waste set asides upon a showing to the Commission that the electric power suppliers made a reasonable effort to meet the requirements, and it was in the public interest to grant the delay or modification."

On cross-examination by the Company, witness Moore was read the following excerpt from Confidential Moore Exhibit 2, SEFA's response to the RFI: **[BEGIN CONFIDENTIAL]**

[redacted]

[END CONFIDENTIAL] (Id. at 313-14.) Witness Moore was also read the following excerpt from SEFA's RFI response: **[BEGIN CONFIDENTIAL]**

[redacted]

[END CONFIDENTIAL] (Id. at 326.) In response to the excerpts, witness Moore testified that the **[BEGIN CONFIDENTIAL]** [redacted]

[redacted]. **[END CONFIDENTIAL]** (Id. at 327.)

Also on cross-examination, witness Moore was presented with the Affidavit of William R. Fedorka, Vice President of SEFA, which was filed as an exhibit to witness Bednarcik's rebuttal testimony in the DEP proceeding.[46] Witness Moore confirmed that the affidavit states the Winyah facility was intended to generate 250,000 tons per year of beneficiated fly ash per year, and that the original design specifications assumed 33% of the ash processed by the facility would be production ash, and 67% would be ponded ash. Witness Moore testified that he did not disagree that the Winyah facility was designed to the specifications stated in the affidavit, but he reiterated that both sources referenced in the exhibits to his testimony and SEFA's response to the Company's RFI indicate that the Winyah facility is capable of processing 100% ponded ash. On redirect examination, witness Moore confirmed that, contrary to Mr. Fedorka's affidavit, SEFA's response to the RFI stated **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** (Id. at 353-54.)

[46] DEC Garrett/Moore Cross Examination Exhibit No. 3.

DEC REBUTTAL TESTIMONY

In her rebuttal testimony, DEC witness Bednarcik summarized Public Staff witness Moore's recommended disallowance of $67,809,160 for costs incurred by EPC subcontractor Zachry at the Buck beneficiation site, which he based on the estimate of project costs included in **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** She contended that the Company's selection of Zachry as the EPC contractor for the Buck beneficiation project was reasonable, prudent, and supported by law, and that the Commission should therefore reject the disallowance. Witness Bednarcik disputed witness Moore's contention that, after receiving the estimate from Zachary, the Company should have taken a number of steps including sending the contract out to be rebid, entering into separate contracts for each of the three STAR facilities, seeking relief from CAMA, and seeking guidance from DEQ. She testified regarding the RFI that it did not request site-specific estimates of the EPC costs or provide project details necessary to calculate such estimates. She asserted that SEFA provided estimated costs based on the cost to construct the Winyah STAR facility. (Tr. vol. 24, 80-82.)

Witness Bednarcik testified that to comply with N.C. House Bill 630 § 130A-309.216, which required the Company to execute a binding agreement for the installation and operation of ash beneficiation projects by January 1, 2017, **[BEGIN CONFIDENTIAL]** [redacted]

[redacted].**[END CONFIDENTIAL]** (Id. at 83.)

Witness Bednarcik asserted that witness Moore had supported his disallowance with a comparison of the EPC costs at Buck to the costs for the construction of the Winyah STAR facility. She further asserted that this comparison was not instructive due to differences in the amount of ash to be produced annually by the respective facilities, which necessitated an additional external heat exchanger at Buck, differences in the composition of the ash, which necessitated the addition of a grinding circuit at Buck, the type of scrubbers and associated equipment required at the respective facilities, and the reuse at Winyah of part of an existing carbon burn-out facility. (Id. at 84-85.) In Footnote 4 to her prefiled rebuttal testimony, witness Bednarcik stated, "Mr. Moore suggests that SEFA expended only $40 million on capital costs from the Winyah Station. From what I can tell, however, his cost analysis is based on a single 2013 article from Waste 360 that neither provides a source for this number, nor gives any specificity as to

what costs were included/excluded in the $40 million number." (Id. at 84) On cross-examination in the separate DEP live hearing, witness Bednarcik was presented with a presentation by SEFA regarding the STAR beneficiation process dated 2014.[47] (DEP Tr. vol. 17, 433.) Witness Bednarcik did not dispute that the presentation, which bears the name of Robert Erwin, Project Engineer with SEFA, stated "The SEFA group is building a $40 million facility to recycle high carbon fly ash produced by the power company Santee Cooper at its Winyah generating station in Georgetown, SC." (Id. at 434-35.)

Witness Bednarcik did not agree that the Company should have signed an EPC contract with SEFA. She testified that **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** (DEC Tr. vol. 24, 85.) In response to the contention that the Company should have sent the request for bids to a larger group of subcontractors, witness Bednarcik indicated that the Company sought to engage contractors it had experience with and **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** She noted that "it is now the defined policy of the state of North Carolina for utilities to maximize the use of resident contractors for utility projects undertaken in the State of North Carolina, as stated in new NCUC Rule

[47] E-2, Sub 1219, Bednarcik Rebuttal Public Staff Cross Examination Exhibit 7.

R25-1(a)" and that Zachry "maintains an industrial and power office in Charlotte. (Id. at 86.)

Regarding witness Moore's contention that the Company should have contracted with three separate contractors, witness Bednarcik responded that witness Moore provided no support that doing so would have lowered costs and that it was unclear whether SEFA could have supported three separate subcontractors at once and realized economies of scale. (Id. at 87.) She asserted that, if the Company had sought statutory relief as proposed by witness Moore, there was no guarantee that it would have been granted before the statutory deadline, if at all. She testified that N.C.G.S. § 130A-309.216, the section of the CAMA Amendment requiring beneficiation, makes no mention of the word "cost" and therefore it was "reasonable to conclude that the General Assembly did not intend for the costs of beneficiation to be considered in requiring the Company's environmental compliance." Furthermore, she opined "that it would be unreasonable to establish precedent in this state where utilities are granted 'relief' from adhering to environmental regulations meant to address identified risks on the basis of costs where such statutes do not already specifically contemplate costs."(Id. 88-89.)

On cross-examination, witness Bednarcik read the Company's response to Public Staff Data Request 183-3(c)[48] which stated **[BEGIN CONFIDENTIAL]** [redacted]

[48] Confidential Public Staff Bednarcik Rebuttal Cross Examination Exhibit 4.

[redacted]

[redacted]

[END CONFIDENTIAL] (Id. at 44.)

As to the argument that the Company should have sought guidance from DEQ once it was aware of Zachry's costs, witness Bednarcik testified that cost is outside the purview of DEQ and CAMA contains no cost considerations. **[BEGIN CONFIDENTIAL]** [redacted]. **[END CONFIDENTIAL]** She contended that the Company would therefore have no argument for the project being modified and, even if it did, the only authority was N.C.G.S. § 130A-309.215 Variance Request within CAMA. She stated the Company did not believe it had strong grounds to request a variance because it

"believed it could meet the existing deadline through application of the best available technology and without serious hardship. . . ." (Tr. vol. 24, 89-90.)

Witness Bednarcik concluded that the EPC costs paid to Zachry were reasonable and prudent. She stated, "there are major differences in the scope and requirements of the Winyah STAR Facility project and the Buck beneficiation project," and that "These differences explain the difference between the initial estimate provided in the RFI and the actual EPC costs and support the Zachry EPC contract as reasonable." (Id. at 90.)

DISCUSSION AND CONCLUSION

Prudence of Buck Beneficiation Project Construction Costs

Public Staff Witness Moore recommended the Commission disallow $67,809,160 of the costs to construct the Buck beneficiation project. In support of his recommendation, witness Moore asserted that, after it learned the estimated cost for Zachry to construct the Buck beneficiation project was well over twice the cost estimated for H&M to construct the facility, the Company should have pursued one or more of several feasible alternative courses of action to attempt to mitigate the cost of the project. Based on additional information obtained through discovery after he filed his testimony, witness Moore presented an alternative analysis of the respective costs for H&M and Zachry to construct facilities with comparable components. Witness Moore's analysis showed that, taking into account the different components contemplated in each cost estimate, the cost for Zachry to construct the facility was still nearly double the cost for H&M to perform the construction.

DEC witness Bednarcik testified that the Company's compliance activities have been reasonable, prudent, and cost-effective, that the Company has processes in place to ensure costs "are not exorbitant, unnecessary, wasteful, or extravagant," and that the Company has properly managed the activities to ensure compliance with appropriate deadlines. She asserted that witness Moore failed to take into account differences in the components of the facilities on which the H&M and Zachry construction cost estimates were based. She further asserted that the STAR beneficiation facility at Winyah was not comparable in components, performance specifications, or costs.

Witness Bednarcik also contested the alternatives witness Moore testified the Company should have pursued when it learned the cost for Zachry to construct the beneficiation facilities would dwarf the other cost estimate for H&M to construct the facilities. In response to witness Moore's testimony that the Company should have sought bids from a larger group of contractors, witness Bednarcik testified that there was no need to solicit additional bids because the companies DEC had sent the original bids to were working on other projects for the Companies or had done so in the past. Despite evidence that H&M had removed itself from consideration due to the large scope of the combined projects, witness Bednarcik dismissed witness Moore's testimony that the Company should have entered into three separate contracts for the construction of one beneficiation project each, and that it could have further divided the construction into separate components. Witness Bednarcik dismissed out of hand witness Moore's testimony that the Company should have sought statutory relief from the General Assembly when it

learned of the construction costs, despite the fact that DEC had done so in the context of the REPS standard in N.C.G.S. §62-133.8(i)(2) to seek delays in requirements related to swine and poultry waste set asides. Witness Bednarcik concluded that, because the section of the CAMA Amendment relating to beneficiation did not mention cost, "the General Assembly did not intend for cost to be considered . . . ." Finally, in response to witness Moore's testimony that the Company should have consulted with DEQ regarding possible alternative courses of action to completing the beneficiation projects based on the Zachry contract, witness Bednarcik asserted that DEQ did not have authority over the cost of compliance with environmental regulations and that the Zachry cost estimate was reasonable.

The Commission has engaged in a thorough review of the evidence and finds and concludes that witness Moore addressed witness Bednarcik's criticism of his comparison of the respective H&M and Zachry cost estimates. Witness Moore's credible calculation of the respective costs for H&M and Zachry to construct facilities to meet the requirements set out in the CAMA Amendment demonstrates that the cost for Zachry to construct the Buck beneficiation facility was double the cost for H&M to do so. Given this comparison, and Zachry's overall estimated contract amount of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** the Commission does not find persuasive witness Bednarcik's testimony that the Company has taken steps to ensure that the costs it incurred to comply with regulatory obligations were not exorbitant or extravagant.

The Commission further finds and concludes that several of the alternatives recommended by witness Moore, including that the Company should have sought additional bids for the EPC work, that it should have broken the EPC contract into three separate contracts and/or separate components, and that the Company should have sought relief from the General Assembly, were feasible and prudent, especially in consideration of the significant costs.

Based on the entire record, the Commission finds and concludes that the DEBS' decision, as an agent for and on behalf of the Companies, to enter into a contract with Zachry for the construction of three beneficiation facilities, including the Buck facility, at a cost that was double the estimate it had received for H&M to construct comparable facilities, was not reasonable or prudent. The Commission further finds and concludes that, as described by witness Moore, there were several feasible alternative courses of action the Company should have taken to mitigate the staggering cost of the projects before moving forward with the Zachry contract, and that the Company failed to meet its burden of demonstrating the reasonableness and prudence of the beneficiation facility construction costs. Based on the foregoing, the Commission finds and concludes that it is appropriate that the Company bear costs in the amount of $67,809,160 for its unreasonable and imprudent actions.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 18-27

The evidence supporting these findings of fact are found in the testimony of Public Staff witness Maness, DEC witnesses Doss and Riley, and the entire record in this proceeding.

Public Staff Witness Maness testified that he was presenting the Public Staff's recommendations regarding the deferral and amortization of Duke Energy Carolinas, LLC's (DEC or the Company) asset retirement obligation related (ARO-related) and non-ARO-related CCR costs incurred between January 1, 2018 and January 31, 2020 (Deferral Period).

Mr. Maness testified that he was recommending or incorporating adjustments in the following areas:

1. The ratemaking treatment of the costs of DEC's Asset Retirement Obligation (ARO) – related coal ash compliance and cleanup activities;

2. The appropriate classification within the rate base of the regulatory assets associated with the ARO-related coal ash compliance and cleanup; and

3. The amortization period for the Company's proposed deferred non-ARO-related costs.

(Tr. vol. 20, 484.)

Witness Maness testified that with regard to ARO-related CCR costs, the Company proposed to establish a regulatory asset for actual CCR expenditures made during the Deferral Period, and to amortize that regulatory asset over a five-year period beginning with the effective date of the rates approved in this proceeding, while including the unamortized balance in rate base. (Id. at 485.) He further stated that the Public Staff had made the following adjustments to the

Company's proposed revenue requirement associated with ARO-related CCR costs:

1. Adjustments to reach a prudent and reasonable level of coal ash expenditures, as recommended by Public Staff witnesses Vance F. Moore, L. Bernard Garrett, and Charles Junis;

2. Amortization of the prudent and reasonable balance of ARO-related deferred coal ash expenditures over a 25-year period; and

3. Reversal of the Company's inclusion of the unamortized balance of ARO-related coal ash expenditures in rate base; this reversal, in conjunction with the 25-year amortization period, produces an equitable and reasonable sharing of the burden of coal ash expenditures between the Company's ratepayers and its shareholders.

(Id. at 495-96, 552-53.)

Witness Maness testified that the CCR costs that DEC is seeking to recover in this case are not "used and useful," and thus carry no requirement or implication that they must be included in rate base. He stated that in North Carolina utility regulation, the term "used and useful" only applies to the public utility's property (including cash working capital, as discussed below, and materials and supplies), not the expenses it incurs in the operation, maintenance, or disposal of that property. He stated that some might claim that since the costs deferred for coal ash clean-up are associated with property that is or once was used and useful, the

costs themselves should be considered “used and useful,” and therefore should be included in rate base, to the extent they remain unamortized, pursuant to N.C.G.S. § 62-133(b)(1). However, in his opinion as a regulatory accountant, and in the opinion of Public Staff counsel, this argument is incorrect and is an inappropriate application of the term “used and useful.” If, however, there are expenses that were incurred in the past, but for some reason the Commission decides that they can be deferred for recovery in the future, he testified that the Commission can approve a regulatory asset to capture such expenses, and even provide for a return on them due to the deferral of their recovery (by including them in rate base or otherwise providing for carrying costs). Based on advice of counsel, witness Maness indicated that this treatment is within the discretion of the Commission and authorized under N.C.G.S. § 62-133(d), but it does not transform the Commission-created regulatory asset into capitalized property cost, such as the cost of a generating plant. (Tr. vol. 20, 507-09.)

Witness Maness testified that he believed that the costs should fall into the category of a deferred expense because the Company has itself chosen to request a regulatory accounting and ratemaking method that does not explicitly account for any ARO-related coal ash compliance costs, either in the past or in the future, as the capitalized costs of property, but instead accounts for them as ongoing expenses, with a proposed regulatory asset intended to provide for the recovery of expenses incurred in the past, expenses that but for the Commission’s approval of the deferral request, would be immediately written off. (Id. at 509-10.)

Witness Maness pointed out that in Company witness Doss's Supplemental CCR Testimony, witness Doss stated that Company witness Bednarcik's Supplemental Testimony notes that the Company's CCR activities were classified as AROs, and, as such, would properly be capitalized costs. According to witness Doss, under Financial Accounting Standards Board (FASB) and Federal Energy Regulatory Commission (FERC) guidance, ARO costs are an integral part of the plant asset that gives rise to the ARO, and therefore must be capitalized as part of such asset when the ARO liability is recognized. However, witness Maness pointed out that although witness Doss is correct with regard to the requirements of the FASB's standards (commonly referred to as GAAP) for financial accounting purposes and the guidance set forth in the FERC Uniform System of Accounts (FERC USOA), in the absence of regulatory assets and liabilities recorded due to regulatory commission rate-setting actions, he fails to acknowledge that this Commission has chosen not to set rates on the basis of expenses calculated and recorded pursuant to GAAP and the FERC USOA (which in their default mode are determined on the basis of a complex process of estimating future costs, determining their present value, and depreciating that present value over time, all the while re-estimating and truing up the costs), but instead on the basis of deferring actual costs for ratemaking purposes as they are incurred, and amortizing those actual costs over time. According to witness Maness, witness Doss also fails to acknowledge that this Commission's use of a different ratemaking methodology itself justifies the recording of regulatory expense on the books in a manner that synchronizes the recognition of expenses for GAAP and

FERC USOA purposes with this Commission's ratemaking actions. Therefore, for N.C. retail jurisdictional accounting and ratemaking purposes, the fact that the default GAAP and FERC USOA practices require capitalization of an ARO asset is essentially rendered moot. (Id. at 554-55.)

Witness Maness also testified that the GAAP/FERC ARO asset recorded on the books of the Company is not included in rate base, and the depreciation and accretion expenses related to the ARO are reversed for regulatory purposes and deferred to a regulatory asset that is only proposed by the Company for rate base inclusion as cash is actually spent. He testified that, in fact, the Company's own workpapers submitted in the general rate case to calculate its proposed deferral and amortization amounts pay no attention whatsoever to the recording or reversal of GAAP/FASB ARO assets and expenses; they simply start in the most direct manner possible for determining the expenses to be recognized for ratemaking purposes: with the actual dollars spent. Finally, witness Maness noted that it is interesting, and perhaps important, for the Commission's analysis, to note that the deferred costs being proposed for rate base treatment by the Company are not a portion of the ARO asset itself at the time of proposed rate base inclusion, but instead represent a portion of the costs that would have otherwise already been written off to expense absent the Commission's approval of deferral. (Id. at 555-56.) Both DEC and the Public Staff filed Late-Filed Exhibits with the Commission (DEC Late-Filed Exhibit No. 6, and Public Staff Late-Filed Exhibit No. 2) that illustrate the accounting entries made to record both the creation, depreciation, accretion, and regulatory entries associated with DEC's coal ash AROs.

Witness Maness testified that this approach is thoroughly consistent with the Commission's August 8, 2003 Order in Docket No. E-7, Sub 723, which the Company used to justify its 2016 petition for deferral of coal ash costs in Docket No. E-7, Sub 1110. In the Sub 723 Order, the Commission directly stated, in ordering subparagraph 2.b:

> That the adoption of SFAS 143 shall have no impact on Duke's operating results or return on rate base for North Carolina retail regulatory purposes and that the net effect of the deferral accounting allowed shall be to reset Duke's North Carolina retail rate base, net operating income, and regulatory return on common equity to the same levels as would have existed had SFAS 143 not been implemented.

(Id. at 556.)

With regard to any assertion that the Company's classification of the unamortized balance of deferred coal ash costs as "working capital" meant that the balance must be included in rate base, witness Maness testified that it did not, because, in his opinion, this classification is just a matter of convenience. He stated that for working capital to qualify as rate base, it should be the investment made in materials and supplies, cash, and other similar items to finance and provide for the Company's present and future operations; in other words, to "do the work" of providing ongoing utility service. The proposed deferred coal ash compliance costs are expenses incurred in the past that the Company proposes to recover in the future; they have nothing to do with the Company's forward-looking obligation to provide utility service. Normally, it does no harm for the Company to group many disparate items under the heading of working capital; however, one should not mistake the inclusion of past coal ash costs in this group for actual evidence that

such costs are in fact “working capital” needed to fund future operations. (Id. at 512.)

Witness Maness testified that the late Charles F. Phillips, Jr., Ph.D., former Professor of Economics at Washington and Lee University, described working capital in this manner:

> Working capital – the funds representing necessary investment in materials and supplies, and the cash required to meet current obligations and to maintain minimum bank balances – is included in the rate base so that investors are compensated for capital they have supplied to a utility.

Charles F. Phillips, Jr., The Regulation of Public Utilities, Third Edition (1993), p 348.

Witness Maness stated that it is very important to note that the items of working capital described by Dr. Phillips – materials and supplies, minimum cash balances, and the cash necessary to meet current obligations (which is typically determined for large utilities through the use of a lead-lag study) – are all focused on doing the current and future work of the utility. Working capital is not like deferred CCR costs, which are expenditures made in the past that the Commission, if it approves the Company’s amortization expense proposal, would allow the utility recover in the future. Thus, no matter how it is categorized on paper by a utility filing a general rate case, the CCR deferred costs neither enable or facilitate the provision of current or future utility service, and cannot be classified in substance as “working capital” for purposes of inclusion in rate base. (Id. at 512-13.)

With regard to the classification of ARO-related CCR regulatory assets in rate base before taking into account the Public Staff's removal adjustment, witness Maness recommended that these assets be reclassified from a working capital classification to a separate classification outside of working capital. He stated that this recommendation was based on his opinion that the regulatory assets associated with ARO-related coal ash clean-up, disposal, and remediation activities do not qualify as true working capital. (Id. at 518-19.)

Witness Maness noted that the Commission has limited discretion to depart from the ratemaking formula set forth in N.C.G.S. § 62-133(b) and must do so when necessary to achieve "reasonable and just rates" due to extraordinary circumstances. Gen. Stat. § 62-133(d). Deferrals are, therefore, authorized under the umbrella created in N.C.G.S. § 62-133(d) when deferral is necessary to achieve reasonable and just rates. (Id. at 489.)

Witness Maness stated that deferral is appropriate in this case because, without a deferral, DEC would have to write-off significant ARO-related costs and would not be able to recover those in rates. He noted that the Public Staff evaluated the Company's actions and does not object to the deferral of a return on the deferred ARO-related coal ash expenditures during the Deferral Period.

Similarly, witness Maness indicated that the Public Staff does not take issue with the Company's intent to begin amortizing those expenditures on the effective date of rates approved in this proceeding. He stated that amortization typically begins much earlier: either the month of or the month following the incurrence of the costs. According to Public Staff witness Maness, a delay in this case is

permissible given “the magnitude and very unique nature of these costs.” (Id. at 494-95.)

While witness Maness testified that the Public Staff agreed with deferring ARO-related coal ash expenditures, he pointed out that it does not agree with the amortization period proposed by the Company or allowing the Company to include the unamortized balance in rate base. The appropriate amortization period, according to Public Staff witness Maness, is 25 years. (Id. at 552.) He noted that the Public Staff’s choice of amortization period is grounded in its belief that “it is most reasonable and appropriate for [prudently incurred and reasonable coal ash costs] to be shared equitably between ratepayers and the Company’s shareholders.” (Id. at 497-98.)

Witness Maness testified that the Public Staff had been guided in its choice of amortization period for these costs in this proceeding by its belief that it is most reasonable and appropriate for coal ash costs, after specific imprudently incurred or otherwise unreasonable amounts have been identified and disallowed for recovery, to be shared equitably between the ratepayers and the Company’s shareholders. (Id. at 497-98.) In this case, the Public Staff believes that equitable sharing should amount to DEC’s shareholders being required to bear approximately 50% of the present value of the January 2018 – January 2020 deferred costs (with carrying costs allowed on the costs up to the point that rates have been estimated to go into effect). (Id. at 492, 515.) The 50% sharing is accomplished by choosing an appropriate amortization period and excluding the unamortized balance from rate base during the amortization period. (Id. at 502.)

As discussed in detail earlier in this Order, witness Maness testified that the Public Staff believes that a 50% sharing percentage is appropriate and reasonable due to the reasons for such set forth by witness Junis, and because there is a history of approval for sharing of extremely large costs that do not result in any new generation of electricity for customers. He indicated that the Public Staff believes that a five-year amortization period is simply too short an amortization period for costs of the magnitude and nature of these. He further stated that the Public Staff believes that the totality of the circumstances surrounding the ARO-related CCR costs deferred in this proceeding make equitable sharing appropriate and reasonable for purposes of achieving reasonable and just rates, independent of prudence conclusions. (Id. at 497-501.)

Witness Maness testified that according to advice of Public Staff counsel, the inclusion in rate base of these deferred ARO-related regulatory assets is left to the discretion of the Commission. Pursuant to N.C.G.S. § 62-133(b)(1), the only costs that the Commission is required to include in rate base are (1) the "reasonable original cost of the public utility's property used and useful, or to be used and useful within a reasonable time after the test period . . . ," and (2) in some circumstances, the costs of construction work in progress. He indicated that he was advised by counsel that beyond those requirements, what is and what is not allowed in rate base is within the legal discretion of the Commission to decide, as long as the rates set thereby are fair and reasonable to both the utility and the consumers. He stated that moreover, N.C.G.S. § 62-133(d) requires the Commission to "consider all other material facts of record that will enable it to

determine what are reasonable and just rates." Witness Maness testified that the Commission has taken this approach several times in past cases. (Id. at 502-07.)

Witness Maness also testified as to the Commission's findings and conclusions in another recent electric general rate case. He testified that in Dominion Energy North Carolina's (DENC) most recent general rate case, Docket No. E-22, Sub 562, the Public Staff recommended an equitable sharing adjustment for CCR costs similar to what it is recommending in this proceeding. On January 23, 2020, the Commission issued its Notice of Decision in that proceeding, ordering that the Company amortize its deferred CCR costs over ten years, with the unamortized balance not being allowed to earn a return during the amortization period. Although the ratepayer share associated with a ten-year amortization is greater than what the Public Staff recommended in that case, the result still appears to reflect a 74%-26% sharing of costs between the ratepayers and the shareholders, respectively. While each case must be decided on its merits, it is noteworthy that the Commission has recognized the denial of a return on coal ash costs is appropriate in given circumstances. (Id. at 517.)

Company witness David L. Doss, Jr., provided testimony about the accounting guidance applicable to the Company embodied in the FASB's GAAP and FERC's USOA, as well as Orders of this Commission. According to witness Doss, the Company evaluated GAAP and FERC guidance in light of the legal obligations imposed upon it by CAMA and the CCR Rule. The Company determined that the coal ash basins it operated at its coal-fired generating facilities needed to be closed as a result of the passage of CAMA and the CCR Rule. The

closure obligation triggered ARO accounting requirements. In addition, the Commission's Order entered in the Company's E-7, Sub 723 Docket has required the ARO accounting impacts to be deferred into regulatory assets.

Witness Doss took issue with several aspects of Public Staff witness Maness's testimony. According to his testimony, he does not agree with witness Maness's characterization of coal ash ARO related costs as expenses. Witness Doss further disagrees with witness Maness's assertion that the Company can choose whether it will defer coal ash ARO-related costs. Lastly, witness Doss testified that he does not agree with witness Maness's argument that coal ash ARO costs are not characteristic of assets recorded as used and useful property. Witness Doss contends that the costs incurred (relating to the deferred depreciation and accretion) are used and useful as those costs are reasonable and prudently incurred and are intended to provide utility service in the present or in the future through achieving their intended purpose: environmental compliance, the retirement of the ash impoundments and the final storage location for the residuals from the generation of electricity. (Tr. vol. 22, 253-54.)

Company witness Sean Riley provided testimony on two FASB codified GAAP standards applicable to the Company: ASC 980 and ASC 410. According to witness Riley, ASC 980 addresses requirements specific to regulated entities. In so doing, it provides a linkage between costs and revenues that does not exist for non-regulated companies, and also places a primary emphasis on regulatory ratemaking in the determination of appropriate accounting treatment.

According to witness Riley, ASC 410 outlines the accounting practices and requirements related to the creation of an ARO. It requires companies to assess, on an ongoing basis, whether they have a present legal obligation to remove, dispose, or remediate a long-lived capital asset. If such an obligation exists, then ASC 410 requires that the fair value of such obligation be recorded as an ARO and that simultaneously an Asset Retirement Cost be capitalized, both of which are reflected on the Company's balance sheet.

Witness Riley also provided testimony on the way in which CCR removal costs are accounted for in depreciation studies. He opined that it was not general industry practice to include those costs in depreciation studies prior to the EPA's adoption of its CCR Rule.

He further opined that DEC properly followed then-existing GAAP in its treatment of potential costs associated with CCR remediation prior to the passage of the EPA's CCR rule and then appropriately utilized GAAP ARO accounting once the remediation obligations associated with coal ash became known and estimable. (Tr. vol. 23, 148-49.)

A major difference in this proceeding between the Company and the Public Staff is whether "equitable sharing" of deferred CCR costs, with its interrelated components of removal of the deferred costs from rate base and choice of an appropriate amortization period, should be adopted by the Commission. The Public Staff recommended a 50%-50% sharing between the Company's ratepayers and shareholders based on the reasons that (1) such an approach is within the Commission's discretion under N.C.G.S. § 62-133(d), and (2) its specific

recommendation of a 25-year amortization period coupled with exclusion of the deferred costs from rate base (which achieves this specific level of sharing) is appropriate and necessary in order to establish rates that are reasonable and just.

As discussed earlier in this Order, for purposes of this proceeding, the Commission finds that "other material facts of record" justify an equitable sharing of CCR expenditures from the Deferral Period. First, the Commission finds persuasive the rationale set forth by witness Junis in his testimony; namely, that DEC's coal ash disposal practices have caused environmental contamination for which the Company has some degree of culpability. This finding of culpability for environmental contamination is appropriate under N.C.G.S. § 62-133(d) even in the absence of evidence of specific costs resulting from imprudence that would be disallowed under N.C.G.S. § 62-133(b).

Second, the Commission additionally finds persuasive the following reasons set forth by witness Maness: (1) the sheer size of the Deferral Period costs ($243.0 million on an N.C. retail level, or approximately $104 per customer, per witness Maness (Tr. vol. 20, 545); (2) the lack of any benefit from incurrence of these costs in terms of future electric service or improvements in electric service; and (3) the fact that the incurrence of CCR costs was not the result of an economic analysis by the Company that pointed toward a discretionary activity that would be economically advantageous to ratepayers. These reasons are consistent with the Commission's past decisions that order equitable sharing for large magnitude abandoned plant costs.

The Commission has approved equitable sharing several times in past cases, most often in the cases of nuclear and coal plants abandoned prior to commencing commercial operation. In Docket No. G-5, Sub 327, Public Service Company of North Carolina, Inc. (PSNC) sought recovery of costs incurred for remediating environmental impacts identified at manufactured natural gas plants (MGPs). Before piped natural gas became available in the 1950s, gas was commonly manufactured by a process that involved the heating of coal in a reduced-oxygen environment. The plants in question in this particular proceeding had been constructed from the mid-1800s to the early- 1900s. The MGPs were taken out of service in the 1950s. By-products of the gas manufacturing process included sulfur, hydrogen sulfide, iron cyanide, light oils, tar, water and coke. These by-products were disposed of consistent with the law applicable at the time but had become the subject of environmental law and regulation. The anticipated remediation costs were estimated to be substantial. The Commission concluded that it was appropriate to allow PSNC to recover its prudently incurred MCP environmental clean-up costs as reasonable operating expenses amortized over a period of years. The Commission did not allow PSNC to earn a return on unamortized balance. The Commission concluded

> that the proper balance between ratepayer and shareholder interests is achieved by amortizing the prudently incurred costs to O&M expenses in general rate cases but denying the Company any recover from ratepayers of the carrying costs on the deferred and the unamortized MGP clean-up cost balances.

MGP Order at 23. The Commission reasoned that its approach to ratemaking treatment (which also included rejecting the utility's proposed annual tracker

mechanism) gave PSNC an incentive to minimize clean-up costs and to pursue contributions from third parties where appropriate. Finally, looking ahead and anticipating extensive future cleanup costs for MGP liabilities, the Commission reasoned that an appropriate amortization period could be determined in each future rate case proceeding, depending on the magnitude of the costs incurred.

This specific issue has also come before the North Carolina courts. In 1989 the North Carolina Supreme Court affirmed the Commission's decision that reasonable rates can include an equitable sharing between ratepayers and investors with regard to plant cancellation costs. In *State ex rel. Utils. Comm'n v. Thornburg*, 325 N.C. 463, 385 S.E.2d 451 (1989) (*Thornburg I*), the Attorney General had sought exclusion of all abandonment costs related to the Harris Nuclear Plant. However, the Commission allowed amortization of the abandonment costs, with no return on the unamortized balance. The Court ruled that the Commission was acting within its discretion:

> [T]he Commission's order does not err as a matter of law in authorizing CP&L to continue to recover a portion of the cancellation costs of the abandoned Harris Plant as operating expenses through amortization. The Commission's determination was supported by several findings and conclusions. First, the Commission found that although "[t]his case must of course be decided on the basis of North Carolina statutes" the "majority of courts and commissions that have dealt with this issue have allowed ratemaking treatment of abandonment losses, usually as operating expenses." Second, the Commission concluded "that a liberal interpretation of the operating expense element of ratemaking so as to include the Harris abandonment losses is appropriate herein." Last, the Commission found further support for its conclusion was provided by N.C.G.S. § 62-133(d), which allows the Commission to consider all material facts in the record in determining rates.
>
> . . . .

> Last, we disagree with the Attorney General's contention "that strong policy considerations support the disallowance of [cancellation] expenses." We note that jurisdictions have generally dealt with the allocation of cancelled plant costs in one of the following three ways:
>
> (1) recovery of all of the costs from ratepayers, by allowing amortization of the investment plus a return on the unamortized balance;
>
> (2) recovery of all costs from shareholders through a total disallowance of recovery in rates, instead requiring the utility to write off the entire amount in a single year; or
>
> (3) recovery from ratepayers and shareholders through amortization of costs in rates over a period of years, with no return on the unamortized balance.
>
> . . . Strong policy considerations support the Commission and commentators who have concluded that method three is the best of the three alternatives in that it promotes "an equitable sharing of the loss between ratepayers and the utility stockholders."
>
> . . . .
>
> On this record, the Commission's continued use of method three is within the Commission's discretion, and this Court will not disturb that decision.

(*Id.* at 476, 480, 481).

For purposes of this proceeding, the Commission finds that the “used and useful” distinction is not a meaningful or legal obstacle to equitable sharing, based on the following reasons.

First, the Commission’s authority to order equitable sharing under N.C.G.S. § 62-133(d) overlays the ratemaking cost formula in N.C.G.S. § 62-133(b). In other words, even where property is “used and useful” under N.C.G.S. § 62-133(b)(1), there may be unusual circumstances where denial of a return is appropriate under N.C.G.S. § 62-133(d).

Second, the basis for equitable sharing in the cases of both the costs of abandoned plants and the remediation costs associated with MGPs, turned on the fact that those costs had been deferred to a regulatory asset. The Court in *Thornburg I* accepted that the costs (which plainly were incurred for utility plant, albeit not used and useful) could be treated as operating expenses eligible for deferral and recovery through amortization. The change from utility plant to operating expenses, for ratemaking purposes, was effectuated through the deferral of those costs. The same is true for CCR expenditures. Once deferred, they acquire a different character than property used and useful under N.C.G.S. § 62-133(b). Thus, the "used and useful" concept is not applicable.

The Commission agrees with the Public Staff with regard to the classification of deferred CCR costs as working capital. The very title "working capital" strongly implies that it consists of funds and other assets that are expected to be necessary to do the work of providing utility service on an ongoing basis. This interpretation is supported by Dr. Phillips' description, which refers to materials and supplies and cash needed to meet "current obligations." Deferred CCR costs do not fit within this description; they are costs expended in the past, not awaiting expenditure currently or in the future, and thus are not needed to "meet current obligations."

The Commission has reviewed in the present case the "working capital" argument for allowing a return on CCR costs, and rejects that argument both on

the basis of witness Maness's testimony as discussed above, and upon further review of the *VEPCO* case.[49]

The portion of the Court's decision most relevant to the present case reads as follows:

> Like any other business, a public utility must at all times have on hand a reasonable amount of materials and supplies and a reasonable amount of funds for the payment of its expenses of operation. While Chapter 62 of the General Statutes makes no reference to working capital, as such, the utility's own funds reasonably invested in such materials and supplies and its cash funds reasonably so held for payment of operating expenses, as they become payable, fall within the meaning of the term "property used and useful in providing the service," as used in G.S. § 62-133(b)(1), and are a proper addition to the rate base on which the utility must be permitted to earn a fair rate of return.

VEPCO at 414-15, 206 S.E.2d 283, 295-96. The Court thus described "working capital" that qualifies for rate base under N.C.G.S. § 62-133(b)(1) as consisting of either "materials and supplies" or "*cash* funds *reasonably so held* for payment of operating expenses." (emphasis added).

While the Commission has no issue with the Company labeling CCR costs as working capital for its accounting purposes, this does not qualify those costs as "property used and useful" under the *VEPCO* decision. *VEPCO* identified only two types of working capital as entitled to rate base treatment – "materials and supplies" and cash working capital.

[49] The Commission is aware of its different reasoning and outcome in prior rate cases. The issue of equitable sharing is a policy judgment, and with respect to new costs in new rate cases the prior determinations are not adjudicative facts subject to issue preclusion, *stare decisis*, or res judicata. Likewise, the proper interpretation of a case like *VEPCO* is a legal conclusion, and this Commission may conclude differently from past decisions. The Commission is not bound by determinations made in past cases on the issue of equitable sharing of CCR costs.

Accordingly, based on the record as a whole, the Commission concludes that it is appropriate to treat the Deferral Period CCR costs proposed by the Company for amortization in this proceeding as deferred expenses, not the costs of used and useful property, for ratemaking purposes. This conclusion is supported by the testimony of Public Staff witness Maness and the information provided in DEC Late-Filed Exhibit No. 6 and Public Staff late-Filed Exhibit No. 2. Both Late Filed Exhibits show that the accounting entry made to record the ARO regulatory asset reduces depreciation expense and accretion expense, not any plant in service accounts. Those costs are not "property used and useful," both because of their nature as operating expenses and also because they were deferred to a regulatory asset. This is legally consistent with the approach taken for the costs of abandoned nuclear construction, abandoned coal plants, and the costs of MGP remediation. The factors cited by the Public Staff in favor of equitable sharing – DEC's culpability for environmental contamination and the size and nature of costs that do not provide any new electric service or economic benefits to customers, warrant equitable sharing in this case.

In summary, N.C.G.S.§ 62-133(b)(1) allows the recovery of a return on investment in property and plant that is used and useful in providing utility service. The Commission takes no issue with the Company's decision to establish an ARO to recognize its CCR obligations or its labeling of CCR costs as working capital for accounting purposes. However, these accounting practices do not ipso facto transform these costs into expenditures for "property used and useful" under the Act. Further, the Supreme Court's holding on working capital made in State ex rel.

Utilities Commission v. Virginia Electric & Power Co., 285 N.C. 398, 206 S.E.2d 283 (1974) (VEPCO), did not change the used and useful requirement of N.C.G.S. § 62-133(b)(1).

Giving weight to all sections of N.C.G.S. § 62-133 when construing the language of any individual section of the statute, as the North Carolina Supreme Court has indicated the Commission must do, the Commission determines that just and reasonable rates are achieved, based on the evidence in the record in this proceeding, only when the unamortized balance of CCR costs are not allowed to earn a return. *Utilities Comm'n v. Duke Power Co.*, 305 N.C. 1, 18, 287 S.E.2d 786, 796 (1982). Accordingly, based on the record as a whole, the Commission concludes that it is appropriate to treat the CCR costs as deferred operating expenses and not as costs of property used and useful within the meaning and scope of N.C.G.S. § 62-133(b) and to not allow a return on the unamortized balance of the CCR costs.

Prevailing on Sub 1146 Appeal

Public Staff witness Maness testified that in the Company's most recent general rate case (Docket No. E-7, Sub 1146), it proposed to defer and amortize ARO-related coal ash remediation costs incurred during 2015 and 2016 over a five-year period, with the unamortized balance included in rate base. The Public Staff recommended instead that the costs, net of certain recommended prudence and reasonableness adjustments, be equitably shared between ratepayers and shareholders, proposing a 25-year amortization with the unamortized balance excluded from rate base, which would result in an approximately 50% sharing

between ratepayers and shareholders. Ultimately, the Commission agreed with the Company's position, except that it imposed a $14 million annual penalty on the Company for each of the five years. As a result, in this proceeding the Company has proposed to include in its North Carolina retail cost of service an annualized amount of approximately $97 million in amortization expense related to the 2015-2017 incurred costs, and in its North Carolina retail rate base an annualized end-of period level of unamortized deferred 2015-2017 costs of approximately $297 million, net of accumulated deferred income taxes (ADIT). (Id. at 522-23.)

Witness Maness testified that several parties have appealed the Commission's Sub 1146 Order to the North Carolina Supreme Court. In particular, the Public Staff appealed the Commission's decisions regarding equitable sharing and the Public Staff's recommended disallowance related to groundwater extraction and treatment. The outcome of the appeals remains pending at the Supreme Court. (Id. at 523-24.)

Witness Maness testified that if the Public Staff prevailed on its positions at both the appellate level and on remand to the Commission, not only would it be mandatory for customers' rates effective during the period covered by the Sub 1146 Order to be reduced to match the positions on which the Public Staff prevailed, but it would also only be appropriate for the revenue requirement impact of the Public Staff's successfully appealed Sub 1146 adjustments to be flowed through to the Sub 1146 costs as included in the Sub 1214 case. Also, if the case were remanded and the Commission chose some equitable sharing other than the percentage recommended by the Public Staff, there would still be a need to flow

the effect of the remand decision through to the Sub 1146 costs included in the Sub 1214 case. The effect in this case would be to reduce annual Sub 1146 coal ash amortization expense from approximately $97 million to approximately $22 million, and reduce the associated net-of-ADIT Sub 1146 rate base amount from approximately $297 million to $0. The revenue requirement impact in the current case of these changes would be an annual reduction of approximately $99 million. (Id. at 524-25.)

Witness Maness testified that the Public Staff had not rolled this adjustment into its recommended revenue requirement in this proceeding, although he stated that it would not be wholly inappropriate to do so, if only to show the Public Staff's position regarding the very costs that are the subject of a pending appellate decision. However, the Public Staff had instead chosen to highlight this issue for the Commission, and recommended that the Commission take whatever steps are necessary to ensure that the outcome of this issue is flowed into each case on which it would have an effect. (Id. at 522-25.)

Based on the evidence presented by the Public Staff, the Commission concludes that the rates approved in this case will remain provisional to the extent necessary to reflect the impact of the Supreme Court's decisions on the appeal of Docket No. E-7, Sub 1146, and the Commission's possible decisions on remand of that case.

Right to defer Non-ARO and ARO Coal Ash Costs

Although the Public Staff and the Company have settled the issue of the appropriate and reasonable amortization period for the non-ARO CCR coal ash

costs that the Company has presented for ratemaking treatment in this case, the two parties do not agree as to how such costs should be treated for ratemaking purposes in the future. Public Staff witness Maness testified that although the Public Staff agrees that the Company is authorized to defer the capital costs of non-ARO-related coal ash remediation projects it has presented in this proceeding, it was frankly surprised at the number and cost magnitude of these projects. Witness Maness testified that at the time the Company made its Sub 1110 deferral request in late 2016, and until it filed its application in this case, the Public Staff believed that the capital costs mentioned in the Sub 1110 request would be ARO-related, not related instead to projects associated with the continuing operation of the generating plants. He indicated that the ARO was the focus of the petition, and it certainly seemed to be where the highest magnitude risk of loss to the Company resided. (Id. at 520-22.)

Witness Maness testified that given the unexpected nature of the non-ARO-related projects proposed for deferral, and the fact that the non-ARO-related deferral requested in this case is more similar in nature to other requests that have been brought forth frequently in the past related to new generation projects than it is to the unique situation presented by the incurrence of ARO-related costs associated with the retirement of its existing coal ash facilities at an extraordinarily high-cost, the Public Staff believes that the automatic right to defer capital costs associated with CAMA or the CCR Rule should not continue. Therefore, the Public Staff recommended that any further authorization to defer CCR-related costs should be restricted to those costs that qualify for the ARO. (Id. at 521-22.)

Witness Maness also recommended that the Company be allowed to continue, for regulatory accounting purposes, to defer ARO-related coal ash clean-up, disposal, and remediation costs from February 1, 2020, through the effective end-of-period date in the Company's next general rate case. He noted that the actual amount of costs recovered would be determined by the Commission in a general rate case. He indicated that the basis of his recommendation lay upon the size and unique nature of the costs. He also pointed out that allowing a carrying charge on those costs between rate cases could reduce the Company's incentive to file more frequent general rate cases, though the materiality of the incentive varies based on factors such as the interval between cases, the weighted average cost of capital, and the amount of the deferral. Witness Maness recommended that the Commission consider in the next rate case its allowance of carrying costs between cases when determining whether to include the deferred costs in rate base and the appropriate amortization period. (Id. at 545-46.)

Based on the evidence provided in this proceeding, the Commission agrees with the Public Staff's recommendation that that the Company should be allowed to continue, for regulatory accounting purposes, to defer ARO-related coal ash clean-up, disposal, and remediation costs from February 1, 2020, through the effective end-of-period date in the Company's next general rate case. The Commission will consider the appropriateness of recovery of the costs thereafter in a general rate case. The Commission also agrees with Mr. Maness that with regard to DEC's future general rate cases and periods subsequent to the period considered in this proceeding for non-ARO coal ash costs, the authorization to

defer costs should be restricted to those costs that qualify for the ARO. To the Commission's eye, the non-ARO coal ash costs it has deferred in this case appear very similar to other requests that have been brought forth frequently in the past related to new generation projects. It is the Commission's opinion that deferral of those projects should be considered on a case-by-case basis, if proposed by the Company, and not be automatically presumed appropriate for deferral under the Commission's Orders issued in Sub 1110, Sub 1146, or the current proceeding.

Insurance Claims

Public Staff witness Maness also testified that the Public Staff is aware that Duke Energy has filed suit against certain of its insurers to recover coal ash management costs under its policies with those insurers. He indicated that Duke Energy has stated that if it does recover on any of those claims, that recovery will be credited against coal ash management costs to be recovered from its ratepayers. Mr. Maness noted the Public Staff believes that ratepayers should be credited the full amount of any recovery from those policies and that Duke Energy should vigorously prosecute those lawsuits on behalf of ratepayers. (Id. at 517.) The Commission concludes that the Public Staff recommendation is reasonable, and expects the Company to vigorously pursue such litigation on behalf of its ratepayers. DEC should be required to take reasonable and prudent actions to pursue claims for insurance coverage of CCR remediation costs, where justified by DEC's insurance policy coverage. Further, the conditions applied to CCR insurance claims within the Sub 1146 Order shall continue, i.e,, all insurance proceeds received or recovered by DEC from the existing and potential CCR

insurance claims should be placed in a regulatory liability account until the Commission enters an order directing DEC as to the appropriate disbursement of the proceeds; the regulatory liability account should accrue a carrying charge at the net-of-tax overall rate of return authorized for DEC in this Order; within ten days of the resolution of any of DEC's CCR insurance claims, whether by settlement, judgment, or otherwise, DEC should file a report with the Commission explaining the result and stating the amount of insurance proceeds to be received or recovered by DEC; and if meritorious concerns are raised by any party or by the Commission regarding the reasonableness of DEC's efforts to obtain an appropriate amount of recovery from the CCR insurance claims, DEC should bear the burden of proving that it exercised reasonable care and made prudent efforts to obtain the maximum recovery from the insurance claims.

ISSUED BY ORDER OF THE COMMISSION.

This the ____ day of _____, 2020.

NORTH CAROLINA UTILITIES COMMISSION

Kimberley A. Campbell, Chief Clerk