

PLACE: Held via Videoconference

DATE: Monday, October 5, 2020

TIME: 1:30 P.M. - 4:59 P.M.

DOCKET NO.: E-2, Sub 1219

E-2, Sub 1193

BEFORE: Commissioner Daniel G. Clodfelter, Presiding
Chair Charlotte A. Mitchell

Commissioner ToNola D. Brown-Bland

Commissioner Lyons Gray

Commissioner Kimberly W. Duffley

Commissioner Jeffrey A. Hughes

Commissioner Floyd B. McKissick, Jr.

IN THE MATTER OF:

DOCKET NO. E-2, SUB 1219

Application by Duke Energy Progress, LLC,
for Adjustment of Rates and Charges Applicable to
Electric Utility Service in North Carolina
and



DOCKET NO. E-2, SUB 1193

Application of Duke Energy Progress, LLC
for an Accounting Order to Defer Incremental Storm
Damage Expenses Incurred as a Result of Hurricanes
Florence and Michael and Winter Storm Diego

VOLUME 19

1 A P P E A R A N C E S:

2 FOR DUKE ENERGY PROGRESS, LLC:

3 Camal Robinson, Esq., Associate General Counsel

4 Brian Heslin, Esq., Deputy General Counsel

5 Duke Energy Corporation

6 550 South Tryon Street

7 Charlotte, North Carolina 28202

8
9 Lawrence B. Somers, Esq., Deputy General Counsel

10 Duke Energy Corporation

11 410 South Wilmington Street

12 Raleigh, North Carolina 27601

13
14 James H. Jeffries, IV, Esq.

15 McGuireWoods LLP

16 201 North Tryon Street, Suite 3000

17 Charlotte, North Carolina 28202

18
19 Andrea Kells, Esq.

20 McGuireWoods LLP

21 501 Fayetteville Street, Suite 500

22 Raleigh, North Carolina 27601

1 A P P E A R A N C E S Cont'd:

2 Molly McIntosh Jagannathan, Esq., Partner

3 Kiran H. Mehta, Esq., Partner

4 Troutman Pepper Hamilton Sanders LLP

5 301 South College Street, Suite 3400

6 Charlotte, North Carolina 28202

7

8 Brandon F. Marzo, Esq.

9 Troutman Pepper

10 600 Peachtree Street, NE, Suite 3000

11 Atlanta, Georgia 30308

12

13 FOR CAROLINA INDUSTRIAL GROUP FOR FAIR UTILITY RATES

14 II and III:

15 Christina D. Cress, Esq.

16 Bailey & Dixon, LLP

17 Post Office Box 1351

18 Raleigh, North Carolina 27602

19

20 FOR CAROLINA UTILITY CUSTOMERS ASSOCIATION, INC.:

21 Robert F. Page, Esq.

22 Crisp & Page, PLLC

23 4010 Barrett Drive, Suite 205

24 Raleigh, North Carolina 27609

1 A P P E A R A N C E S Cont'd:
2 FOR NC JUSTICE CENTER, NC HOUSING COALITION, NATURAL
3 RESOURCES DEFENSE COUNCIL and SOUTHERN ALLIANCE FOR
4 CLEAN ENERGY:

5 Gudrun Thompson, Esq., Senior Attorney
6 David L. Neal, Esq., Senior Attorney
7 Tirrill Moore, Esq., Associate Attorney
8 Southern Environmental Law Center
9 601 West Rosemary Street, Suite 220
10 Chapel Hill, North Carolina 27516
11

12 FOR SIERRA CLUB:
13 Bridget Lee, Esq.
14 Sierra Club
15 9 Pine Street
16 New York, New York 10005
17

18 Catherine Cralle Jones, Esq.
19 Law Office of F. Bryan Brice, Jr.
20 127 W. Hargett Street
21 Raleigh, North Carolina 27601
22
23
24

1 A P P E A R A N C E S Cont'd:

2 FOR NC WARN:

3 Matthew D. Quinn, Esq.

4 Lewis & Roberts PLLC

5 3700 Glenwood Avenue, Suite 410

6 Raleigh, North Carolina 27612

7

8 FOR FAYETTEVILLE PUBLIC WORKS COMMISSION:

9 James West, Esq., General Counsel

10 955 Old Wilmington Road

11 Fayetteville, North Carolina 28301

12

13 FOR UNITED STATES DEPARTMENT OF DEFENSE AND ALL OTHER

14 FEDERAL EXECUTIVE AGENCIES:

15 Emily Medlyn, Esq., General Attorney

16 United States Army Legal Services Agency

17 9275 Gunston Road, Suite 4300 (ELD)

18 Fort Belvoir, Virginia 22060

19

20 FOR VOTE SOLAR:

21 Thadeus B. Culley, Esq., Regulatory Counsel

22 Senior Regional Director

23 1911 Ephesus Church Road

24 Chapel Hill, North Carolina 27517

1 A P P E A R A N C E S Cont'd:

2 FOR NORTH CAROLINA LEAGUE OF MUNICIPALITIES:

3 Deborah Ross, Esq.

4 Fox Rothschild LLP

5 434 Fayetteville Street, Suite 2800

6 Raleigh, North Carolina 27601

7

8 FOR NORTH CAROLINA SUSTAINABLE ENERGY ASSOCIATION:

9 Peter H. Ledford, Esq., General Counsel

10 Benjamin Smith, Esq., Regulatory Counsel

11 North Carolina Sustainable Energy Association

12 4800 Six Forks Road, Suite 300

13 Raleigh, North Carolina 27609

14

15 FOR THE COMMERCIAL GROUP:

16 Alan R. Jenkins, Esq.

17 Jenkins At Law, LLC

18 2950 Yellowtail Avenue

19 Marathon, Florida 33050

20

21 Brian O. Beverly, Esq.

22 Young Moore and Henderson, P.A.

23 3101 Glenwood Avenue

24 Raleigh, North Carolina 27622

1 A P P E A R A N C E S Cont'd:

2 FOR NORTH CAROLINA CLEAN ENERGY BUSINESS ALLIANCE:

3 Karen Kemerait, Esq.

4 Fox Rothschild LLP

5 434 Fayetteville Street, Suite 2800

6 Raleigh, North Carolina 27601

7

8 FOR HARRIS TEETER:

9 Kurt J. Boehm, Esq.

10 Jody Kyler Cohn, Esq.

11 Boehm, Kurtz, & Lowry

12 36 East Seventh Street, Suite 1510

13 Cincinnati, Ohio 45202

14

15 Benjamin M. Royster, Esq.

16 Royster and Royster, PLLC

17 851 Marshall Street

18 Mount Airy, North Carolina 27030

19

20

21

22

23

24

1 A P P E A R A N C E S Cont'd:

2 FOR HORNWOOD, INC.:

3 Janessa Goldstein, Esq.

4 Corporate Counsel

5 Utility Management Services, Inc.

6 6317 Oleander Drive, Suite C

7 Wilmington, North Carolina 28403

8
9 FOR THE USING AND CONSUMING PUBLIC AND ON BEHALF OF
10 THE STATE AND ITS CITIZENS IN THIS MATTER THAT AFFECTS
11 THE PUBLIC INTEREST:

12 Margaret A. Force, Esq., Assistant Attorney General

13 Teresa Townsend, Esq., Special Deputy Attorney General

14 North Carolina Department of Justice

15 Post Office Box 629

16 Raleigh, North Carolina 27603

1 A P P E A R A N C E S Cont'd:
2 FOR THE USING AND CONSUMING PUBLIC:
3 Dianna W. Downey, Esq.
4 Elizabeth D. Culpepper, Esq.
5 Layla Cummings, Esq.
6 Lucy E. Edmondson, Esq.
7 William E. Grantmyre, Esq.
8 Gina C. Holt, Esq.
9 Tim R. Dodge, Esq.
10 Megan Jost, Esq.
11 John D. Little, Esq.
12 Nadia L. Luhr, Esq.
13 Public Staff - North Carolina Utilities Commission
14 4326 Mail Service Center
15 Raleigh, North Carolina 27699-4300

T A B L E O F C O N T E N T S

E X A M I N A T I O N S

JESSICA L. BEDNARCIK PAGE

Exami nation By Commi ssi oner Brown-Bl and. 17

Exami nation By Chai r Mi tchel l 18

Exami nation By Commi ssi oner Hughes. 20

Exami nation By Commi ssi oner Cl odfel ter. 24

Exami nation By Mr. Marzo. 34

STEVEN M. FETTER PAGE

Di rect Exami nation By Mr. Mehta. 42

Prefi led Rebuttal Testimony With 45
Attachment A of Steven M. FetterPrefi led Testimony Summary of. 74
Steven M. Fetter

Cross Exami nation By Mr. Grantmyre. 76

Redi rect Exami nation By Mr. Mehta. 116

PANEL OF PAGE
MARCIA E. WILLIAMS, AND JAMES WELLS

Di rect Exami nation By Mr. Marzo. 127

Prefi led Rebuttal Testimony of James Wel ls. 1130

Prefi led Testimony Summary of James Wel ls. 199

Prefi led Rebuttal Testimony of 203
Marci a Wi l l i a m s

Prefi led Errata of Marci a Wi l l i a m s. 337

Prefi led Testimony Summary of Marci a Wi l l i a m s. . . 339

1	Testimony From Docket Number E-7, Sub 1214	344
2	Transcript	
3	Volume 27, Page 189, Line 1 through Page 314,	
4	Line 5	
5	Testimony From Docket Number E-7, Sub 1214	470
6	Transcript	
7	Volume 28, Page 11, Line 9 through Page 138,	
8	Line 7	
9	Testimony From Docket Number E-7, Sub 1214	598
10	Transcript	
11	Volume 29, Page 15, Line 5 through Page 79,	
12	Line 10	
13	Cross Examination By Ms. Luhr.	664
14	Cross Examination By Ms. Lee.	677
15	Redirect Examination By Mr. Marzo.	695
16	Examination By Commissioner Brown-Bland.	711
17		
18		
19		
20		
21		
22		
23		
24		

E X H I B I T S

I D E N T I F I E D / A D M I T T E D

1			
2			
3	Bednarcik Rebuttal Public Staff	- /38	
4	Cross Examination Exhibits 6, 7, and 9		
5	Confidential Bednarcik Rebuttal	- /38	
6	Public Staff Cross Examination Exhibit 8		
7	Bednarcik Rebuttal AGO Cross	- /38	
8	Exhibit Number 2		
9	Bednarcik Rebuttal Sierra Club	- /40	
10	DEP Cross Exhibit 2		
11	Bednarcik Rebuttal Sierra Club	- /40	
12	DEP Cross Exhibit 3		
13	Bednarcik Rebuttal Exhibits 1	- /41	
14	through 9		
15	Bednarcik Supplemental Exhibits 1 ..	- /41	
16	through 4		
17	Bednarcik Rebuttal DEP Redirect	- /41	
18	Exhibit 1		
19	Fetter Rebuttal Public Staff	86/125	
20	Cross Examination Exhibit Number 1		
21	Fetter Rebuttal Public Staff	91/125	
22	Cross Examination Exhibit 2		
23	Fetter Rebuttal Public Staff	94/125	
24	Cross Examination Exhibit 3		
	Fetter Rebuttal Public Staff	107/125	
	Cross Examination Exhibit 4		
	Fetter Rebuttal Public Staff	110/125	
	Cross Examination Exhibit 5		

1	Fetter Rebuttal DEP Redirect	116/125
2	Examination Exhibit Number 1	
3	Fetter Rebuttal DEP Redirect	117/125
4	Examination Exhibit Number 2	
5	Wells Rebuttal Exhibits 1	128/ -
6	through 4	
7	Williams Rebuttal Exhibits 1	202/ -
8	and 2	
9	Public Staff Wells/Williams	- /663
10	Rebuttal Cross Exhibit Numbers 1	
11	through 6	
12	AGO Wells/Williams Rebuttal Cross ..	- /663
13	Examination Exhibit 1 through 2	
14	Williams/Wells Redirect Exhibit 1...	699/ -

15
16
17
18
19
20
21
22
23
24

P R O C E E D I N G S

COMMISSIONER CLODFELTER: Good

afternoon, everyone. Let's come back to order and pick up where we left off Friday afternoon. I hope everyone had a good, restful weekend, and we'll see if we can get through the home stretch here. One administrative matter first.

Mr. Mehta, we just uploaded an order allowing the Company's designation of Late-Filed Exhibit Number 79, so that motion is granted.

Let me also alert you to a technical issue that we think is going to be okay. The proposed Sierra Club Exhibit Number 2, which was the EIS for the Mayo plant, we can't handle that in the clerk's file as a single document. So it's going to be -- when it's brought into the record, it will be in four parts in the clerk's filings. The page numbering, though, will maintain the integrity of the original document.

So if you go to STAR and look for the document of the clerk's records, don't freak out that it's in four pieces. The page numbering will still have the same exact sequence as in the copies that were served on you originally.

1 So anything else administrative?

2 Mr. Robinson, anyone else, anything else?

3 MR. ROBINSON: Yes.

4 Commissioner Clodfelter, Camal Robinson. I just
5 thought I would provide, if the opportunity is now,
6 a status update of the Company's late-filed
7 exhibits and where they are in preparation.

8 COMMISSIONER CLODFELTER: I tell you
9 what, let's do, let's hold that. Because what I'm
10 going to do, Mr. Robinson, at the end is we'll --
11 when we're done with the testimony, we'll close the
12 record to live testimony, but we will hold the
13 record open for late-filed exhibits. And what I'll
14 ask Mr. Mertz to do is confer with you and other
15 parties who are responsible for compiling
16 late-filed exhibits in the day or so after we
17 conclude the live testimony just to make sure we've
18 got a complete record of that. And that way we can
19 do it all at one time when we're done.

20 MR. ROBINSON: Perfectly fine. Thank
21 you.

22 COMMISSIONER CLODFELTER: Great. Okay.
23 We're back, Ms. Bednarci k, welcome back. And we're
24 now on Commissioners' questions, beginning with

1 Commi ssi oner Brown-BI and.

2 COMMI SSI ONER BROWN-BLAND: Yes.

3 Whereupon,

4 JESSI CA L. BEDNARCI K,

5 havi ng previ ousl y been dul y affi rmed, was exami ned

6 and conti nued testi fyi ng as fol l ows:

7 EXAMI NATION BY COMMI SSI ONER BROWN-BLAND:

8 Q. Ms. Bednarcik, I just have one request, it's
9 simi lar to the one I made in the DEC case.

10 Could you i denti fy, in a late-fi led exhi bi t,
11 those persons in any way affi li ated with the Company,
12 whether it's thi rd parties, contractors, DEC, or DEP,
13 that -- who you contacted to aid in your l earni ng about
14 the -- DEP's hi stori cal CCR handli ng relat ed to DEP's
15 coal -fi red plant sites; if you could do that for me?

16 A. Yes, Commi ssi oner Brown-BI and.

17 Q. Al l ri ght. And that's al l I have. Thank
18 you.

19 COMMI SSI ONER CLODFELTER: Thank you.

20 Commi ssi oner Gray?

21 COMMI SSI ONER GRAY: No questi ons.

22 COMMI SSI ONER CLODFELTER: Al l ri ght.

23 Chai r Mi tchel l ?

24 CHAIR MITCHELL: I do have a questi on

1 for you, Ms. Bednarci k.

2 EXAMINATION BY CHAIR MITCHELL:

3 Q. Thank you for being back with us again this
4 afternoon. I will keep my questions short.

5 In 2009, Duke and Progress, not affiliated at
6 that time, made a presentation to the Commission on
7 a -- during a Monday morning staff conference hearing
8 regarding their respective dam safety procedures. The
9 transcript and documentation associated with that
10 presentation were filed with the Commission in Docket
11 Number E-100, Sub 23-A, and the date that presentation
12 was made, I think, was -- it was in February 2009, and
13 I didn't -- my notes don't reflect the actual day, but
14 it was February 2009.

15 But the representative who spoke for Progress
16 was Charles Gates. In your research and -- of the
17 historical record associated with the DEP facilities,
18 did you have an opportunity to speak with Mr. Gates?

19 A. No, I did not. Not directly with Mr. Gates.

20 Q. Okay. Well, in his presentation to the
21 Commission, Mr. Gates referenced -- and this was in
22 response to a question that he was asked by
23 Commissioner Joyner, and she was sort of discussing the
24 conversion from wet storage to dry storage. But

1 Mr. Gates discussed a 20-year plan that the Company had
2 laid out for handling ash.

3 Do you know -- do you have any idea what the
4 20-year plan is that Mr. Gates was referencing?

5 A. Chair Mitchell, I think I wrote down the date
6 of 2009. I do know that there was a 2006 20-year plan,
7 and I discussed it with Commissioner Clodfelter in my
8 direct testimony that we are going to be providing as a
9 late-filed exhibit. So I have seen the 2006 20-year
10 Duke Energy Progress plan relating to ash storage, what
11 the Company at that time was looking at to make sure we
12 continue operating our plants in the future. So that
13 is going to be part of that late-filed notice -- or
14 late-filed exhibit.

15 Q. Okay. Perfect. Then you've answered my
16 question. Thank you very much, I appreciate it.

17 CHAIR MITCHELL: I have nothing further
18 for the witness.

19 COMMISSIONER CLODFELTER: Commissioner
20 Duffley?

21 COMMISSIONER DUFFLEY: I have no
22 questions.

23 COMMISSIONER CLODFELTER: Thank you.
24 Commissioner Hughes?

1 COMMISSIONER HUGHES: Yes.

2 EXAMINATION BY COMMISSIONER HUGHES:

3 Q. Could I just ask you a little bit about the
4 risk assessment processes that you personally are using
5 in your work now and how it might have differed from
6 some of what you might have researched in the past?

7 Could you briefly describe some of the key
8 ways that you quantify risk now for the decisions that
9 you're making day to day on your cleanups? And, you
10 know, a lot's changed in the last 20 years. Could you
11 just talk a little bit about one or two of the changes?
12 And I know we could make this a really long answer, so
13 if you could give me the medium, short version.

14 A. Of course, Commissioner Hughes. I'll try and
15 give you something short and sweet. Of course, we are
16 looking -- we look at cost risks based upon market
17 conditions whenever we are executing a project and
18 making sure that we have enough contingency in our
19 funding requests as we go for funding and going for how
20 much a project is going to cost. So we do look at --
21 we get an idea of how much we've seen fluctuations, or
22 based upon past experience with executing a work. So,
23 of course, that risk gets built into our contingency.

24 Another thing for execution of projects, we

1 look at moisture content of the ash, we look at weather
2 delays. So that's the actual funding and execution of
3 the work.

4 We also, of course, take a look at risk at a
5 high level for environmental health and safety risk as
6 well as corporate risk. So those items are very
7 similar to what the Attorney General's Office had that
8 one document that she referenced that showed the risk
9 matrix. So we still look at things such as
10 environmental and regulatory risk, looking ahead as to
11 what -- if there's anything rule changes, what that
12 might be, and making sure we keep an eye on any
13 potential rule changes. We look at reputation. We
14 look at our communities. We look at costs, of course.

15 So across the board, we do keep all of those
16 same type of factors that were shown in that one
17 exhibit that the AGO's office went through with me for
18 risk -- a corporate level type of a risk. The
19 projection execution, it's more of the lessons learned
20 that we have seen for executing the project. The
21 things that we have -- all the lessons learned in past
22 projects get built into building those new projects and
23 execution. I'm hoping that answers your question.

24 Q. No, I think that for today. And how about

1 when you look at some of the work that was going on
2 20 years ago; was it the same forms? The same -- same
3 scale? What were some of the differences on how risk
4 was -- you know, your predecessors were quantifying
5 risk?

6 A. So I would say 20 years ago it was different.
7 It wasn't the form that we use today. Not as much of a
8 qualitative type of Excel spreadsheet, I would say,
9 that I know this -- that came around probably -- I
10 can't remember how many years ago, where we took a
11 more an Excel spreadsheet looking at it and laying it
12 out that way.

13 What I saw from the historical documents is
14 that there was an idea of -- let's -- we have
15 regulations that are coming in the future, so let's
16 continue to keep an eye on it. Let's see, make sure
17 that we are involved in the process so we see things
18 that are going on. Of course, once we have that
19 regulatory certainty, that's when we would move
20 forward, but we wanted to make sure that we were
21 involved in the process so that we knew and we could do
22 some planning in the future. If a regulation came
23 forward in one way, that we're not just sitting back
24 and going, now we need to figure out what the game plan

1 is.

2 There's a couple of different ideas so that,
3 as regulations change and move, and that we are -- we
4 are ready to move forward once we have that certainty.

5 So I do see that not it as much of the Excel
6 spreadsheet written out in numerical form, but in the
7 documents, I read -- I see that in there, that we
8 wanted to make sure that we saw what was on the horizon
9 and that we were tracking it appropriately.

10 Q. Okay. That's helpful. No further questions.
11 Thank you.

12 COMMISSIONER CLODFELTER: Thank you.

13 Commissioner McKissick?

14 COMMISSIONER MCKISSICK: I believe, with
15 the witness' testimony in the prior proceeding as
16 well as the testimony she's provided in this
17 proceeding, the vast majority of my questions have
18 been answered. But I appreciate her directness, in
19 terms of responsiveness to the issues that have
20 been raised by Commissioners as well as attorneys.
21 I thank you.

22 COMMISSIONER CLODFELTER: Ms. Bednarcik,
23 I've got a few stray loose ends going back through
24 my notes.

1 EXAMINATION BY COMMISSIONER CLODFELTER:

2 Q. You told us earlier that the current
3 situation, with respect to all of the -- what I'll call
4 old impoundments -- I think that was the phrase
5 Mr. Mehta used. I call them inactive. But they were
6 not receiving new coal ash, let's call it that. That
7 they all had a vegetative cover on them. And I did not
8 ask you at the time; was that vegetative cover a
9 natural revegetation or was that all planted?

10 A. Commissioner Clodfelter, I did go back and
11 make sure I got the right information also about
12 dewatering. I know we had a conversation about that.
13 For all of the inactive ponds, once they stopped
14 receiving coal ash, of course, we did not have sluicing
15 of the water into the ponds, remove the channelization
16 of the stormwater into those ponds, so they just
17 received rainwater, and they would have naturally
18 decanted out through the NPDES.

19 So we did not do -- like we're doing today,
20 the last couple of feet in our current ponds we're
21 doing dewatering. That's what's written in our SOC's --
22 our special orders of consent -- is that last 3 feet.
23 But the rest of it down to that 3 feet was decanted
24 naturally, and that's what appears has happened to

1 those inactive basins, is that they've decanted
2 naturally over time.

3 And then for the vegetations on top, it was
4 not something that we placed there. Over time, it was
5 vegetated through -- just throughout the years. But,
6 of course, we own that property, we maintain that
7 property, and we always looked at that area as
8 potentially other areas if we were to do maybe a
9 landfill on top of those old basins. And those old
10 basins were part of the plan to do in our final
11 closure.

12 Q. Okay. Thank you for that, and thank you
13 especially because it helps me bring your testimony and
14 Mr. Kerin's testimony in the sink, so I appreciate that
15 answer.

16 With respect to the 2006 plan that you were
17 discussing with Chair Mitchell that you will be
18 providing as part of a late-filed exhibit of the
19 historical documents, was that -- I missed it. Was
20 that a 10-year plan or a 20-year plan?

21 A. So the Duke Energy Progress plan was a
22 20-year plan.

23 Q. It was a 20-year plan. Okay.

24 A. Yeah, I think it was until 2025 time period.

1 Q. Okay. Was there any earlier iteration or
2 version of that prior to the 2006 version?

3 A. We were not able to locate a prior version.

4 Q. All right. I want to ask you about a
5 document that I had some conversation with witness
6 Wells about in the DEC case. And in the last DEC case
7 of 2017, 2018, it was marked as Attorney General's
8 Kerin Direct Cross Exhibit 3. It was the Duke Energy
9 Carolinas 2007 environmental management program for
10 coal combustion products.

11 Have you ever heard of that document or seen
12 it before?

13 A. I have heard of that document. I have seen
14 it. I don't know if I could grab my -- put my hands on
15 it very quickly, though.

16 Q. Well, my question to you really is -- you
17 don't have to have the document -- I just was curious
18 as, in that general time period, let's just say
19 sometime prior to 2010, was there anything similar for
20 Duke Energy Progress? This would have been at the time
21 when the companies were still independent. And I'm
22 really just trying to find out was there a similar
23 policy document for Duke Progress?

24 A. As I sit here today, I can't recall one that

1 I have seen. I'd have to go back through my files just
2 to make sure. But as I sit here today, I can't bring
3 one to mind right now.

4 Q. Okay. Well, I assume, if you had anything
5 close, it will probably appear in the group of
6 historical documents that you're going to be filing.
7 So I'll leave that for now. Let me ask you one more
8 question about a document. And this one I think we
9 alerted your counsel that I might have a question or
10 two about it. They're high-level questions, they're
11 not going to be details.

12 It was the 2012 plant retirement
13 comprehensive program plan that was marked in the prior
14 Duke Carolinas case as Attorney General Doss Cross
15 Examination Exhibit 1. Do you have access to that
16 document, or you have had access to that document?

17 A. I actually -- I have the document in front of
18 me.

19 Q. That's great. Well, on the cover page of the
20 document, it says it's revision number one, and my
21 question was, does that mean there was an earlier
22 iteration of this, an original?

23 A. Yes. So this document was based upon a
24 document that was prepared by Duke Energy Progress

1 prior to the merger. So there was a document that
2 looks surprisingly similar for the -- only for the Duke
3 Energy Progress sites that has a 2011 date on it.

4 Q. That's great. Thank you. And I assume --
5 can I safely assume that that document will also be in
6 the package of historical documents that you'll be
7 supplying as the late-filed exhibit?

8 A. I believe we provided that in a data request
9 in the past, and if not, we can include that.

10 Q. Okay. Thank you. Do you know that --
11 whether prior to the 2011 version, was there any
12 earlier iteration prior to 2011?

13 A. We have not been able to find anything prior.
14 The 2011 one, which I have in front of me, is -- it
15 says revision zero on it.

16 Q. Okay.

17 A. And it was whenever that team was brought
18 together to start working on a guidance document for
19 plant demolition.

20 Q. Was this annually updated? So would there be
21 a 2013 version, and a 2014 version, and so on?

22 A. So the 2013 version -- we haven't found one
23 that says on the front page, 2013, but there is a
24 document that had a revision date in 2013. I think

1 they changed the year to say a year forward. So there
2 is one from 2013. October 2013 was when it was signed
3 off.

4 And we still create similar documents, of
5 course without the coal ash basins, for our plant
6 demolition program now. It's underneath me. So I know
7 we still follow generally the same process of yearly
8 looking at what our plans are for the next couple of
9 years, and also making sure that we have clarity for
10 funding for the next year, and then a good game plan
11 for the next couple of years. But every year it's
12 updated.

13 Q. Thank you. I assume -- would I be correct in
14 assuming that after 2014, the coal ash piece of those
15 was pulled out and dealt with separately due to CCR
16 regulations and the CAMA requirement to develop plans
17 pursuant to CAMA and CCR?

18 A. Yes. The following document, which was
19 October -- or December of 2014, did not have coal ash
20 in it.

21 Q. Okay. Thank you, Ms. Bednarcik. I only have
22 the 2012 one, so that's the one I'm going to be
23 referring to until I see the other one later.

24 On page 20 of the document, under the heading

1 "Annual funding requirements, authorizations, and gate
2 reviews," there is a chart there of some cost
3 estimates. I'm not going to go into the detail of
4 those cost estimates. I really just want to know, what
5 was the source of those numbers, if you know? Were
6 they based on third-party decommissioning studies?
7 Were they internal estimates? How were they produced?

8 A. So I had discussions specifically with
9 Mr. Zarzar about this to make sure that it follows what
10 we do today, which is that the initial dollar amounts
11 are based upon those decommissioning studies done by
12 the third party. So that is specifically for the
13 Legacy Progress Carolinas items. It's very close.

14 But, of course, as we move through, we use
15 that as our basis until we get more information. As we
16 start moving through the process, if we have a
17 cost-per-ton or a laboring rate that's a little bit
18 different, then, of course, we would modify those. But
19 that's the same process we use today, that we start off
20 with those decommissioning studies and the dollar
21 amounts and then modify them as we go through the years
22 as we get bids in, as we get more information.

23 Q. I understand. Thank you. Do you know
24 whether these estimates on page 20, were these the

1 source estimates that were used when the Company, in
2 the 2011, 2012 general rate case, made a request for a
3 specific allowance and rates of an item -- of an amount
4 for coal ash basin closure? Was this -- were these
5 numbers the source of the sizing of that request?

6 A. Unfortunately, Commissioner Clodfelter, it
7 may have been a better question for Mr. Spanos.

8 Q. Okay.

9 A. And I know that he moved into on the Duke
10 Energy Progress side. I don't know as specifically it
11 was this, but I do know, of course, those
12 decommissioning studies were provided and utilized in
13 those cases.

14 Q. Thank you. Mr. Spanos told me they were in
15 the record of the 2011 cases. I just didn't go into
16 the record over the weekend, so that's my homework
17 assignment.

18 Last thing I have for you is -- and thank you
19 for the answer you gave Mr. Marzo on redirect about my
20 earlier line of questioning when you were here earlier
21 about activities beyond the compliance boundary. I'll
22 call it that for shorthand. And I appreciate your
23 answer, I understand your answer. I'm going to now
24 make a modified request for a late-filed exhibit. It's

1 not the same request as earlier. This is a modified
2 request.

3 For the activities you're presently
4 conducting outside the compliance boundary -- and that
5 would include groundwater monitoring outside the
6 compliance boundary, assessment, and any corrective
7 action you're undertaking outside the compliance
8 boundary at Roxboro, at Sutton, and I can't remember if
9 there was a third plant, but we'll throw it in if there
10 is a third plant -- I would like to see a cost breakout
11 for just those costs. I understand your earlier answer
12 is that those might be different than what the costs
13 would have been just under the 2L rule. I appreciate
14 that. I'd like to just sort of see a breakout of your
15 actual costs for those activities conducted outside the
16 compliance boundary.

17 A. So, Commissioner Clodfelter, we'll take a
18 look at that. I'm not sure if we'll be able to
19 because, of course, as we install wells, monitor those
20 wells, all of those, those purchase orders, they go in,
21 are all the wells at one time. But we'll take a look
22 at that and see what we can do. But we may not be able
23 to pull them out, but I will work with our accounting
24 and see if we're able.

1 Q. I appreciate that. What I would ask you to
2 do is, as much as you can identify and segregate, let's
3 see it. As I understand it, you're not doing any
4 extraction within the compliance boundary. So if
5 you're doing extraction, I assume that would all be
6 outside the compliance boundary. If you -- for
7 example, if you can break that out, and if you can
8 break some items out but not all items, just whatever
9 you can do, I would appreciate.

10 A. Yes, sir, we will do that.

11 Q. Thank you, Ms. Bednarcik. I appreciate your
12 time.

13 COMMISSIONER CLODFELTER: And with that,
14 we're at questions on the Commission's questions.
15 Speak now, anyone. Who would like to go next?

16 MR. MARZO: Commissioner Clodfelter, I
17 may just have one or two, but I would prefer to go
18 last if there's others who have questions.

19 MS. JOST: The Public Staff doesn't have
20 any questions. Thank you.

21 MS. TOWNSEND: The Attorney General has
22 no questions. Thank you.

23 MR. MARZO: Commissioner Clodfelter, I
24 guess I will go, then.

1 EXAMINATION BY MR. MARZO:

2 Q. Ms. Bednarci k, just very quickly. I know you
3 just talked to Commissioner Clodfel ter about the 2012
4 plant retirement comprehensive program plan, and that
5 you mentioned that you had discussed that document with
6 Issa Zarzar who's listed on the cover. And could you
7 give some more context of the discussions you had and
8 the purpose behind this document?

9 A. The purpose behind this document is to lay
10 out a -- have an overall program of demolition of the
11 plan. So in the 2011, 2012 time period after the two
12 companies merged, it was to lay out the demolition
13 activities. And again, at that time, it did have a
14 coal ash basin with the idea that we would cap those
15 basins in place. And using the Weatherspoon -- the
16 Weatherspoon closure document as our template. And it
17 discusses that in that document.

18 But really a high level what it's to do is to
19 lay out the program for demolition, starting with
20 taking down the buildings, how we would take down those
21 buildings. Not in the details of how we would take
22 them down, but what we are looking at for the next
23 couple of years for activities in order to move forward
24 on demolition.

1 Q. Okay. Thank you, Ms. Bednarci k. And I
2 noticed during the executive summary of the document
3 there is a short bullet on cost recovery.

4 Did Mr. Zarzar share with you whether or not
5 he was the author of that, or that is just information
6 that was just included in this report?

7 A. That specific on cost recovery, he mentioned,
8 was provided to him directly. And as you look into the
9 subsequent -- of course, the subsequent revisions, you
10 see that going forward and asking for a deferral is
11 discussed in there as well. So anything related to
12 recovery, it changed after that document, to look at
13 and say this is something we would look at in the
14 future for deferrals.

15 Q. And the cost estimates that you discussed
16 with Commissioner Clodfel ter near the middle to the
17 back of the document, is it fair to say those are
18 planning estimates? I mean, they're not what we would
19 consider to be the detail you would use for a cost
20 recovery-type estimate; is that fair?

21 A. So specifically for cost recovery, as I
22 mentioned to Commissioner Clodfel ter, that would be at
23 the demolition or the decommissioning studies. And
24 beyond that, of course, we have conversations even

1 today with our rates and regulatory organization as
2 we're doing our demolition work to make sure that they
3 are aware of what those costs are once they're being
4 executed, or if there are any changes to those costs.

5 But for the first year, especially in that
6 document, a lot of it is engineering and planning for
7 the coal ash basins was those preliminary site
8 characterization evaluations, which is what happened in
9 the 2012 and 2013 time period.

10 Q. And, Ms. Bednarcik, one last question. Is it
11 fair to say -- I looked on this document. One of the
12 sections talks, on page 7, for example, about
13 legislation and regulatory expectations.

14 Is it fair to say Mr. Zarzar and the Company,
15 Duke Energy Progress at the time, was balancing a
16 number of regulatory concerns as they considered
17 decommissioning?

18 A. Yes. So if you look at that page 7 on the
19 document, it talks about environmental regulations and
20 new initiatives, including cooling water systems,
21 wastewater discharge temperature and chemical content,
22 coal combustion residual management, and air emissions,
23 regulations, all of that that was on the horizon. It
24 also has a section that talks about the -- the taking

1 away, the retirement of the Weatherspoon, Cape Fear,
2 Lee, and Sutton coal plants associated with building of
3 the new combined cycle plant and orders of the
4 Commission.

5 So it's balancing a lot of different ideas.
6 So it has a high level inside this document as to the
7 things that the Company was looking at.

8 Q. Okay. Thank, you Ms. Bednarci k.

9 MR. MARZO: Thank you,
10 Commissioner Clodfel ter, I'm done with my questions
11 on Commissioners' questions.

12 COMMISSIONER CLODFELTER: Okay. I think
13 we're at the point where we can entertain motions
14 relative to exhibits. So who wants to go first?

15 MS. JOST: I'll begin. This is
16 Megan Jost with the Public Staff. We would move
17 that Bednarci k Rebuttal Public Staff Cross
18 Examination Exhibi ts 6, 7, and 9, and Confidential
19 Bednarci k Rebuttal Public Staff Cross Examination
20 Exhibi t 8 be admitted into evidence as they were
21 identified for the record.

22 COMMISSIONER CLODFELTER: And that 8
23 maintain its confidential status in the record.
24 You've heard the motion from Ms. Jost. Is there

1 any objection?

2 (No response.)

3 COMMISSIONER CLODFELTER: If not, the
4 motion is so allowed.

5 (Bednarcik Rebuttal Public Staff Cross
6 Examination Exhibits 6, 7, and 9, and
7 Confidential Bednarcik Rebuttal Public
8 Staff Cross Examination Exhibit 8 were
9 admitted into evidence.)

10 COMMISSIONER CLODFELTER: Ms. Townsend,
11 you want to go next?

12 MS. TOWNSEND: Yes, please. We would
13 move that the Bednarcik Rebuttal AGO Cross Exhibit
14 Number 2 be admitted into evidence.

15 COMMISSIONER CLODFELTER: Hearing no
16 objection, it is so ordered.

17 MS. TOWNSEND: Thank you.

18 (Bednarcik Rebuttal AGO Cross Exhibit
19 Number 2 was admitted into evidence.)

20 COMMISSIONER CLODFELTER:

21 Ms. Cralle Jones?

22 MS. CRALLE JONES: Yes. As we've
23 discussed by agreement, the Company has prepared a
24 combined electronic document with page numbering

1 for the entire document. We'll be refiling that in
2 four parts with the page numberings so all parties
3 to the Commission will have easy reference. So we
4 would now move that Bednarcik Rebuttal Sierra Club
5 DEP Cross Exhibit 2 be moved into the record. And
6 I guess one clarification. Are we still using the
7 hyperlink? And would you like also hard copies
8 filed at the specific reference pages?

9 COMMISSIONER CLODFELTER: I think that
10 would facilitate easy use of the transcript, so
11 yes, please. Let's -- we'll handle the hyperlink
12 the way that you and Mr. Mertz in the clerk's
13 office and the court reporter have worked out, but
14 I think it would also help to have the pages that
15 we were specifically called out so that users who
16 may want to read the transcript later who weren't
17 parties to the hearing can do so conveniently. So
18 let's do that.

19 MS. CRALLE JONES: So for the record,
20 the EPA correspondence we discussed on Friday can
21 be found at the new document PDF pages 498 through
22 514, and we will also file those separately.

23 COMMISSIONER CLODFELTER: That's great.
24 Thank you, Ms. Cralle Jones. You heard the motion.

1 Is there any objection?

2 (No response.)

3 COMMISSIONER CLODFELTER: Hearing none,
4 the motion is allowed.

5 (Bednarci k Rebuttal Sierra Club DEP
6 Cross Exhibit 2 was admitted into
7 evidence. [Exhibit Part 1](#) and [Part 2.](#))

8 MS. CRALLE JONES: And then we would
9 further move that Bednarci k Rebuttal Sierra Club
10 DEP Cross Exhibit 3 be admitted to the record.

11 CHAIR MITCHELL: Without objection, it
12 will be so ordered.

13 (Bednarci k Rebuttal Sierra Club DEP
14 Cross Exhibit 3 was admitted into
15 evidence.)

16 COMMISSIONER CLODFELTER: Okay.
17 Mr. Marzo, I think that leaves you.

18 MR. MARZO: Commissioner Clodfel ter, I'd
19 ask that Ms. Bednarci k's Rebuttal Exhibi ts 1
20 through 9 be moved into the record as well as her
21 Supplemental Exhibi ts 1 through 4.

22 COMMISSIONER CLODFELTER: All right.
23 You heard the motion -- I'm sorry?

24 MR. MARZO: Yeah. I also have one

1 redi rect exhi bi t to move when I -- my Redi rect
2 Exhi bi t Number 1.

3 COMMI SSIONER CLODFELTER: Okay. You've
4 heard the motion from Mr. Marzo. Is there any
5 obj ecti on?

6 (No response.)

7 COMMI SSIONER CLODFELTER: Heari ng none,
8 moti on is granted.

9 (Bednarci k Rebuttal Exhi bi ts 1 through
10 9, Bednarci k Supplemental Exhi bi ts 1
11 through 4, and Bednarci k Rebuttal DEP
12 Redi rect Exhi bi t 1 were admi tted into
13 evi dence.)

14 COMMI SSIONER CLODFELTER: Okay.
15 Ms. Bednarci k, your ordeal is over. Would you --
16 she's subject to recal l.

17 MR. MARZO: She is -- yes,
18 Commi ssi oner Clodfel ter, she is subject to recal l.

19 COMMI SSIONER CLODFELTER: Okay. That's
20 correct. I j ust noted that on my sheet, so we
21 won't excuse her now. And we're with your next
22 wi tness. We're ready for your next wi tness.

23 MR. MARZO: I wi ll turn it over to
24 Mr. Mehta.

1 COMMISSIONER CLODFELTER: Okay.

2 MR. MEHTA: Thank you,
3 Commissioner Clodfelter and Mr. Marzo, the Company
4 now calls Steve Fetter.

5 Whereupon,

6 STEVEN M. FETTER,
7 having first been duly affirmed, was examined
8 and testified as follows:

9 COMMISSIONER CLODFELTER: Mr. Mehta?

10 DIRECT EXAMINATION BY MR. MEHTA:

11 Q. Mr. Fetter, would you please state your name
12 and business address for the record.

13 A. Steven M. Fetter. And I have an energy
14 advisory firm, Regulation UnFettered, located at 1240
15 West Sims Way, Fort Townsend, Washington 98368.

16 Q. And in what capacity do you work for
17 Regulation UnFettered?

18 A. I am president of my own energy advisory
19 firm.

20 Q. Mr. Fetter, on May 4, 2020, did you cause to
21 be prefiled in this docket, rebuttal testimony
22 consisting of 26 pages along with Attachment A?

23 A. Yes, I did.

24 Q. Do you have any changes or corrections to

1 your prefiled rebuttal testimony?

2 A. No, I do not.

3 Q. And if I asked you the same questions here
4 today, would your answers be the same?

5 A. Yes, they would.

6 Q. Mr. Fetter, did you also prepare a summary of
7 your testimony which has previously been provided to
8 the Commission and the parties?

9 A. Yes, I did.

10 Q. Do you have any changes or corrections to
11 your summary?

12 A. No, I do not.

13 MR. MEHTA: Commissioner Clodfelter, I
14 move that Mr. Fetter's prefiled rebuttal testimony,
15 including Attachment A, and the summary of his
16 testimony be admitted into evidence and copied into
17 the record in this proceeding as though given
18 orally from the stand.

19 COMMISSIONER CLODFELTER: You have heard
20 the motion. Is there any objection?

21 (No response.)

22 COMMISSIONER CLODFELTER: Hearing none,
23 the motion is granted.

24 (Whereupon, the prefiled rebuttal

1 testimony with Attachment A and
2 testimony summary of Steven M. Fetter
3 was copied into the record as if given
4 orally from the stand.)
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**DOCKET NO. E-2, SUB 1219**

In the Matter of:)	
	)	REBUTTAL TESTIMONY OF
Application of Duke Energy Progress, LLC	)	STEVEN M. FETTER
For Adjustment of Rates and Charges	)	FOR DUKE ENERGY
Applicable to Electric Service in North	)	PROGRESS, LLC
Carolina)	

I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

2 A. My name is Steven M. Fetter. I am President of Regulation UnFettered. My business
3 address is 1240 West Sims Way, Port Townsend, Washington 98368.

4 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

5 A. I am providing rebuttal testimony on behalf of Duke Energy Progress (“Duke Progress” or “the
6 Company”) before the North Carolina Utilities Commission (“Commission” or “NCUC”).

7 **Q. PLEASE DESCRIBE THE ISSUES UPON WHICH YOU ARE PROVIDING**
8 **REBUTTAL TESTIMONY.**

9 A. Utilizing my past experience as a state utility commission chairman and head of a major
10 utility credit rating practice, my rebuttal testimony responds to Public Staff witnesses Jay
11 B. Lucas and Michael C. Maness who recommend an “equitable sharing” of coal
12 combustion residual (“CCR”) compliance costs, as well as Public Staff witness John R.
13 Hinton who testifies that financial positions incorporated into the overall Public Staff filing will
14 not result in a downgrade for the Company. Further, I discuss the potential negative effects
15 that the COVID-19 pandemic can have on the utility industry as a whole, and specifically
16 on Duke Energy Corporation. I note that with regard to responding to Public Staff’s arguments
17 related to specific instances of alleged imprudence and unreasonableness related to CCR
18 compliance activities, I defer to the rebuttal testimony of Company witnesses Jessica Bednarcik,
19 James Wells and Marcia Williams.

II. BACKGROUND

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am President of Regulation UnFettered, a utility advisory firm I started in April 2002. Prior to that, I was employed by Fitch, Inc. ("Fitch"), a credit rating agency based in New York and London. Prior to that, I served as Chairman of the Michigan Public Service Commission ("Michigan PSC"). I am also an attorney, having graduated from the University of Michigan Law School in 1979.

Q. PLEASE DESCRIBE YOUR SERVICE ON THE MICHIGAN PSC.

A. I was appointed as a Commissioner to the three-member Michigan PSC in October 1987 by Democratic Governor James Blanchard. In January 1991, I was promoted to Chairman by incoming Republican Governor John Engler, a designation that I retained following reappointment in 1993. During my tenure as Chairman, timeliness of commission processes was a major focus, and my colleagues and I achieved the goal of eliminating the agency's case backlog for the first time in 23 years. While on the Michigan PSC, I also served as Chairman of the Board of the National Regulatory Research Institute ("NRRI"), the research arm of the National Association of Regulatory Utility Commissioners ("NARUC"). After leaving regulatory service, I was appointed to the NRRI Board as a public member. I have also served as a lecturer at Michigan State University's Institute of Public Utilities Annual Regulatory Studies Program ("Camp NARUC") and at NARUC's New Commissioner Regulatory Orientation.

Q. PLEASE DESCRIBE YOUR ROLE AS PRESIDENT OF REGULATION UnFettered.

A. I formed a utility advisory firm to use my financial, regulatory, legislative, and legal expertise to aid the deliberations of regulators, legislative bodies, and the courts, and to

1 assist them in evaluating regulatory issues. My clients have included investor-owned and
2 municipal electric, natural gas and water utilities, state public utility commissions and
3 consumer advocates, non-utility energy suppliers, international financial services and
4 consulting firms, and investors.

5 **Q. WHAT WAS YOUR ROLE IN YOUR EMPLOYMENT BY FITCH?**

6 A. I was Group Head and Managing Director of the Global Power Group within Fitch. In that
7 role, I served as group manager of the combined 18-person New York and Chicago utility
8 team. I was originally hired to interpret the impact of regulatory and legislative
9 developments on utility credit ratings, a responsibility I continued to have throughout my
10 tenure at the rating agency. In April 2002, I left Fitch to start Regulation UnFettered.

11 **Q. HOW LONG WERE YOU EMPLOYED BY FITCH?**

12 A. I was employed by Fitch from October 1993 until April 2002. In addition, shortly after I
13 resigned to start Regulation UnFettered, Fitch retained me as a consultant for a period of
14 approximately six months.

15 **Q. HOW DOES YOUR EXPERIENCE RELATE TO YOUR TESTIMONY IN THIS**
16 **PROCEEDING?**

17 A. My experience as Chairman and Commissioner on the Michigan PSC and my subsequent
18 professional experience with financial analysis and ratings of the U.S. electric and natural gas
19 sectors – in jurisdictions involved in restructuring activity as well as those still following a
20 traditional regulated path – have given me solid insight into the importance of a regulator's role
21 vis-à-vis regulated utilities, both in setting their rates as well as the appropriate terms and
22 conditions for the service they provide. In addition, for the past 20 years I have been a member

1 of the Wall Street Utility Group, an organization comprised of debt and equity analysts assigned
2 to cover and make assessments of companies within the utility sector.

3 **Q. HAVE YOU PREVIOUSLY GIVEN TESTIMONY BEFORE REGULATORY AND**
4 **LEGISLATIVE BODIES?**

5 A. Since 1990, I have testified before the U.S. Senate, the U.S. House of Representatives, the Federal
6 Energy Regulatory Commission, federal district and bankruptcy courts, and various state and
7 provincial legislative, judicial, and regulatory bodies in more than 100 proceedings or hearings on
8 the subjects of credit risk and cost of capital within the utility sector, electric and natural gas utility
9 restructuring, fuel and other energy cost adjustment mechanisms, regulated utility mergers and
10 acquisitions, construction work in progress and other interim rate recovery structures, utility
11 securitization bonds, and nuclear energy. I have previously testified and been accepted as an
12 expert witness before this Commission on behalf of Duke Energy Carolinas in Docket Nos. E-
13 7, Sub 828 and E-7, Sub 909; and I recently filed testimony in Docket No. E-7, Sub 1214.
14 My full educational and professional background is presented in Attachment A hereto.

15 **III. CREDIT RATINGS AND THEIR IMPORTANCE**
16 **TO REGULATED UTILITIES**

17 **Q. WHAT IS A CREDIT RATING AND WHY IS IT IMPORTANT?**

18 A. A credit rating reflects an independent judgment of the general creditworthiness of an obligor or
19 of a specific debt instrument. While credit ratings are important to both debt and equity investors
20 for a variety of reasons, their most important purpose is to communicate to investors the financial
21 strength of a company or the underlying credit quality of a particular debt security issued by that
22 company.

Credit rating determinations are made by rating agencies through a committee process involving individuals with knowledge of a company, its industry, and its regulatory environment. Corporate rating designations of S&P and Fitch have 'AAA,' 'AA,' 'A,' and 'BBB' category ratings within the investment-grade ratings sphere, with 'BBB-' as the lowest investment-grade rating and 'BB+' as the highest non-investment-grade rating. Comparable rating designations of Moody's at the investment-grade dividing line are 'Baa3' and 'Ba1,' respectively. In addition, the agencies seek to make their rating judgments even more precise by dividing each of the rating categories into three levels ('+', 'neutral,' and '-' at S&P and Fitch, and 1, 2 & 3 at Moody's). The following chart illustrates the comparability of ratings among the three agencies.

CHART 1

Ratings Categories – Comparability Between Agencies

Investment Grade		Below Investment Grade	
<u>S&P and Fitch</u>	<u>Moody's</u>	<u>S&P and Fitch</u>	<u>Moody's</u>
AAA	Aaa	BB+	Ba1
AA+	Aa1	BB	Ba2
AA	Aa2	BB-	Ba3
AA-	Aa3	B+	B1
A+	A1	B	B2
A	A2 ⁽¹⁾	B-	B3
A- ⁽²⁾	A3	CCC	Caa
BBB+	Baa1	CC	Ca
BBB	Baa2	C	C
BBB-	Baa3	D	[C]

Corporate credit rating analysis considers both qualitative and quantitative factors to assess the financial and business risks of fixed-income debt issuers. A credit rating is an indication of an issuer's ability to service its debt, both principal and interest, on a timely basis. It also at times

¹ Moody's rating of Duke Progress is A2 with a Stable outlook.

² S&P rating of Duke Progress is A- with a Stable outlook.

incorporates some consideration of ultimate recovery of investment in case of default or insolvency. Ratings can also be used by contractual counterparties to gauge both the short-term and longer-term financial health and viability of a company, including decisions related to required collateral levels, with higher-rated entities facing lower requirements.

Q. HOW WOULD YOU DESCRIBE DUKE PROGRESS' CREDIT RATINGS STATUS?

A. Duke Progress' corporate issuer credit ratings span between the middle level (A2, Stable outlook at Moody's) and the lowest level (A-, Stable outlook at S&P) of the 'A' category.³ I have long testified that a regulated utility should endeavor to hold ratings no lower than 'Baa1 / BBB+', with a longer-term goal of moving into (or maintaining in) the 'A' category. Accordingly, I encourage both the Commission and the Company to seek to maintain those credit ratings in the 'A' category after the conclusion of this proceeding.

Q. WHY ARE CREDIT RATINGS IMPORTANT FOR REGULATED UTILITIES AND THEIR CUSTOMERS?

A. A utility's credit ratings have a significant impact on its ability to raise capital on a timely basis and upon reasonable terms. As economist Charles F. Phillips states in his highly-respected treatise on utility regulation:

Bond ratings are important for at least four reasons: (1) they are used by investors in determining the quality of debt investment; (2) they are used in determining the breadth of the market, since some large institutional investors are prohibited from investing in the lower grades; (3) they determine, in part, the cost of new debt, since both the interest charges on

³ Corporate or issuer utility credit ratings reflect the intrinsic financial strength of the utility being rated, with no backing from or recourse against specific utility assets. At times, regulated utilities issue secured debt, representing utility borrowings that are backed by collateral, usually in the form of utility real property. In almost all instances, secured credit ratings are higher than corporate/issuer credit ratings because, in the case of a utility defaulting on its bond payment obligations, secured debtholders have recovery priority on the defined collateral as compared to the claims of unsecured debtholders.

1 new debt and the degree of difficulty in marketing new issues tend to rise
 2 as the rating decreases; and (4) they have an indirect bearing on the status
 3 of a utility's stock and on its acceptance in the market.⁴

4 Thus, a utility with strong credit ratings is not only able to access the capital markets on a
 5 timely basis at reasonable rates, it is also able to share the benefit from those attractive
 6 interest rate levels with customers since cost of capital gets factored into utility rates.
 7 Conversely, but of equal importance, the lower a utility's credit rating, the more the utility
 8 must pay to raise funds from debt and equity investors, and those higher capital costs get
 9 factored into the rates that consumers are required to pay. Electric utilities like the Duke
 10 Energy regulated subsidiaries are among the most capital-intensive companies. As such,
 11 maintaining Duke Progress' credit profile is especially important in view of its need to access
 12 substantial amounts of debt and equity to fund its ongoing operations, including capital
 13 investments. This includes coal ash remediation activities, along with capital investment related
 14 to day-to-day maintenance and infrastructure enhancement related to its ongoing duty to serve
 15 customers in a safe and reliable manner. Significantly, a regulated utility is required to raise
 16 funding even if the markets are in turmoil and costs are escalating wildly. Strong credit ratings,
 17 like those currently held by the Company, limit the negative effects of having to finance at times
 18 of great volatility within the capital markets, as was seen back during the 2008-2009 recession
 19 when 'BBB'-rated utilities were subject to significantly higher interest rates than 'A'-rated
 20 utilities, along with more restricted access, if available at all, along with stricter financing terms.

⁴ Phillips, Charles F., Jr., The Regulation of Public Utilities, 250 (3rd Ed. 1993)(Emphasis supplied). *See also* Public Utilities Reports Guide: "Finance," Public Utilities Reports, Inc., 6-7 (2004)("Generally, the higher the rating of the bond, the better the access to capital markets and the lower the interest to be paid.").

Q. WHAT QUALITATIVE FACTORS ARE USED BY THE RATING AGENCIES TO ESTABLISH UTILITY CREDIT RATINGS?

A. The most important qualitative factors are regulation, management and business strategy, and access to energy, gas and fuel supply with timely recovery of associated costs.

Q. WHAT ARE THE KEY QUANTITATIVE MEASURES?

A. The major rating agencies use several financial measures within their utility financial analysis. S&P currently highlights the following two core financial ratios as its key indicators: Funds from Operations to Debt (FFO / Debt), which focuses on cash flow; and Debt to Earnings Before Interest, Taxes, Depreciation and Amortization (Debt / EBITDA), which provides a comparative profitability measure.⁵ A focus on these two ratios is consistent with S&P's long-held belief that "Cash flow analysis is the single most critical aspect of all credit rating decisions."⁶

Q. WHY IS REGULATION A KEY QUALITATIVE COMPONENT OF THE UTILITY CREDIT RATING PROCESS?

A. Regulation is a key factor in assessing the financial strength of a utility because a state public utility commission determines revenue levels (recoverable expenses including depreciation and operations and maintenance, fuel cost recovery, and return on investment) and the terms and conditions of service that affect a utility's cost of service. As Moody's has noted, "A utility's ability to recover its costs and earn an adequate return are among

⁵ S&P Research: "Corporate Methodology," November 19, 2013 (republished with nonmaterial changes December 7, 2018).

⁶ S&P Research: "A Closer Look at Ratings Methodology," November 13, 2006.

1 the most important analytical considerations when assessing utility credit quality and
2 assigning credit ratings.”⁷

3 The quality and direction of regulation play a key role in shaping investors’ expectations
4 of how these factors may change in the future. With the era of restructuring now in its third
5 decade, regulation has had to evolve as the nature of a utility’s responsibilities in providing
6 energy services to customers has undergone dramatic change.

7 The regulatory environment affects utility investors’ decisions because, before they are
8 willing to put forward substantial sums of money, they must assess the degree to which
9 regulators understand and accommodate the economic requirements and the financial and
10 operational risks of a rapidly changing industry. Utility investors understand and accept
11 the role of extensive regulation, but they seek from the regulatory process decision-making
12 that is fair, with a significant degree of predictability.

13 For these reasons, rating agencies look for the consistent application of sound economic
14 and regulatory principles by utility regulators. If a regulatory body were to encourage a
15 utility to make investments based upon an expectation of the opportunity to earn a
16 reasonable return, and then did not apply regulatory principles in a manner consistent with
17 those expectations, investor interest in providing funds to the utility would decline, debt
18 ratings would likely suffer, and the utility’s cost of capital would increase, to the detriment
19 of ratepayers.

⁷ Moody’s Research: “Cost Recovery Provisions Key to Investor Owned Utility Ratings and Credit Quality: Evaluating a Utility’s Ability to Recover Costs and Earn Returns,” June 18, 2010.

1 **Q. AT THE CORE OF SUCH REGULATORY REVIEW IS THE CONCEPT OF**
 2 **PRUDENCY. WOULD YOU EXPLAIN “PRUDENCY” WITHIN THE CONTEXT**
 3 **OF UTILITY REGULATION?**

4 A. The concept of “prudency” is present in the legislative and/or administrative rules of every
 5 utility commission across the U.S. In their reference book Fundamentals of Energy
 6 Regulation, authors (and Ph.D. economists) Lesser & Giacchino discuss prudence both in
 7 terms of the deference accorded utility management decisions, as well as the review
 8 process before imprudent behavior is found to have occurred:

9 “...utility management is given the benefit of the doubt, and
 10 management’s decisions are presumed reasonable unless the facts
 11 show otherwise. ...Moreover, the prudence of managerial decisions
 12 must be judged on their reasonableness at the time those decisions
 13 were made and based on information then available. Prudence is not
 14 meant as an exercise in hindsight regulation. In essence, a prudent
 15 decision is one that a reasonable person could have made in good
 16 faith, given the information and decision tools available at the time
 17 of the decision.”⁸

18 In support of that position, economist Charles F. Phillips, in his utility regulation treatise
 19 referenced above, quotes the views of the Massachusetts and New York commissions:

20 “A prudence review must determine whether the company’s actions, based
 21 on all that it knew or should have known at the time were reasonable and
 22 prudent in light of the circumstances which then existed. It is clear that such
 23 a determination may not properly be made on the basis of hindsight
 24 judgments, nor is it appropriate for the [commission] merely to substitute
 25 its best judgment for the judgments made by the company’s managers.” [*In*
 26 *re Western Mass. Elec. Co.*, 80 PUR4th at 501.]

27
 28 “The company’s conduct should be judged by asking whether the conduct was
 29 reasonable at the time, under all the circumstances, considering that the company
 30 had to solve its problems prospectively rather than in reliance on hindsight. In
 31 effect, our responsibility is to determine how reasonable people would have

⁸ Jonathan A. Lesser & Leonardo R. Giacchino, Fundamentals of Energy Regulation, 42 (1st Ed. 2007).

performed the task that confronted the company.” [*In re Consolidated Edison Co. of N.Y. Inc.*, Opinion No. 79-1 (N.Y. 1979), 5-6.]⁹

Q. OTHER ASPECTS OF UTILITY REGULATION THAT YOU HAVE OFTEN TESTIFIED ABOUT ARE THE “REGULATORY COMPACT” AND ALSO “CONSTRUCTIVE UTILITY REGULATION.” COULD YOU PROVIDE A DESCRIPTION OF WHAT THESE KEY CONCEPTS ENTAIL?

A. There is an unwritten but core concept within the regulatory process known as the “regulatory compact.” Since there is no hard and fast universal rule or regulation delineating the “regulatory compact,” it has been described in many different ways. In the above-noted reference book, Lesser & Giacchino describe that under the “regulatory compact:”

... the regulator grants the company a protected monopoly, essentially a franchise, for the sale and distribution of electricity or natural gas to customers in its defined service territory. In return, the company commits to supply the full quantities demanded by those customers at a price calculated to cover all operating costs plus a “reasonable” return on the capital invested in the enterprise. The first half of this “compact” protects the company from would-be competitors and secures for the public the substantial economies of scale available in the large-scale production of electricity. The second half of the “compact” counteracts the injurious tendency of monopolies to raise prices above the level that would prevail in a competitive market.¹⁰

In my experience advising a range of utility industry stakeholders across the U.S., I have found that every utility commission adheres to some conception of the “regulatory compact” in concert with the constitutionally-and-statutorily-mandated prudence standards.

In addition, my own conception of “constructive utility regulation” is that which aligns the seemingly competitive interests of utility investors and utility customers in a manner that is

⁹ Phillips, The Regulation of Public Utilities, 340-341.

¹⁰ Lesser & Giacchino, Fundamentals of Energy Regulation, 43-44.

consistent and steady over time, so that all parties have reasonable expectations about how regulatory policy will be effectuated. Importantly, it supports a utility's ability to provide safe and clean utility service to its customers with a high level of reliability at reasonable rates. Constructive regulation is efficient and predictable with a long-term focus on stable rates, while also recognizing the need for timely recovery of costs and the value to customers of a financially-strong utility with ready access to the capital markets at attractive rates, even when the financial markets are under stress. It recognizes that utility investors react negatively to major, frequent or sudden changes in regulatory policy and that such uncertainty ultimately has an adverse effect on customers. In sum, longstanding constructive regulatory policy should provide a utility with the confidence to make capital-intensive investments and incur O&M expenses for the benefit of its customers, with the reasonable expectation that those costs would be recovered in a timely manner, including a fair return on investment, consistent with that stable and consistent regulatory policy.

Q. HAVE THE RATING AGENCIES DISCUSSED THE IMPORTANCE OF “CONSTRUCTIVE REGULATION” IN THEIR ASSESSMENT OF UTILITY CREDIT PROFILES?

A. Yes. I saw firsthand how important constructive regulation is to agencies when Fitch recruited me to provide regulatory analysis after I had decided to move on from the Michigan PSC. Moody's has highlighted the critical role that regulators play in a June 23, 2017 report entitled “Rating Methodology: Regulated Electric and Gas Utilities:”

An over-arching consideration for regulated utilities is the regulatory environment in which they operate. While regulation is also a key consideration for networks, a utility's regulatory environment is in comparison often more dynamic and more subject to political intervention. The direct relationship that a regulated utility has with the retail customer ... can lead to a more politically charged rate-setting

environment. ...Our views of regulatory environments evolve over time in accordance with our observations of regulatory, political, and judicial events that affect issuers in the sector.¹¹

And S&P has long held the same view:

Regulatory advantage is the most heavily weighted factor in [S&P's] analysis of a regulated utility's business risk profile. ...An established, dependable approach to regulating utilities is a hallmark of a credit-supportive jurisdiction. ...Major or frequent changes to the regulatory model invariably raise risk due to the possibility of future changes. Steady application of transparent, comprehensible policies and practices lowers risk. ...We adjust the assessment downward if the development of the framework was contentious due to policy disputes or legal actions, indicating that the political consensus regarding utility regulation is fragile. ... [A] regulatory approach that allows utilities the opportunity to consistently earn a reasonable return as a positive credit factor in our regulatory assessments. ...We measure the timeliness of rate decisions, the obsolescence of the costs on which the rates are based, the timing of interim rates, and other practices (such as allowing rates to automatically change in a future period based on inflation) that affect a utility's ability to earn its authorized return. ...Practices such as legislative or regulatory recognition of the need for preapproval of [large capital projects], periodic reviews that substantively involve the regulator in the progress of the project, and rolling prudence determinations during construction can reduce the general level of risk...[W]e consider financial stability to be of substantial importance [with cash taking] precedence in credit analysis. ...We assess a jurisdiction most strongly if all large expense items are recoverable through an automatic tariff clause that is based on projected costs, adjusts frequently, and has no record of any significant disallowances. ... [A] primary factor ... is the political independence of regulators.¹²

IV. FINANCIAL COMMUNITY PERCEPTIONS OF THE NCUC

Q. HOW IS THE COMMISSION VIEWED BY THE FINANCIAL COMMUNITY?

A. The financial community's view of the North Carolina Utilities Commission has been relatively positive. Probably the most objective and respected commentator on regulatory policy and activities from a financial community perspective is Regulatory Research Associates ("RRA"). RRA currently rates the North Carolina regulatory environment (which goes beyond the Commission to also include legislative and executive branch

¹¹ Moody's Research: "Rating Methodology: Regulated Electric and Gas Utilities," June 23, 2017.

¹² S&P Research: "Assessing U.S. Investor-Owned Utility Regulatory Environments," January 7, 2014.

1 policies) as Average 1, among the top one-third of the 53 regulatory jurisdictions upon
 2 which RRA currently opines. RRA's view of the state's regulation as overall relatively
 3 constructive from an investor viewpoint serves as a positive factor in the credit rating
 4 analytical process.

5 **Q. DOES MOODY'S SHARE THE FAVORABLE ASSESSMENT OF NORTH**
 6 **CAROLINA REGULATION?**

7 A. Yes. Specifically, Moody's states that its "stable rating outlook reflects the utility's
 8 relatively low business risk profile, historically credit supportive regulatory frameworks,
 9 and our expectation that the company will be able to sustain [cash flow] ratios [in] the low
 10 20% range." Significantly, Moody's also bases its stable outlook on its expectation that
 11 Duke Progress "will continue to be able to recover the majority of its coal ash closure and
 12 remediation costs with a full return." Of note, the agency cautions that a downgrade could
 13 occur if there is a "decline in the credit supportiveness of [Duke Progress'] regulatory
 14 environments."¹³

15 **Q. AND HOW DOES S&P VIEW REGULATION IN NORTH CAROLINA?**

16 A. S&P assesses Duke Progress' rate-regulated utility assets as lower-risk, and views that the
 17 Company has effectively managed its regulatory risk. Similar to Moody's, S&P stated that
 18 the agency could lower the ratings if Duke Energy's business risk increases because of
 19 additional regulatory lag, more stringent environmental rules related to its coal exposure,
 20 [or] if we conclude that the company's regulatory risk management ... has weakened."¹⁴

¹³ Moody's Research, "Duke Energy Progress, LLC," March 30, 2020.

¹⁴ S&P Research, "Duke Energy Corp. and Subsidiaries Outlooks Revised to Stable on Announced Equity Offering; Ratings Affirmed," November 20, 2019.

V. REBUTTAL OF PUBLIC STAFF TESTIMONY

Q. WOULD YOU DISCUSS THE “EQUITABLE SHARING” PROPOSAL OF PUBLIC STAFF WITNESSES LUCAS AND MANESS?

A. Yes. First, let me provide an excerpt from the testimony of Mr. Lucas which, together with Mr. Maness’ testimony, recommends the adoption of an equitable sharing of CCR compliance costs between the Company and its shareholders:

The Public Staff did not conduct a prudence review of DEP decision-making at the time DEP constructed the ash basins... Instead, the Public Staff focused its investigation on the area where the Company’s performance has been measured against its legal duty... Even where some Company actions or omissions appear imprudent, ...the quantification of costs directly resulting from the acts or omissions would be speculative. Also, even where DEP’s management was arguably prudent in light of the knowledge they had at the time, the Company bears some degree of responsibility for its extensive environmental violations. In this situation, an equitable sharing of those costs is reasonable and appropriate, both as a reflection of DEP’s culpability for environmental violations and as a proxy for costs of violations that exist but cannot be precisely quantified. An equitable sharing is particularly appropriate in light of the extent of the Company’s failure to prevent environmental contamination from its CCR impoundments, in violation of state and federal laws. (Lucas at 71-72)

Q. WHAT ARE YOUR CONCERNS WITH THE RATIONALE FOR EQUITABLE SHARING PUT FORWARD BY THESE PUBLIC STAFF WITNESSES?

A. First off, it is inconsistent with the principle that prudently-incurred costs should be recovered in rates. That principle is fundamental to the regulatory compact that undergirds investor willingness to provide needed funding for public utilities in exchange for a fair return on their investment. Indeed, the Commission’s Order in Docket No. E-7, Sub 1146 expressly reaffirms that understanding as it pertains to the types of CCR costs that are at issue in this proceeding. On page 257 of that Order, the Commission stated explicitly that “A central operating principle underlying utility rate regulation in North Carolina (and virtually all other jurisdictions) is that the utility’s

costs are recoverable in rates.” The Commission’s Order goes on to quote from the above-referenced Fundamentals of Utility Regulation to expand upon this principle:

As two of the leading modern commentators on utility regulation put it in the opening paragraphs to a chapter (titled “The Role of the Revenue Requirement”) in their treatise on utility regulation:

No firm can operate as a charity and withstand the rigors of the marketplace. To survive, any firm must take in sufficient revenues from customers to pay its bills and provide its investors with a reasonable expectation of profit....Regulated firms are no exception. They face the same constraints....

A basic concept underlying all forms of economic regulation is that a regulated firm must have the opportunity to recover its costs.... Without the opportunity to recover all of its costs and earn a reasonable return, no regulated private company can attract the capital necessary to operate.

Jonathan A. Lesser & Leonardo R. Giacchino, Fundamentals of Utility Regulation 39 (Pub. Utils. Reports, Inc., ed., 2007) (Lesser & Giacchino).

Q. HOW DOES THE CONCEPT THAT PRUDENTLY-INCURRED COSTS SHOULD BE RECOVERED FIT WITHIN THE LUCAS-MANESS SHARING PROPOSAL?

A. It does not. Such prudent cost recoverability is a fundamental principle as the NCUC noted in its order, and it is a key aspect of the business relationship between investors (those with the funds) and regulated utilities (those who require the funds). For almost 40 years, initially as a gubernatorial and legislative counsel, later as a utility chairman and commissioner, and more recently as a consultant to regulated utilities, utility commissions and consumer advocates, I have been involved with the concept of prudence. In everyday language, I view a prudent decision as one that is made by a person with skills appropriate for the subject matter that falls within a range of reasonable results based upon the circumstances that exist at the time the decision is made. It does not need to be a perfect decision or one that ultimately turns out to be correct. There can be

1 more than one prudent alternative. Witnesses Lucas and Maness have abandoned that standard,
 2 and instead propose that the Commission adopt an arbitrary cost recovery standard that would
 3 allow for disallowances without any finding of imprudence.

4 **Q. PLEASE EXPLAIN.**

5 A. Mr. Lucas admits that Public Staff did not conduct a prudence review, and acknowledges that it
 6 is possible that no imprudence occurred back when the Company's decisions were made.
 7 Moreover, whether imprudence occurred or not, Mr. Lucas indicates that any quantification of
 8 costs related to such decisions "would be speculative." Nevertheless, Mr. Lucas proceeds to offer
 9 his opinion that environmental violations under other state and federal laws did occur. Then, while
 10 ignoring any relevant sanctions that might exist under those statutes, he calls on the Commission
 11 to take action on its own accord within its own defined authority. Mr. Lucas encourages the
 12 Commission to order ratepayers and shareholders to share in paying for CCR costs, not because
 13 imprudence can be identified – which it cannot -- nor that improper costs can be quantified –
 14 which they cannot, but because "an equitable sharing of those costs is reasonable and appropriate."

15 **Q. HAS THE NCUC PREVIOUSLY HELD THAT THE PUBLIC STAFF'S EQUITABLE**
 16 **SHARING CONCEPT IS INCOMPATIBLE WITH THE PRUDENCE**
 17 **FRAMEWORK?**

18 A. Yes. In DE Progress' last rate case in Docket No. E-2, Sub 1142, in rejecting the equitable sharing
 19 proposal made by Mr. Lucas, the NCUC expressly described the framework required to support
 20 a disallowance.

21 The disallowance methodologies proposed by the AG, CUCA, and the Public
 22 Staff discussed above fail because they fail to comply with the Commission's
 23 prudence framework, established in the 1988 DEP Rate Order and upheld by the
 24 Supreme Court in Thornburg II . They avoid the detailed analysis that an
 25 appropriate framework requires. Public Staff witness Lucas, for example, noted

that the Public Staff advocates “equitable sharing” because of the difficulties and complicating factors attendant upon detailed cost analysis (Tr. Vol.18, pp. 59-61), and he reiterated his contention on cross-examination , noting that “There is nothing wrong with a simple solution.”(Tr. Vol. 19, p. 22.) However, the Commission’s prudence framework requires a detailed and cost-specific analysis to the extent the Commission resolves the CCR disputes on the basis of discrete prudence assessments alone. The Company’s cost are presumed reasonable and prudent unless challenged, and the challenges presented must (1) identify specific and discrete instances of imprudence; (2) demonstrate the existence of prudent alternatives; and (3) quantify the effects by calculating imprudently incurred costs. 1988 DEP Rate Order, at 15. The methodologies proposed do not do that, and the Commission determines not to accept them.¹⁵

Q. WHAT DO YOU BELIEVE WOULD BE THE LIKELY REACTION FROM THE FINANCIAL COMMUNITY IF THE PUBLIC STAFF’S PROPOSED STANDARD WERE TO BE ADOPTED BY THE NCUC IN THIS CASE?

A. Stark movement away from traditional ratemaking principles, including the well-established prudence standard, would not be received well by either the credit rating agencies or equity and debt investors. Investors deciding where their funds should flow will take into consideration the increased level of risk that would accompany adoption of a regulatory standard that sidesteps prudence reviews and allows for disallowances based upon speculation and concerns about cost levels rather than findings supporting inappropriate decision-making related to spending. Such a policy would certainly increase the costs of both equity and debt capital, an impact that ultimately lands at the doorstep of the customer.

¹⁵ *Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase*, Docket No. E-2, Sub 1142 at 196.

1 **Q. HOW DOES THE MANNER IN WHICH OTHER SOUTHEASTERN**
 2 **JURISDICTIONS HAVE BEEN ADDRESSING COAL ASH RECOVERY INFORM**
 3 **CREDIT RATINGS AND INVESTORS?**

4 A. To the extent that neighboring jurisdictions to North Carolina have been actively addressing coal
 5 ash remediation cost recovery constructively and with predictable consistent regulation, NCUC
 6 deviation from both traditional ratemaking principles and constructive regulation here would be
 7 viewed negatively by the financial community.

8 For example, legislative efforts in Virginia resulted in the 2019 coal ash statute that delineated
 9 procedures for closing and remediating CCR units, along with instructions for the utility's
 10 recovery of costs through a rate adjustment clause with some deferral ability for any under-
 11 recovery amount and for carrying costs. Under the Virginia statute, recoverable costs are allocated
 12 to all Virginia customers served by the utility as a non-bypassable charge.¹⁶ In addition, the
 13 Commission in Georgia recently considered Georgia Power Company's 2019 rate case, which
 14 also included significant spending for CCR compliance. In that proceeding, the Commission
 15 allowed for recovery of Georgia Power's CCR Compliance costs, as well as a full weighted
 16 average cost of capital return during the 3-year amortization period approved by the Commission
 17 for such costs.¹⁷

18 I note further that Moody's recently described the Commission's approval of a settlement
 19 agreement in Duke Progress' last rate case as credit positive, noting its inclusion of recovery of

¹⁶ Va. Code Ann. § 10.1-1402.03 (July 1, 2019).

¹⁷ Order Adopting Settlement Agreement as Modified, *In re: Georgia Power Company's 2019 Rate Case*, Docket No. 42516, Georgia Public Service Commission, filed February 6, 2020.

1 coal ash and storm costs with a return. At the same time, the agency pointed a cautionary finger
 2 toward the Commission's somewhat different path in a recent decision for the smaller Virginia
 3 Electric and Power Company, where recovery of coal ash spending is to be carried out over ten
 4 years rather than five, with no return during the amortization period.¹⁸ Investors are following the
 5 current case more closely, since the stakes are higher: a much larger utility with coal ash spending
 6 being a more significant issue.¹⁹

7 **Q. DOES PUBLIC STAFF WITNESS HINTON SIMILARLY DISCUSS THE**
 8 **IMPORTANCE OF TRADITIONAL RATEMAKING PRINCIPLES?**

9 A. Yes he does. While I differ with Public Staff witness John Hinton on some issues, I do find
 10 support within Mr. Hinton's testimony for my conclusion about the importance of regulators not
 11 moving away from traditional ratemaking principles. Mr. Hinton states:

12 The ability to recover costs and earn returns on its investments relates to the
 13 assurance that the regulated rates will be based on prescriptive and clear
 14 ratemaking methods." (Hinton at 5)

15 Thus, Mr. Hinton has described the very process for rate-setting that both investors and customers
 16 rely upon. In addition, my description earlier in this testimony about what motivates investors to
 17 support a specific utility's funding needs – regulatory predictability, consistency, transparency,
 18 and a positive outlook with regard to constructive utility regulation – would not seem to be present
 19 within the predicate Mr. Lucas and Mr. Maness provide for this Commission to order this
 20 unprecedented sharing plan.

¹⁸ Moody's Research, "Duke Energy Progress, LLC," March 30, 2020.

¹⁹ See, for example, Wolfe Research: "Duke Energy: In good times and in bad; chat with management," April 5, 2020; and B of A Securities Research: "Duke: Quantifying potential EPS drag from NC coal ash," January 27, 2020.

1 **Q. NOTWITHSTANDING MR. HINTON'S APPARENT SUPPORT FOR YOUR**
 2 **POSITION ON SHARING, YOU ALSO REFER TO DIFFERENCES YOU HAVE**
 3 **WITH OTHER OF HIS VIEWS?**

4 **A. Yes, I do. In commenting about potential credit rating impacts flowing from this case, Mr. Hinton**
 5 **states:**

...I believe that **unexpected financial developments**, such as, significant reductions in the Company's cash flows or significant increases in its debt balances, would have to occur to reduce DEP's cash flow from operations or cause the Company to issue additional debt to trigger a downgrade. (Hinton at 5)(Emphasis supplied)

6 I respectfully disagree with Mr. Hinton. I have already noted the letdown investors would feel if
 7 the Commission were to order the Public Staff sharing plan. Let me add that I expect that since
 8 Mr. Hinton's testimony was part of an overall Public Staff package of proposals in this case, he
 9 would not characterize any positions put forward by Public Staff as "unexpected financial
 10 developments." Accordingly, Mr. Hinton is testifying that a downgrade would not occur,
 11 notwithstanding the following Public Staff positions:

- 12 ▪ a reduction in return on equity from the current 9.90% to 9.00% (or, alternatively,
- 13 8.40% on an equity layer of 51.50%) (Woolridge);
- 14 ▪ a reduction in equity layer from 52% to 50% (or, as noted, 51.50%) (Woolridge);
- 15 ▪ EDIT refunding over five years rather than 20 years (Hinton);
- 16 ▪ limitation of return for some CCR expenditures (Maness);
- 17 ▪ significant coal ash remediation disallowances (multiple witnesses);

- 1 ▪ an unprecedented CCR cost sharing program between ratepayers and
- 2 shareholders that would deny recovery of a substantial amount of coal ash
- 3 remediation costs with no finding of imprudence (Lucas and Maness); and
- 4 ▪ potential adoption of a landmark utility regulatory standard of review that a
- 5 finding of imprudence would not be required for the ordering of disallowances
- 6 based upon speculation or the size of the expenditures under review.

7 I respectfully disagree. To the contrary, I believe that if this package of Public Staff positions were
 8 to be adopted by the Commission, it would lead to a reassessment of the North Carolina regulatory
 9 climate in a downward direction by the financial community. Both Mr. Hinton and I agree that
 10 virtually 50% of weight is given to qualitative factors within the credit rating analytical process,
 11 primarily related to regulatory climate (Hinton at 5). Where I disagree with Mr. Hinton, however,
 12 is that I believe that a reduction in regulatory support on the qualitative side would amplify the
 13 negative effects of the Public Staff case on the quantitative side, and undoubtedly would lead to a
 14 downgrade, even if the cash flow numbers migrated near the borderline between “A” and “BBB”
 15 category status. I am in good company in holding this view – as discussed above, both S&P and
 16 Moody’s have stated that a weakening in regulatory support could lead to a downgrade.

17 **Q. SPEAKING OF UNEXPECTED FINANCIAL DEVELOPMENTS, NO ONE COULD**
 18 **HAVE ENVISIONED THE IMPACT ACROSS ALL INDUSTRIES FROM THE**
 19 **COVID-19 PANDEMIC. CAN YOU DISCUSS HOW THAT SITUATION WILL**
 20 **IMPACT THE UTILITY SECTOR?**

21 A. Yes. The financial community is closely watching the spread of COVID-19 and the negative
 22 effects it is already having across the US economy. Andrew Weisel, an analyst at Scotia Capital
 23 (USA) Inc., recently cautioned that “Companies seem to be taking preemptive actions to bolster

1 their cash and liquidity positions in case we have a prolonged downturn,” adding that one CFO
 2 described the activity levels as “preparing for doomsday.”²⁰ In a somewhat less alarmist but more
 3 macro description of the current utility environment, S&P stated that the agency “is revising
 4 downward its assessment of the North America utility industry to negative from stable. ...We
 5 view COVID-19 as a source of incremental pressure and expect that the recession will lead to an
 6 increasing number of downgrades and negative outlooks.”²¹ Two weeks earlier, Moody’s had
 7 commented on how the existing uncertainty could specifically impact Duke Progress’ parent
 8 company, “If a failure to contain the COVID-19 outbreak leads to more severe economic
 9 repercussions, some utility companies would be more vulnerable than others. Those with weak
 10 financial metrics for their current credit profile, like ... Duke Energy Corporation (Baa1 stable)
 11 will have little to no financial flexibility to withstand any form of financial challenges without
 12 taking mitigating measures.”²² Significantly, S&P has noted that currently “the median rating
 13 within the [utility] industry is ‘A-’ and over the next 12 months, we expect that the industry median
 14 could move to ‘BBB+’”²³ – what I view as the lowest rating that a regulated utility and its
 15 regulators should target, with the ‘A’ category an eventual goal. For real life examples illustrating
 16 market access differences for ‘A’ category issuers versus ‘BBB’ category issuers, see Company
 17 witness Karl Newlin’s discussion of two recent debt transactions, a failed attempt by ‘BBB’
 18 Entergy Corp. and a successful one by ‘A’ Consumers Energy. With such an uncertain and

²⁰ S&P Global Market Intelligence: “MarketWeek: As US Utilities Prepare for Downturn, ‘Liquidity is Paramount,” April 10, 2020.

²¹ S&P Research: “COVID-19: The Outlook for North American Regulated Utilities Turns Negative,” April 2, 2020.

²² Moody’s Research: “Utilities Demonstrate Credit Resilience in the Face of Coronavirus Disruptions,” March 18, 2020.

²³ S&P Research: “COVID-19: The Outlook for North American Regulated Utilities Turns Negative,” April 2, 2020.

1 unknowable future business environment, I find it hard to imagine that acceptance of all or most
2 of the Public Staff's case would not lead to a credit rating downgrade for Duke Progress.

3 **VI. CONCLUSION**

4 **Q. DO YOU HAVE CONCLUDING THOUGHTS?**

5 A. Yes. As I have testified to utility commissions across the U.S., I believe that utilities and their
6 regulators should strive to attain corporate / issuer credit ratings no lower than 'BBB+' / 'Baa1,'
7 with a longer-range strategy to achieve ratings within the "A" category. A utility that holds "A"
8 category rating status, as Duke Progress now does, should possess sufficient financial strength to
9 access the capital markets even under the most stressful of conditions. Accordingly, my
10 recommendation in this testimony is that the Company should seek to achieve excellent
11 operational performance going forward, and the Commission should sustain the ongoing
12 constructive regulatory environment, which together should maintain the Company's credit
13 ratings no lower than their current levels within the "A" category.

14 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

15 A. Yes, it does.

STEVEN M. FETTER

1240 West Sims Way
 Port Townsend, WA 98368
 732-693-2349
 RegUnF@gmail.com
 www.RegUnF.com

Education University of Michigan Law School, J.D. 1979
 Bar Memberships: U.S. Supreme Court, New York, Michigan
 University of Michigan, A.B. Media (Communications) 1974

April 2002 – Present

President - Regulation UnFettered -- Port Townsend, Washington

Founder of advisory firm providing regulatory, legislative, financial, legal and strategic planning advisory services for the energy, water and telecommunications sectors, including public utility commissions and consumer advocates; federal and state testimony; credit rating advisory services; negotiation, arbitration and mediation services; skills training in ethics, negotiation, and management efficiency.

Service on Boards of Directors of: Central Hudson (Fortis Inc. subsidiary) (Chairman, Governance and Human Resources Committee); and Previously CH Energy Group (Lead Independent Director; Chairman, Audit Committee, Compensation Committee, and Governance and Nominating Committee); National Regulatory Research Institute (Chairman); Keystone Energy Board; and Regulatory Information Technology Consortium; Member, Wall Street Utility Group; Participant, Keystone Center Dialogues on RTOs and on Financial Trading and Energy Markets.

October 1993 – April 2002

Group Head and Managing Director; Senior Director -- Global Power Group, Fitch IBCA Duff & Phelps -- New York / Chicago

Manager of 18-employee (\$15 million revenue) group responsible for credit research and rating of fixed income securities of U.S. and foreign electric and natural gas companies and project finance; Member, Fitch Utility Securitization Team.

Led an effort to restructure the global power group that in three years' time resulted in 75% new personnel and over 100% increase in revenues, transforming a group operating at a substantial deficit into a team-oriented profit center through a combination of revenue growth and expense reduction.

Achieved national recognition as a speaker and commentator evaluating the effects of regulatory developments on the financial condition of the utility sector and individual companies; Cited by Institutional Investor (9/97) as one of top utility analysts at rating agencies; Frequently quoted in national newspapers and trade publications including The New York Times, The Wall Street Journal, International Herald Tribune, Los Angeles Times, Atlanta Journal-Constitution, Forbes and Energy Daily; Featured speaker at conferences sponsored by Edison Electric Institute, Nuclear Energy Institute, American Gas Assn., Natural Gas Supply Assn., National Assn. of Regulatory Utility Commissioners (NARUC), Canadian Electricity Assn.; Frequent invitations to testify before U.S. Senate (on C-Span) and House of Representatives, and state legislatures and utility commissions.

Participant, Keystone Center Dialogue on Regional Transmission Organizations; Member, International Advisory Council, Eisenhower Fellowships; Author, "A Rating Agency's Perspective on Regulatory Reform," book chapter published by Public Utilities Reports, Summer 1995; Advisory Committee, Public Utilities Fortnightly.

March 1994 – April 2002

Consultant -- NYNEX -- New York, Ameritech -- Chicago, Weatherwise USA -- Pittsburgh

Provided testimony before the Federal Communications Commission and state public utility commissions; Formulated and taught specialized ethics and negotiation skills training program for employees in positions of a sensitive nature due to responsibilities involving interface with government officials, marketing, sales or purchasing; Developed amendments to NYNEX Code of Business Conduct.

October 1987 - October 1993

Chairman; Commissioner -- Michigan Public Service Commission -- Lansing

Administrator of \$15-million agency responsible for regulating Michigan's public utilities, telecommunications services, and intrastate trucking, and establishing an effective state energy policy; Appointed by Democratic Governor James Blanchard; Promoted to Chairman by Republican Governor John Engler (1991) and reappointed (1993).

Initiated case-handling guideline that eliminated agency backlog for first time in 23 years while reorganizing to downsize agency from 240 employees to 205 and eliminate top tier of management; MPSC received national recognition for fashioning incentive plans in all regulated industries based on performance, service quality, and infrastructure improvement.

Closely involved in formulation and passage of regulatory reform law (Michigan Telecommunications Act of 1991) that has served as a model for other states; rejuvenated dormant twelve-year effort and successfully lobbied the Michigan Legislature to exempt the

Commission from the Open Meetings Act, a controversial step that shifted power from the career staff to the three commissioners.

Elected Chairman of the Board of the National Regulatory Research Institute (at Ohio State University); Adjunct Professor of Legislation, American University's Washington College of Law and Thomas M. Cooley Law School; Member of NARUC Executive, Gas, and International Relations Committees, Steering Committee of U.S. Environmental Protection Agency/State of Michigan Relative Risk Analysis Project, and Federal Energy Regulatory Commission Task Force on Natural Gas Deliverability; Eisenhower Exchange Fellow to Japan and NARUC Fellow to the Kennedy School of Government; Ethics Lecturer for NARUC.

August 1985 - October 1987

Acting Associate Deputy Under Secretary of Labor; Executive Assistant to the Deputy Under Secretary -- U.S. Department of Labor -- Washington DC

Member of three-person management team directing the activities of 60-employee agency responsible for promoting use of labor-management cooperation programs. Supervised a legal team in a study of the effects of U.S. labor laws on labor-management cooperation that has received national recognition and been frequently cited in law reviews (U.S. Labor Law and the Future of Labor-Management Cooperation, w/S. Schlossberg, 1986).

January 1983 - August 1985

Senate Majority General Counsel; Chief Republican Counsel -- Michigan Senate -- Lansing

Legal Advisor to the Majority Republican Caucus and Secretary of the Senate; Created and directed 7-employee Office of Majority General Counsel; Counsel, Senate Rules and Ethics Committees; Appointed to the Michigan Criminal Justice Commission, Ann Arbor Human Rights Commission and Washtenaw County Consumer Mediation Committee.

March 1982 - January 1983

Assistant Legal Counsel -- Michigan Governor William Milliken -- Lansing

Legal and Labor Advisor (member of collective bargaining team); Director, Extradition and Clemency; Appointed to Michigan Supreme Court Sentencing Guidelines Committee, Prison Overcrowding Project, Coordination of Law Enforcement Services Task Force.

October 1979 - March 1982

Appellate Litigation Attorney -- National Labor Relations Board -- Washington DC

Other Significant Speeches and Publications

Filing for Bankruptcy Isn't the Right Solution for Puerto Rico (Forbes Online, November 2015)

The "A" Rating (Edison Electric Institute Perspectives, May/June 2009)

Perspective: Don't Fence Me Out (Public Utilities Fortnightly, October 2004)

Climate Change and the Electric Power Sector: What Role for the Global Financial Community (during Fourth Session of UN Framework Convention on Climate Change Conference of Parties, Buenos Aires, Argentina, November 3, 1998)(unpublished)

Regulation UnFettered: The Fray By the Bay, Revisited (National Regulatory Research Institute Quarterly Bulletin, December 1997)

The Feds Can Lead...By Getting Out of the Way (Public Utilities Fortnightly, June 1, 1996)

Ethical Considerations Within Utility Regulation, w/M. Cummins (National Regulatory Research Institute Quarterly Bulletin, December 1993)

Legal Challenges to Employee Participation Programs (American Bar Association, Atlanta, Georgia, August 1991) (unpublished)

Proprietary Information, Confidentiality, and Regulation's Continuing Information Needs: A State Commissioner's Perspective (Washington Legal Foundation, July 1990)

Duke Energy Progress, LLC
Summary of Rebuttal Testimony of Steven Fetter
Docket No. E-2, Sub 1219

Utilizing my past experience as a state utility commission chairman and head of a major utility ratings practice, I respond to Public Staff's recommendation for an "equitable 50-50 sharing" of coal combustion residual compliance costs and discuss how the adoption of such a recommendation would be inappropriate and would be viewed negatively by the credit rating agencies and investors.

To begin with, there is no dispute that strong credit ratings are beneficial for both utility customers and investors. Thus, I have long testified that a regulated utility should endeavor to hold ratings no lower than 'Baa1' / 'BBB+', with a longer-term goal of moving into (or maintaining in) the 'A' category. Accordingly, with the Company now holding S&P and Moody's ratings in the 'A' category, I encourage both the Commission and the Company to seek to maintain those ratings at current levels after conclusion of this proceeding.

Support for Duke Energy Progress's credit ratings comes from both quantitative and qualitative factors, both of which are positive factors in the agencies' assessments of the Company's ratings. Unfortunately, the Public Staff's "sharing" recommendation undercuts both of these aspects of the Company's credit profile. The "equitable 50-50 sharing" proposal is inconsistent with the core regulatory principle that prudently-incurred costs should be recovered in customer rates. That principle is fundamental to the regulatory compact that undergirds investor willingness to provide needed funding for public utilities in exchange for a fair return on investment. Public Staff witnesses would abandon that principle, and instead propose that the Commission adopt an arbitrary cost recovery standard that would allow for disallowances without any finding of imprudence, and with the quantification of what they view to be inappropriate costs being "speculative." Based upon my background as a regulator and member of the financial community, I believe that stark movement away from traditional ratemaking principles, which

Duke Energy Progress, LLC
Summary of Rebuttal Testimony of Steven Fetter
Docket No. E-2, Sub 1219

would be a clear break with past Commission precedent, would shake the perceptions of investors and increase the costs of both equity and debt capital, an impact that ultimately lands at the doorstep of the customer.

Since the filing of my testimony in this case, several Parties have reached partial settlements on a number of issues. Although settlements are often viewed positively by the rating agencies, the key issue of cost recovery treatment of coal ash remains unsettled. The financial community will continue to closely watch and assess the resolution of that issue. An adverse decision on coal ash recovery would weigh against the positive views afforded the partial settlements that have been executed between the Parties. If Public Staff's equitable sharing recommendation were to be coupled with the negative impact from the current pandemic on the utility sector, I see a weakening in both quantitative measures and qualitative confidence that would likely jeopardize the Company's current ratings status, as the rating agencies have so indicated.

Accordingly, my recommendation is that the Company should seek to achieve excellent operational performance going forward, and the Commission should sustain the ongoing constructive regulatory environment, which together should maintain the Company's credit ratings no lower than their current levels within the 'A' category.

1 MR. MEHTA: Thank you,
2 Commissioner Clodfelter. And Mr. Fetter is now
3 available for cross examination and Commissioner
4 questions.

5 COMMISSIONER CLODFELTER: Okay.

6 Mr. Grantmyre?

7 CROSS EXAMINATION BY MR. GRANTMYRE:

8 Q. Good afternoon, Mr. Fetter. This is
9 Bill Grantmyre, Public Staff. If you can turn to
10 page 7 of your testimony.

11 A. (Witness peruses document.)

12 I am there.

13 Q. And you see Chart 1 is rating categories.
14 Would you acknowledge that Duke Energy
15 Progress' secured credit rating is Aa3?

16 A. Well, on this chart I indicate the unsecured
17 rating, the issuer rating, but I believe it's two
18 notches higher on the secured.

19 Q. Okay. And the -- their issuer rating is A2;
20 is that correct?

21 A. Yes.

22 Q. And Duke Energy Progress has a stable rating
23 from Moody's; is that correct?

24 A. Yes.

1 Q. And Duke Energy -- Duke Energy Corporation is
2 a Baa1; is that correct?

3 A. At Moody's.

4 Q. Yes. Which is two grades lower than Duke
5 Energy Progress' issuer rating; do you agree with that?

6 A. Yes.

7 Q. Now, I would ask that -- bring your attention
8 to Public Staff Cross Examination Exhibit Number 96,
9 which is --

10 A. Could you tell me which one that is?

11 Q. It's the one that lists all the -- Woolridge
12 Proxy Group, all the credit ratings of a bunch of
13 electric utilities, the operating and the parent
14 companies. It's on page 3110.

15 A. I'm not sure --

16 MR. MEHTA: Commissioner Clodfelter, on
17 the -- I think Mr. Fetter was asked questions about
18 this the last time and had trouble uploading it
19 because it's grouped with a whole lot of other
20 Public Staff exhibits. If you don't mind, I will
21 just email him that specific document. I think
22 it's only one page, so it won't take that long.

23 MR. GRANTMYRE: Yeah. It's two pages,
24 yes.

1 MR. MEHTA: A couple of pages. I'll do
2 that right now.

3 COMMISSIONER CLODFELTER: Let's be at
4 ease for just a minute here.

5 (Pause.)

6 MR. MEHTA: We're having a technical
7 issue, but I will solve it in just a second. Sorry
8 about that.

9 COMMISSIONER CLODFELTER: Mr. Fetter, do
10 you have a notebook of the Public Staff's proposed
11 exhibits?

12 THE WITNESS: I have about 40
13 notebooks --

14 COMMISSIONER CLODFELTER: Okay.

15 THE WITNESS: -- in my house -- in my
16 condo.

17 COMMISSIONER CLODFELTER: I think the
18 issue may be that the Public Staff -- some of the
19 notebooks are tabbed and some are not. It may be
20 possible for Mr. Grantmyre to call out a page
21 number, because I believe they are consecutively
22 paginated.

23 MR. GRANTMYRE: This is page 3110.

24 THE WITNESS: I think Mr. Mehta has

1 succeeded.

2 COMMISSIONER CLODFELTER: Great.

3 THE WITNESS: So I will open that
4 document now. It will take a moment for my
5 antivirus to make sure it's safe. Okay. I believe
6 I have both pages, counsel.

7 Q. And you see at the bottom -- now, this is a
8 list, would you agree, of electric utilities, the
9 holding companies, and the operating companies for a
10 significant group of electric utilities; would you
11 agree with that?

12 A. Yes, sir.

13 Q. And you see in the middle of, or about
14 two-thirds of the way down page 1, Duke Energy
15 Progress, LLC has a Moody's issuer rating, like we
16 said, of Aa2?

17 A. Yes. Yes, sir.

18 Q. And would you -- subject to check, would you
19 accept that there are only 11 operating companies on
20 this two pages that are A2, and five that are A1?

21 A. It appears from the notations at the bottom.
22 So the document will speak for itself, but I'll accept
23 that the quantification was done appropriately.

24 Q. And you would accept that, if we divided the

1 16 companies that are A1 or A2 by the 78, that the Duke
2 Energy Progress is in the top 21 percent of the
3 companies -- the operating companies listed?

4 A. Yes. It would appear that that would be an
5 appropriate measurement.

6 Q. Now, I'm not going to ask this as a cross
7 examination exhibit, but earlier, would you accept that
8 in the -- that 86.7 percent of all of Duke Progress'
9 long-term debt were first mortgage bonds that they were
10 secured?

11 A. Unless there's a document showing that, I
12 don't know the percentage off the top of my head.

13 Q. Okay. Now -- now, you -- are you aware that,
14 in it late August of this year, that Duke Energy
15 Progress issued \$600 million in 30-year first mortgage
16 bonds at a rate of 2.50 percent?

17 A. I might have heard that during earlier
18 testimony, but I didn't, of my own accord, confirm that
19 information.

20 Q. Now, if you would turn to page 8.

21 A. Page 8 of mine?

22 Q. Yes.

23 A. I'm there.

24 Q. Now, you talk about you want to maintain --

1 you should also try to maintain an A rating for utility
2 companies; is that correct?

3 A. Yes. I say either work towards an A or
4 maintain an A if you have it.

5 Q. Well, if by chance Duke Energy Progress was
6 downgraded one grade, its issuer rating would be A3; is
7 that correct?

8 A. Yes, it would.

9 Q. And it would still be in the A range; and its
10 secured rating, if it was downgraded one grade, would
11 be A1, would you --

12 A. Yes.

13 Q. Okay.

14 A. I'm sorry, were you finished with the
15 question?

16 Q. I hope so.

17 A. Okay. Yeah. It would be -- if it continues
18 as the norm, it would be two notches higher for the
19 secured debt.

20 Q. Now, I turn you to page 19 of your testimony.
21 We'll come back to some pages.

22 A. I am at 19.

23 Q. And on lines 5 and 6.

24 A. Yes.

1 Q. You state that Mr. Lucas acknowledges that it
2 is possible no prudence -- imprudence occurred back
3 when the Company's decisions were made.

4 Do you remember saying that?

5 A. Yes. I said that as noted on that page.

6 Q. Now, don't you remember reading in
7 Mr. Lucas' -- and I won't go through all the pages --
8 where he also said that, based on the groundwater
9 exceedances back in the early '80s, the Company should
10 have installed more monitoring wells? Don't you
11 remember him saying that?

12 A. No. No. I'd have to go back and review his
13 testimony.

14 Q. Okay. But you would agree his testimony says
15 what it says?

16 A. Oh, of course. He says what he says. And I
17 say what I say. And I didn't see that -- I think staff
18 noted that they couldn't find any imprudence, couldn't
19 do a prudence review, and that any quantification of
20 costs would be speculative. And that's what struck me
21 as standing out as compared to the hundreds of
22 testimonies I've read in other proceedings.

23 Q. But you would agree that what he keeps
24 pointing out, that there were 7,411 groundwater

1 exceedances, that emphasized, at least in his
2 testimony, that there was imprudence in not going ahead
3 and installing those monitoring wells?

4 A. I do not believe he found a conclusion of
5 imprudence, but his testimony will speak for itself.

6 Q. Now -- excuse me just a minute. On page
7 11 -- would you go back to page 11, please?

8 A. (Witness peruses document.)

9 Q. This is your testimony.

10 A. I am there.

11 Q. Now, on page 12, you talk about how important
12 it is for a significant degree of predictability.

13 A. Could -- I know I say something like that,
14 could you direct me --

15 Q. On line 12 right at the end of that sentence
16 there.

17 A. This is page 12, line 12 you're saying?

18 Q. I'm sorry. Page 11, line 12. I'm sorry.

19 A. Okay.

20 (Witness peruses document.)

21 Yes. I'll read the sentence so everyone is
22 aware how it fits.

23 "Utility investors understand and accept the
24 role of extensive regulation, but they seek from the

1 regulatory process decision-making that is fair with a
2 significant degree of predictability."

3 Q. And wouldn't you agree that the Commission's
4 Dominion Energy North Carolina February 24, 2020,
5 provides predictability for potential investors?

6 A. No. I think the investors were relying on
7 the statement in 2018 in the DEP, the last case along
8 the lines of the Commission will address the
9 appropriate amortization period in DEP's next general
10 rate case. And unless future imprudence is
11 established, will permit earning a full return on the
12 unamortized balance.

13 I think that's what drew their attention
14 greater than a statement in a Dominion case which dealt
15 with a much smaller entity.

16 Q. But the Dominion case is the most recent
17 case. So, you know, if I was an investor, I would look
18 at the most recent decision for guidance.

19 A. Well, I think investors would look most
20 likely at a specific statement made about DEP as
21 opposed to a statement made about another entity that
22 operates mostly outside the state of North Carolina,
23 has a smaller footprint in North Carolina.

24 Q. Now, you would agree that if they were

1 arguing or trying to prove imprudence, it would be
2 almost impossible to reconstruct what the costs were
3 40 years ago?

4 A. Well, I think I gave as an example last time
5 that I came on to the Michigan Commission in 1987, and
6 one of the duties of the three-member Commission during
7 my six years on the Commission were to make
8 prudence/imprudence determinations about a nuclear
9 plant that was abandoned years before I entered my
10 tenure on the Commission. And it was not easy. It
11 took about five or six years, but we came to a
12 determination of when prudence ended and imprudence
13 began.

14 So I acknowledge it would be a very difficult
15 process to make judgments about imprudence 40 years
16 ago.

17 Q. And the one you did in Michigan, how many
18 years earlier was that plant abandoned?

19 A. I believe it was abandoned -- this would be
20 just a guess -- maybe three to five years before I
21 entered my time on the Commission.

22 MR. GRANTMYRE: Commissioner Clodfelter,
23 I would ask that the Public Staff 96 cross
24 examination exhibit be marked as Public Staff

1 Fetter Rebuttal Cross Examination Exhibit Number 1.
2 I failed to do so.

3 COMMISSIONER CLODFELTER: All right.
4 Mr. Grantmyre, it will be marked as Fetter Rebuttal
5 Public Staff Cross Examination Exhibit Number 1.

6 (Fetter Rebuttal Public Staff Cross
7 Examination Exhibit Number 1 was marked
8 for identification.)

9 Q. Now, on page 21, you discuss the Georgia --
10 Georgia Power decision; is that correct?

11 A. Let me get there. Yes, I do.

12 Q. And, now, in the Georgia -- you're aware that
13 Duke Energy Progress pled guilty to four criminal
14 negligence in regard to the Clean Water Act; are you
15 aware of that?

16 A. I know that there were some criminal charges
17 agreed to.

18 Q. And were there criminal charges agreed to in
19 the Georgia Power case?

20 A. Not that I'm aware of.

21 Q. Now, with regard to credit rating agencies in
22 the Duke case, Duke Carolinas, we went through four
23 riders that Duke Carolinas had. And you said those are
24 credit -- looked on favorably by the credit rating

1 agencies; do you remember that?

2 A. Yes. I noted that riders have become
3 extremely popular across the regulated utility universe
4 over the last 15 years or so. And so yes, those are
5 credit positive and also becoming very common across
6 the industry as norms.

7 Q. And will you accept, subject to check, that
8 Duke Energy Progress has those same four riders?

9 A. I will accept that, subject to check, that
10 they exist for DEP.

11 Q. And don't you agree that the stipulation that
12 Duke Energy Progress entered into with the Public Staff
13 as to the ROE, as to the capital structure, and as to
14 the \$1.3 billion for both Duke Carolinas and Duke
15 Energy Progress being a deferral, all those are credit
16 positive -- considered credit positive by the rating
17 agencies?

18 A. Yes. As the agencies have noted, that's a
19 positive first step, and they're waiting on the coal
20 ash decision.

21 Q. And the storm securitization, you said you
22 worked on those before when you were, I believe with
23 Fitch, that is -- and if they file a petition and get
24 approval, that's considered credit positive, isn't it?

1 A. Yes. I view securitization as good for
2 investors and good for customers.

3 Q. Now, if we could turn to page 24.

4 A. I am there.

5 Q. And in this, you're talking about -- in this,
6 you say, on line 13 -- you seem to say that if the
7 Public Staff prevails on this coal ash issue, it would
8 lead to a credit downgrade. And then later down on
9 line 16 you say Moody's has stated a weakening
10 regulatory support could lead to a downgrade.

11 Now, isn't it true you really cannot predict
12 with any certainty what will happen with regard to
13 credit downgrades or upgrades based on this
14 Commission's decision?

15 A. Okay. That's a two-part question, so I'll
16 answer two parts. I did not say merely the coal ash
17 decision. At that time, Mr. Hinton was advising
18 several steps below what has been agreed to in the
19 partial settlement. And I was making a statement that,
20 if the Public Staff position was adopted on the
21 quantitative and the qualitative side in all aspects
22 including ROE, cap structure, the return of the tax
23 reform monies, as well as coal ash, then it was likely
24 there would be a downgrade. Or I said undoubtedly

1 would lead to a downgrade.

2 As we know, several of those issues are off
3 the table, and so depending on the severity of the coal
4 ash decision, I'd say there could be a downgrade, there
5 might be a change in outlook, or there might be no
6 action other than a firming up of DEP's credit profile
7 or a strengthening or weakening of that profile.

8 Q. Now, if we could turn to page 25 in your --

9 A. I'm there.

10 Q. Towards the bottom of your page 25, you're
11 talking about the difficulty barring funds during the
12 COVID, that 60 or 90-day period that there was -- the
13 bond market was unstable; do you -- would you agree
14 with that?

15 A. Yeah. There was a period in late March where
16 basically it froze up, which led the fed to step in and
17 put enormous amount of funds -- I think an
18 unprecedented amount of funding support to the debt
19 markets.

20 Q. But you would agree that the last pandemic
21 was over 100 years ago?

22 A. Let me see, 1918, so yeah.

23 Q. 1918, that's 102.

24 A. Just over 100 years ago.

1 Q. Okay. And the Great Recession that we had in
2 2008, 2009, the Great Depression was about 70 years
3 prior to that; would you agree to that?

4 A. I will -- subject to check, I'll take your
5 word for it.

6 Q. Okay. Okay. Now, down on line 18, you
7 talked about Entergy not being able to borrow money.

8 Do you happen to remember which Entergy
9 company that was that could not borrow the money?

10 A. I was referring to Carl Newlin's testimony,
11 so I don't recall whether he was talking about the
12 parent or Entergy New Orleans. I think he was talking
13 about the parent in his testimony. But the testimony
14 will speak for itself.

15 Q. But you would agree that Public Staff 96,
16 Public Staff Fetter Rebuttal Cross Examination
17 Exhibit 1, lists Entergy Corporation as a Baa2 issuer
18 rate?

19 A. Which document? The first one you showed me?

20 Q. Yes. Subject to check.

21 A. I closed it out, but it says what it says.

22 Q. Okay. Okay. And one of their operating
23 companies is Entergy New Orleans, which has a Ba1,
24 which is not even investment-grade rating. Would you

1 accept that, subject to check?

2 A. Yes. I believe that's where Entergy
3 New Orleans sits. But looking at this, I believe
4 Mr. Newlin talked about the parent Entergy Corp at Bbb.

5 Q. Okay. And you would admit that Entergy, the
6 parent corporation, is significantly lower than Duke
7 Energy Progress' credit rating?

8 A. Yes, it is in the Bbb category.

9 MR. GRANTMYRE: And I now go to Public
10 Staff Document 102, which is on page 3120, and ask
11 that it be identified as Public Staff Fetter
12 Rebuttal Cross Examination Exhibit Number 2. This
13 is the stock price close.

14 COMMISSIONER CLODFELTER: It will be
15 marked as Fetter Rebuttal Public Staff Cross
16 Examination Exhibit 2.

17 (Fetter Rebuttal Public Staff Cross
18 Examination Exhibit 2 was marked for
19 identification.)

20 THE WITNESS: Is this Public Staff 102
21 at the top?

22 Q. Yes.

23 A. Okay. I have that.

24 Q. And I sent to your attorneys about a week ago

1 some additional information. Was that ever forwarded
2 to you on this exhibit?

3 A. What -- can you describe the additional
4 information?

5 Q. Where it has the DOW public utility index.

6 A. Is -- this page has some notations on it.

7 Q. Yeah. That's scribbling, that's mine.

8 A. I have it.

9 Q. Okay. Very good. And do you remember when
10 we testified on Duke Energy Carolinas, you said that
11 the comparison to the DOW public utility index would be
12 a better comparison than the S&P 500 index; do you
13 remember saying that?

14 A. No, I don't remember saying that.

15 Q. Okay. Anyway, will you accept, from
16 February 24th, the day of the Duke -- I'm sorry, the
17 Dominion Energy North Carolina order was issued, to
18 March 3rd, that the decrease, subject to check on your
19 math for Duke, was 6.54 percent?

20 A. I'll take the number as calculated. It will
21 speak for itself.

22 Q. Okay. We could agree that the Commission has
23 some excellent accountants that could verify all this.

24 And the DOW utility index declined

1 6.27 percent?

2 A. That's what this says.

3 Q. And the S&P 500 declined 6.91 percent?

4 A. That's what this says.

5 Q. Okay. About a week ago I forwarded to your
6 attorneys the Value Line for Duke Energy Corporation
7 dated August 14, 2020. Do you happen to have that?

8 A. I have what I believe -- is this the Value
9 Line document?

10 Q. Yes.

11 A. Yeah. I've never used Value Line, so I
12 wasn't sure what it was, but I did receive this
13 document.

14 Q. Okay. Since you never use it, I'll go
15 through it very quickly.

16 You would agree that this is a service that
17 some investors use for information?

18 A. I believe mostly equity investors would use
19 Value Line, as opposed to debt investors would use it
20 less so, but equity, certainly, yes.

21 Q. And towards the bottom, on the bottom
22 right-hand side, you know, there's two columns, they
23 talk about what's going on with Duke Energy
24 Corporation. The Commissioners don't have this. It's

1 just you, I, and the attorneys.

2 And I'm not going to introduce it into
3 evidence, but would you accept, subject to check, that
4 in the discussion about Duke Energy Corporation, they
5 never mention coal ash in this value line?

6 A. Is there a date on this when this was?

7 Q. August 14, 2020, in the bottom right-hand --
8 very -- towards the bottom, about an inch from the
9 bottom?

10 A. Okay. I see that, yes. I mean, I haven't
11 read it through, but what you've highlight doesn't show
12 coal ash.

13 MR. GRANTMYRE: Okay. Now, I would ask
14 this next exhibit, which was Public Staff Potential
15 Cross Examination Exhibit 142, be identified as
16 Public Staff Fetter Rebuttal Cross Examination
17 Exhibit Number 3, which is the Form 8K filed by
18 Duke Energy Corporation on September 9, 2020, with
19 the Securities and Exchange Commission.

20 Q. Do you have that document?

21 COMMISSIONER CLODFELTER: It will be
22 marked as Fetter Rebuttal Public Staff Cross
23 Examination Exhibit 3.

24 (Fetter Rebuttal Public Staff Cross

1 Examination Exhibit 3 was marked for
2 identification.)

3 THE WITNESS: Yes, I believe I have that
4 one.

5 Q. Now, I'm going to try to go through this
6 fairly quickly. Would you turn to -- at the bottom it
7 says 4259.

8 A. (Witness peruses document.)
9 I have 4256 at the bottom of what I received.

10 Q. Yes. And three pages later, or four pages
11 later would be 4259.

12 A. I just have two documents. One is 4256, the
13 other one says 4312.

14 Q. So you did not get the full document? It's
15 about 70 pages.

16 A. I may be able to find it in my emails if it's
17 important to locate all the pages, or maybe Mr. Mehta
18 can send me the whole document again.

19 MR. MEHTA: I will be glad to send him
20 the whole document again. I think perhaps what
21 Mr. Fetter did is copy, Mr. Grantmyre, some
22 highlighted page that you had towards the end of
23 the document.

24 THE WITNESS: Yes, that's what I did. I

1 copied for this hearing on cross the highlighted
2 page.

3 MR. MEHTA: I'll just go ahead -- just
4 so it's easy to find, I will go ahead and send the
5 entire 70-page document right now.

6 (Pause.)

7 MR. MEHTA: And it is on its way.

8 THE WITNESS: Okay. I will be opening
9 it now. Okay. I have it open. And if you give me
10 the page number again, I'll search for it.

11 Q. 4259.

12 A. Okay. Counsel, I am at 4259.

13 Q. And you would agree, at the top right-hand
14 corner, it states that is this is Duke Energy investor
15 update September 2020?

16 A. Yes, it does.

17 Q. And if we could go to -- I'm going to go
18 through a number of pages here hopefully very quickly.
19 On 4263.

20 A. I am skipping down. I am at 4263.

21 Q. Is yours -- does it show the highlighting?
22 You don't have a -- is it in color or just black and
23 white?

24 A. Mine is black and white, and sometimes the

1 highlighting shows up as, you know, a little darker. I
2 don't think I have any highlighting on this page.

3 Q. Okay. Well, at the top, you will agree it
4 has "our long-term investor value proposition"?

5 A. That's what the top says.

6 Q. And then it goes on to talk about six
7 categories. And if I'll just read them quickly, and if
8 you could acknowledge that's what it says.

9 First on the top left is scale owner of
10 premium utilities?

11 A. Yes.

12 Q. And then it talks low risk regulated
13 business?

14 A. Yes.

15 Q. Well position for energy transition to
16 renewables?

17 A. Yes.

18 Q. Strong regulated growth outlook?

19 A. Yes.

20 Q. Delivering on annual earnings guidance?

21 A. Yes.

22 Q. And history of major project execution and
23 prudent management?

24 A. Yes.

1 Q. Now, you would agree that those are all
2 factors that investors consider?

3 A. Yes.

4 Q. Or many of them are factors?

5 A. These, among others, but these would be
6 considered.

7 Q. And if we could move to page 4273.

8 A. Okay. I'm going down to that one.

9 (Witness peruses document.)

10 It's going a little slowly because of the
11 chart, heavy pages.

12 MR. MEHTA: Mr. Grantmyre, I'm sorry,
13 could you give me that page number again?

14 MR. GRANTMYRE: 4273.

15 MR. MEHTA: Thank you.

16 THE WITNESS: I'm going to search for
17 it, because it's going very slowly with thumbing
18 down.

19 (Witness peruses document.)

20 Okay. I am at 4273.

21 Q. And at the top it states:

22 "Duke completed its portfolio transition
23 ahead of peers."

24 Does your page say that?

1 A. That's what the title says.

2 Q. And you would agree, as you glance at it
3 quickly, on the left it talks about current industry
4 themes, correct?

5 A. Yes.

6 Q. And divestiture of merchant businesses;
7 that's one thing that -- and Duke says on the right,
8 they announced the exit from West Generation in 2014?

9 A. Yes.

10 Q. And isn't that positive, from an investor
11 standpoint, that they got out of the merchant business
12 or a lot of the merchant business?

13 A. Well, from a debt investor, it certainly is;
14 from an equity investor, I think they have to make a
15 determination whether that would have been a profitable
16 enterprise.

17 Q. And then regulated businesses, M&A, they
18 announced the acquisition of Piedmont in 2015?
19 Electric utilities purchasing natural gas utilities is
20 considered a positive for electric utilities if the
21 transaction is done properly?

22 A. Well, I think every transaction like that has
23 some people think it's a positive, and others who are
24 concerned about any increased risk. So I can't,

1 sitting here, offer a view of how debt or equity
2 investors would view that line item.

3 Q. Okay. And then it talks about divestiture of
4 international businesses, and they got rid of the
5 international businesses in 2016?

6 A. I think that's usually viewed as reducing
7 risk because international regulation, where it exists,
8 is usually a little more volatile than in the United
9 States.

10 Q. And at the very bottom, focus on O&M cost
11 management, it says "kept O&M flat since 2016"?

12 A. That would usually indicate that they're
13 beating inflation, which has been pretty low. But
14 being flat, even in the face of low inflation, would be
15 a good direction to go.

16 Q. Now, at the very bottom, would you agree it
17 says, "Today's Duke Energy is a well-run electric
18 utility -- regulated electric and gas utility"?

19 A. That's what it says.

20 Q. And that would be positive for potential
21 investors; would it not?

22 A. Yeah. That would be positive for both debt
23 investors and equity investors.

24 Q. And let's go to page 4281.

1 A. Okay. I will search for it. 4281?

2 Q. Yes.

3 A. (Witness peruses document.)

4 Okay. I am at that page.

5 Q. And this is the one that states at the top,
6 "Strong track record of performance"?

7 A. Yes.

8 Q. And the first line states:

9 "Met annual guidance in seven of the last
10 eight years while existing businesses with -- while
11 existing businesses with volatile earnings."

12 And you would agree that meeting guidance is
13 looked favorably by the investment community?

14 A. It shows that management is accurately
15 predicting in seven of the past eight years. It's
16 always good for management to be on top of the
17 enterprise. But, of course, we don't know, you know,
18 if you properly identify guidance in a negative
19 direction, it's a positive that management understands
20 it; but the guidance, itself, may not be positive. But
21 like I said, management being on top of it seven of the
22 eight years looks pretty good.

23 Q. And the third one down, it says:

24 "Earned at or above allowed ROEs on a

1 consi stent basi s. "

2 That i s credi t posi ti ve, i sn' t i t?

3 A. That woul d be vi ewed posi ti vel y.

4 Q. And i f we coul d go to page 42 -- 4284.

5 A. Okay. I' ll search for i t.

6 (Wi tness peruses document.)

7 Okay. I' m there.

8 Q. And i t says, "Wi th 2020 addi ti onal O&M cost
9 savi ngs wel l under way"; i s that the ti tle?

10 A. Yes.

11 Q. And the fi rst bul let there i s:

12 "Hi ghly confi dent i n achi evi ng 350- to
13 \$450 mi lli on redu cti on i n O&M and other ex penses
14 mi ti gate 2020 headwi nds. "

15 I sn' t that credi t posi ti ve that they' ve been
16 abl e to have an O&M redu cti on?

17 A. Yeah, that woul d be posi ti ve.

18 Q. And al so, about two-thi rds of the way down,
19 i t tal ks about l ower i nterest ex pense due to wel l -ti med
20 capit al market transac ti ons; i sn' t that credi t
21 posi ti ve?

22 A. Yeah, that' s a good thi ng.

23 Q. And goi ng to the next page, whi ch i s 4285.

24 A. Okay.

1 Q. Again, they talk about -- that little box up
2 there near the top:

3 "Highly confident in achieving the 350- to
4 \$450 million reduction in O&M and other expenses in
5 2020 to mitigate COVID-19 impacts."

6 A. What was the date of this document? I didn't
7 notice.

8 Q. It's September 2020.

9 A. Okay. And so now you're asking about the
10 box.

11 Q. Yes.

12 A. And I'll read it to myself.

13 (Witness peruses document.)

14 Okay. And the question is?

15 Q. Isn't that credit positive that they were
16 able to mitigate COVID-19 impacts through their debt
17 reduction -- O&M reductions?

18 A. Okay. Yeah. I mean, as they stated, highly
19 confident. I think as we've seen in the past week, the
20 full extent of the COVID-19 impacts may be greater than
21 might have been predictable in September. But at the
22 time, they were highly confident that they could deal
23 with what was to come.

24 Q. Now, we've got to move on to what they call

1 the balance sheet section they talk about. If you
2 would go -- there's only two more of these pages, so
3 that's the good news -- 4312.

4 A. 4312. Searching for it.

5 (Witness peruses document.)

6 Q. And this is the one on liquidity.

7 A. Okay. This is the one that was clearly
8 highlighted. Yes.

9 Q. Okay. And you see this is Duke Energy
10 Corporation?

11 A. Yes.

12 Q. And they talk about available liquidity,
13 June 30, 2020 --

14 A. Yes.

15 Q. -- being \$8.7 billion?

16 A. That's what it says.

17 Q. And it talks about the master credit
18 facilities. I believe it's \$5.892 billion; is that
19 correct?

20 A. That's what it says.

21 Q. And then there's also remaining availability
22 from equity forwards, which is \$2.579 --

23 A. That's what it says.

24 Q. -- billion?

1 A. That's what it says.

2 Q. And you would agree all of those are credit
3 positive?

4 A. I mean, I would be guessing. You know,
5 clearly, Mr. Young, Mr. Newlin, probably even Mr. DeMay
6 would have a view of this, but it seems like a lot of
7 money available, liquidity.

8 Q. And liquidity would be important, such as
9 when the COVID pandemic for, you know, the 60, or 75,
10 90 days there when they needed some temporary money;
11 isn't that what basically liquidity is for, for
12 temporary needs and emergencies?

13 A. Yes. And as I said, in fact, I think in
14 answering Commissioner McKissick last time, we don't
15 know what the future holds. So having liquidity is a
16 good thing, and hopefully will be enough to deal with
17 any negative events to come.

18 Q. Now, this will be the last page we'll go to,
19 4316.

20 A. Okay. Let me try to get there. I'll see if
21 it goes fast enough thumbing down.

22 (Witness peruses document.)

23 Okay. I am at 4316.

24 Q. And you can see at the top, it's the FF- --

1 it's small print, but it's the FF0 to debt for Duke
2 Energy Progress; do you see that?

3 A. That -- it appears to say that.

4 Q. And this is December 31, 2019. It's hard to
5 read, but it's --

6 A. Yeah, it appears to say that too.

7 Q. And it also appears at the bottom, the FF0 to
8 debt at that time was 22 percent?

9 A. Mine is kind of muddled, but I'll accept that
10 that's what it says.

11 Q. Now, I know you haven't read this document
12 word-for-word, but would you -- would you be surprised
13 to learn that, in this entire document, the words "coal
14 ash" never appear one time?

15 A. You know, I'm not sure of the full purpose of
16 the document. So probably the three gentlemen I just
17 mentioned in answer to a question or two ago, they're
18 the ones who could offer a view of why coal ash is or
19 is not in this document.

20 Q. I would now move to Fetter Public Staff
21 Rebuttal Cross Examination Exhibit Number 4, which is
22 the Potential Cross Examination Exhibit 140.

23 Was this provided to you by your attorneys?
24 It was a late-filed cross exhibit.

1 A. Can you describe what it is?

2 Q. It's B&A global research, B&A Securities,
3 their September 9, 2020, upgrading of Duke Energy
4 Corporation.

5 A. Yes. In fact, this was the one you discussed
6 briefly two and a half weeks ago, and I thank you for
7 providing it, because it let me look into it in the
8 whole scheme of Duke's equity. So I appreciate being
9 given a heads up two and a half weeks ago to let me
10 research it.

11 Q. Now, would you agree that the first
12 paragraph --

13 COMMISSIONER CLODFELTER: Mr. Grantmyre,
14 let's get it marked.

15 MR. GRANTMYRE: We request that this
16 be --

17 COMMISSIONER CLODFELTER: We will mark
18 it -- Mr. Grantmyre, we will mark it as Fetter
19 Rebuttal Public Staff Cross Examination Exhibit 4.

20 MR. GRANTMYRE: Thank you. I'm finally
21 learning the correct wording.

22 (Fetter Rebuttal Public Staff Cross
23 Examination Exhibit 4 was marked for
24 identification.)

1 MR. GRANTMYRE: Thank you.

2 Q. Mr. Fetter, I think it would be better if you
3 just read into the record that first paragraph, "Coal
4 ash pending with tide beginning to shift favorably."

5 A. "Coal ash pending with tide beginning to
6 shift favorably with Duke shares trading near its
7 relative lows (minus 1 percent versus XLU since 2Q call
8 and more critically a full minus 110 percent discount
9 versus the group). We are upgrading to buy as we
10 perceive a derisk story acute fears reflected. We see
11 real reason for an inflection in EPS expectations with
12 both positive regulatory backdrop on 21" -- it's an
13 apostrophe -- "' 21 legislation and positive revisions
14 to IRP CAPEX (based on forthcoming reaction from
15 NCGOV/NCUC). While pending coal ash rate case remains
16 outstanding (and much anticipated cautious point), we
17 perceive an order similar to Dominion as quite likely
18 (after latest stakeholder discussions); this would help
19 firm up doubtful expectations. Further, we anticipate
20 existing settlements in the rate case to remain intact
21 despite concerns otherwise too. Fears are likely at
22 their worst heading into 4Q decisions and NC-NC
23 positive EPS and regulatory data points arising into
24 ' 21. Expectations appear too at their low point and

1 investors seem to be missing the positive inflection
2 from regulatory work Duke has been pursuing." I think
3 they meant to say pursuing. "Bottom line, analysts'
4 EPS expectations of minus \$5.40 on '22 likely
5 understate potential plus \$14 billion in higher CAPEX
6 possible (tables below) and repositioned ESG
7 trajectory."

8 And that's the end of the first paragraph.

9 Q. But you would agree in this paragraph it
10 says, even though they expect a decision similar to
11 Dominion Energy North Carolina, they increased from a
12 hold to a buy?

13 A. This one analyst at BofA or the analyst that
14 heads the group of peers to -- yes, indicate a hold to
15 a buy. What -- he, of course, is one of many analysts
16 on Wall Street, but that's what he says.

17 Q. And if we could go to page 4235, which is
18 page 6 of this document.

19 A. (Witness peruses document.)

20 I'm there.

21 Q. And could you read into the record that
22 heading, "Rate case expectations: Coal ash Dominion
23 order likely," and just the first sentence, the last
24 word goes into the next page, or --

1 A. Do you want the entire paragraph?

2 Q. No, no, just the first sentence.

3 A. "Rate case expectations: Coal ash Dominion
4 order likely. We continue to expect Duke's rate case
5 in the Carolinas to have a similar outcome to
6 Dominion's coal ash order with a 10-year amortization
7 period and no return once past the deferral period."

8 Q. And now we'll move on to Potential Cross
9 Examination Exhibit 141, and this is the September 11th
10 follow-up by B&A Securities.

11 MR. GRANTMYRE: And we would request
12 this be identified as Fetter Public Staff Rebuttal
13 Cross Examination Exhibit Number 5.

14 COMMISSIONER CLODFELTER: It will be
15 designated as Fetter Rebuttal Public Staff Cross
16 Examination Exhibit 5.

17 MR. GRANTMYRE: I still don't have the
18 wording. I'm going to catch on eventually.

19 (Fetter Rebuttal Public Staff Cross
20 Examination Exhibit 5 was marked for
21 identification.)

22 Q. Okay. And do you have that -- do you have
23 that open, Mr. Fetter?

24 A. I have it in hard copy.

1 Q. Okay. And don't you agree the first -- you
2 read this -- you've read this, haven't you?

3 A. Yes. Yes, because it came to me as part of
4 your group of documents.

5 Q. Okay. And you would admit, without reading
6 the whole first paragraph again, it, again, affirms
7 that their -- they expect the Dominion order to be --
8 the Progress and DEP order to be the same as the
9 Dominion order; but even though they expect that, they
10 are firming their upgrade?

11 A. Well, I -- from my experience on Wall Street,
12 the most interesting thing I found about this was that
13 two days after its initial upgrade report, it felt
14 compelled to issue another report, and the first couple
15 of sentences indicate why. It starts:

16 "What is so controversial? Feedback on our
17 upgrade." And then it says, "Following our earlier
18 upgrade of shares from neutral to buy this week, we
19 revisit the key debates among some investors."

20 And so that -- the fact that it issued
21 another report two days after its initial change to
22 buy, and those two sentences, says to me that they
23 received a lot of pushback from Duke investors which
24 led them to feel they had to put out a new report. And

1 that I led me to go look at how the stock price did
2 during these three days, September 9th, 10th, 11th.
3 And what I saw on the stock chart was concerning to me.

4 Q. Didn't we have the -- on September 9th, Duke
5 closed at 82.59; did it not?

6 A. In fact, Counsel, I have a stock chart, which
7 I hope you all can see. And you can see on -- here is
8 on the 9th. It opened, went down a little, then it
9 shot up. The report came out at some point during the
10 day and then it plummeted in the last few -- last half
11 hour of trading. (Indicating.)

12 And so it opened at 82.42 on September 9th,
13 and it closed slightly up at 82.59. The next day, the
14 10th, this is after the report was issued on the 9th,
15 it opened down 37 basis points at 82.22, and it closed
16 even lower at 82.00, which would be below where it
17 opened on the 9th before the report came out. And then
18 the new report came out sometime during the 11th, it
19 opened at 82.07, closed at 83.03.

20 So during this three-day period, it opened at
21 82.42 and closed at 83.03, so that would be about
22 0.7 percent increase during the three days and after
23 the two reports.

24 And so certainly there was a lot of

1 volatility up and down during those three days, and on
2 two recommendations to buy, it went up just a -- what I
3 would view as a negligible amount. And it led me to do
4 further research into what other analysts had said
5 about this situation. And it's interesting, because
6 Wolfe Research had put out a view on this case. And
7 the person issuing it, his name is Steve Fleishman, and
8 he goes way back on Wall Street, back when I was at
9 Fitch. And in 2012, an institutional investor put
10 Mr. Fleishman as one of the 49 equity analysts in their
11 hall of fame, the best analysts of all time.

12 So I read with interest what Mr. Fleishman
13 said about this case on August 11, 2020, in a Wolfe
14 Research report. And Mr. Fleishman, who had been at
15 Merrill Lynch before the current -- and he had been at
16 BofA also before the current person who is there. And
17 Mr. Fleishman said, if the NCUC uses the same logic on
18 coal ash that it did in a Dominion order earlier this
19 year, Duke would face an \$0.08 headwind in 2021.
20 Rating agencies have said no return on coal ash in NC
21 would be credit negative, and then Mr. Fleishman
22 indicates that Wolfe Research, we see a downgrade of
23 Duke as likely if that were to occur.

24 So I put significant weight on the words of

1 someone who is viewed as one of the best equity
2 analysts over the last 40 years.

3 Q. Now, would you accept, subject to check, that
4 as of today, October 5th, when I checked at 12:10 p.m.,
5 that the Duke Energy Corporation stock price at that
6 time, a couple hours ago, was selling at \$91.84?

7 A. I will accept that. And I will note that the
8 fact that that is at that price today has nothing to do
9 with the two BofA reports you put before me.

10 Q. Okay. And you would agree that that is a
11 \$9.25 increase above the September 9th price of 82.59?
12 Just the math.

13 A. Well, not only that, I'll -- I will even say
14 that, other than the 61 basis points of movement from
15 September 9th to September 11th, that the
16 \$9-and-some-change increase certainly did not result
17 during the September 9th to September 11th period of
18 the two BofA reports that noted the Dominion decision
19 had clearly received pushback from the very investors
20 who have driven up the price post September 11th.

21 Q. And --

22 COMMISSIONER CLODFELTER: Mr. Grantmyre?

23 Mr. Grantmyre, we're going to take our afternoon
24 break.

1 MR. GRANTMYRE: I have one more
2 question.

3 COMMISSIONER CLODFELTER: Let's do that,
4 then.

5 Q. And you would admit that the \$9.25 increase
6 comes out to 11.2 percent?

7 A. I'll accept your math.

8 MR. GRANTMYRE: I have no further
9 questions.

10 COMMISSIONER CLODFELTER: Okay. Let's
11 take our afternoon break now, and we will come back
12 at 3:15.

13 (At this time, a recess was taken from
14 3:01 p.m. to 3:15 p.m.)

15 COMMISSIONER CLODFELTER: Mr. Grantmyre,
16 you are concluded?

17 MR. GRANTMYRE: I am concluded.

18 COMMISSIONER CLODFELTER: Okay. I don't
19 have anyone else on my list asking to reserve cross
20 examination, but for the record, let me ask if
21 there are any other parties who have cross
22 examination for this witness.

23 (No response.)

24 COMMISSIONER CLODFELTER: If not,

1 Mr. Mehta, we're back to you on redirect.

2 MR. MEHTA: Thank you,
3 Commissioner Clodfelter. Just a very few
4 questions.

5 REDIRECT EXAMINATION BY MR. MEHTA:

6 Q. First off, Mr. Fetter, you referred to an
7 analyst report by Steve Fleishman at Wolfe.

8 MR. MEHTA: And,
9 Commissioner Clodfelter, I think that was one of
10 the new potential redirect exhibits. It was
11 Redirect Exhibit 76. And if we could have that one
12 marked as Fetter Rebuttal DEP Redirect Examination
13 Exhibit Number 1, that would be great.

14 COMMISSIONER CLODFELTER: It will be so
15 marked.

16 (Fetter Rebuttal DEP Redirect
17 Examination Exhibit Number 1 was marked
18 for identification.)

19 MR. MEHTA: Thank you, sir.

20 Q. Mr. Fetter, you also referred to and then
21 held up to the screen a -- you might want to try doing
22 it again just to make sure I got it straight what this
23 is, but it looks like -- yeah, it's the stock price of
24 Duke Energy from September 9th through September 11th.

1 A. Yes.

2 MR. MEHTA: Commissioner Clodfelter,
3 that document Ms. Monika Smith will circulate
4 through the mechanism that the Commission has
5 previously set up about circulating documents that
6 kind of come in. And if we could call that one,
7 once it arrives and is able to be identified, then
8 Fetter Rebuttal DEP Redirect Examination Exhibit
9 Number 2.

10 COMMISSIONER CLODFELTER: It will be so
11 marked.

12 (Fetter Rebuttal DEP Redirect
13 Examination Exhibit Number 2 was marked
14 for identification.)

15 THE WITNESS: And, Counsel, that had two
16 pages where it noted the opens and closes for those
17 three days.

18 MR. MEHTA: Okay. And I think what she
19 will be circulating has both pages. I hope so. If
20 not, we will fix it later.

21 COMMISSIONER CLODFELTER: All right. It
22 will be so designated.

23 MR. MEHTA: Thank you,
24 Commissioner Clodfelter.

1 Q. Mr. Fetter, the counsel for the Public Staff,
2 Mr. Grantmyre, was asking you questions concerning
3 securitization and that being credit positive, correct?

4 A. Yes. I served on the securitization team at
5 Fitch, and it was a means of bringing in funds to
6 support certain needs of a utility.

7 Q. Okay. And in North Carolina in particular,
8 the securitization -- storm securitization that
9 Mr. Grantmyre referred to comes about as a result of
10 legislation recently passed maybe a year-ish ago by our
11 General Assembly; are you aware of that?

12 A. Yes. Securitization in any jurisdiction and
13 under any set of statutes would require legislation to
14 lock in the revenue flow which comes in at a lower cost
15 due to the legislative enactment of an appropriate
16 securitization law.

17 Q. So is it fair to say that securitization
18 could, in some circumstances, actually be overused and
19 would be in the event that too much legislation was
20 passed allowing it to occur?

21 A. Well, I found across the country, it has not
22 been overused, because I have not seen any jurisdiction
23 where a securitization law was not supported by the
24 full spectrum of interested stakeholders, from utility,

1 to intervenors, to consumer side. I haven't seen any
2 legislature stand up to dissent from any of those
3 entities and pass a securitization law. It has been
4 consensual in every instance across the country within
5 the legislature.

6 Q. Okay. Mr. Fetter, Mr. Grantmyre was asking
7 you questions concerning testimony that he referred to
8 from Mr. Lucas about exceedances of groundwater
9 standards in the past, and the sort of past activities
10 of the Company with respect to the cost recovery that
11 it is currently seeking.

12 Mr. Grantmyre asked about the Company's past
13 imprudence; and my question to you, Mr. Fetter, is, is
14 the standard that the Public Staff is putting forward
15 with respect to those past activities not imprudence
16 but equitable sharing and culpability?

17 A. Yes. As we've discussed I think in my last
18 cross and then today when he was raising imprudence, it
19 was actually a standard of culpability that the staff
20 is pointing to rather than the 100-year history of
21 prudent investment review.

22 Q. Have you seen the Public Staff's late-filed
23 Exhibit Number 1 in the DEC case that relates to the
24 culpability issue raised in that case?

1 A. Yes, I have.

2 Q. Do you have any comment on it?

3 A. Yes. I reviewed it, because I think I had
4 said to Mr. Junis in the last case and to
5 Commissioner McKissick that if the Commission were to
6 go in that direction, it has to be fully explained and
7 vetted out. And, in fact, Commissioner McKissick had
8 said -- had called for a brighter line than what it is
9 today where it appears to be subjective, and
10 Commissioner Brown-Blair offered the same thoughts to
11 Mr. Junis.

12 There is objectivity, but there's also a lot
13 of subjective. So I reviewed very closely this
14 late-filed exhibit, and the things that concern me is
15 that, rather than creating a standard that investors
16 could look at and understand, this document says it
17 would be fact and case specific that is not amenable to
18 a bright line test. The very thing that
19 Commissioner McKissick was calling for, staff has said
20 it's not amenable to that.

21 And then it goes on to say the direct
22 testimony of Mr. Maness discusses in detail the reasons
23 for the Public Staff's equitable sharing
24 recommendation --

1 MR. GRANTMYRE: I would object to this.
2 I don't remember asking any questions about the
3 Public Staff Late-Filed Exhibit Number 1, and
4 that's in the Duke Energy Carolinas case.

5 COMMISSIONER CLODFELTER: Mr. Mehta,
6 your response?

7 MR. MEHTA: Well,
8 Commissioner Clodfelter, I have litigated cases in
9 this state for close to 40 years. There seems to
10 be, at least on the -- in the mind of some
11 intervenors in this case, a very narrow view of
12 redirect. We all know that cross examination in
13 this state is wide open. Redirect is governed in
14 some measure by the scope of the cross examination,
15 but that does not mean that the cross examiner has
16 to raise a particular question. The cross examiner
17 raises a subject. Mr. Grantmyre raised the subject
18 of past imprudence. Well, I am asking Mr. Fetter
19 additional questions about that subject which
20 Mr. Grantmyre raised. If he didn't want to hear
21 any redirect examination about that subject, he
22 should not have asked the cross examination
23 question on that subject.

24 COMMISSIONER CLODFELTER: All right.

1 I'm going to allow the question to continue.
2 Mr. Mehta's understanding of the practice in the
3 courts of North Carolina is correct. The topic was
4 opened on cross examination. I think Mr. Mehta is
5 entitled to explore that topic on redirect. You
6 may proceed.

7 THE WITNESS: Should I continue,
8 Commissioner?

9 COMMISSIONER CLODFELTER: If you can
10 remember the pending question.

11 THE WITNESS: Yes. Thank you. I have
12 very little further to say. That late-filed
13 exhibit states the direct testimony of Mr. Maness
14 discusses in detail the reasons for the Public
15 Staff's equitable sharing recommendation that are
16 not tied to culpability; and then it's the
17 concluding sentence in that exhibit that I, as
18 someone who briefs investors about regulatory
19 policy, I would have a very hard time explaining
20 this last sentence:

21 "Additionally, as noted in the testimony
22 of Public Staff witness Maness, the Public Staff
23 believes that, even in the absence of culpability,
24 some level of sharing of CCR costs would be

1 appropriate and reasonable in this proceeding. "

2 So from start to finish, this document
3 has said there's no bright line, it proceeds to
4 say, based on a culpability standard; then it says,
5 it does not necessarily need to be tied to
6 culpability; and then it says, the sharing could
7 occur, meaning there could be disallowances even if
8 there was no imprudence and even if there was no
9 culpability identified.

10 And so this would be a very difficult
11 document for me to take to the financial community
12 and explain what the policies will be in
13 North Carolina going forward.

14 MR. MEHTA: Commissioner Clodfelter, I
15 have no further questions of this witness at this
16 time.

17 COMMISSIONER CLODFELTER: Thank you.
18 Let's see if we have questions from Commissioners.

19 Commissioner Brown-Bland?

20 COMMISSIONER BROWN-BLAND: I have no
21 questions.

22 COMMISSIONER CLODFELTER: Commissioner
23 Gray?

24 COMMISSIONER GRAY: No questions at this

1 time.

2 COMMISSIONER CLODFELTER: Chair

3 Mitchell?

4 CHAIR MITCHELL: No questions.

5 COMMISSIONER CLODFELTER: Commissioner

6 Duffley?

7 COMMISSIONER DUFFLEY: No questions.

8 COMMISSIONER CLODFELTER: Commissioner

9 Hughes?

10 COMMISSIONER HUGHES: No questions.

11 COMMISSIONER CLODFELTER: Commissioner

12 McKissick?

13 COMMISSIONER McKISSICK: No questions at
14 this time.

15 COMMISSIONER CLODFELTER: All right.

16 And I, likewise, have no questions. So, gentlemen,
17 we are at the point of being ready for motions
18 relative to exhibits. Mr. Grantmyre?

19 MR. GRANTMYRE: Yes. The Public Staff
20 moves Fetter Rebuttal Public Staff Cross
21 Examination Exhibits 1 through 5 be admitted into
22 evidence.

23 COMMISSIONER CLODFELTER: You've heard
24 the motion. Is there any objection?

1 (No response.)

2 COMMISSIONER CLODFELTER: Hearing none,
3 the motion is granted.

4 (Fetter Rebuttal Public Staff Cross
5 Examination Exhibits 1 through 5 were
6 admitted into evidence.)

7 COMMISSIONER CLODFELTER: Mr. Mehta?

8 MR. MEHTA: Commissioner Clodfelter, DEP
9 would move the introduction into evidence of Fetter
10 Rebuttal DEP Redirect Examination Exhibits Numbers
11 1 and 2.

12 COMMISSIONER CLODFELTER: You have the
13 motion. Is there any objection to the motion?

14 (No response.)

15 COMMISSIONER CLODFELTER: Hearing none,
16 the motion is allowed.

17 (Fetter Rebuttal DEP Redirect
18 Examination Exhibits Numbers 1 and 2
19 were admitted into evidence.)

20 MR. MEHTA: And,
21 Commissioner Clodfelter, the last request I have
22 is, I believe, Mr. Fetter is not subject to recall,
23 at least I don't think so, so we would like to have
24 him excused.

1 COMMISSIONER CLODFELTER: Any party
2 objecting to that request?

3 (No response.)

4 COMMISSIONER CLODFELTER: If not,
5 Mr. Fetter, thank you for being with us, you are
6 excused.

7 THE WITNESS: Thank you very much.

8 COMMISSIONER CLODFELTER: Okay.

9 Mr. Marzo, we're back to you, I believe.

10 MR. MARZO: Yes, sir,
11 Commissioner Clodfelter. I call
12 Ms. Marcia Williams and Mr. James Wells to the
13 stand.

14 COMMISSIONER CLODFELTER: All right.
15 There's Mr. Wells. I see Mr. Wells. I do not yet
16 see -- there she is. I see them both. Okay.

17 Whereupon,

18 MARCIA E. WILLIAMS, AND JAMES WELLS,
19 having first been duly affirmed, were examined
20 and testified as follows:

21 COMMISSIONER CLODFELTER: All right.

22 Mr. Marzo.

23 MR. MARZO: Thank you,
24 Commissioner Clodfelter.

1 DIRECT EXAMINATION BY MR. MARZO:

2 Q. I'll start with you, Mr. Wells.

3 Would you please state your name and business
4 address for the record?

5 A. (James Wells) It's Jim Wells. 526 South
6 Church Street, Charlotte, North Carolina.

7 Q. Okay. And by whom are you employed and in
8 what capacity?

9 A. Duke Energy Business Services. And I'm the
10 vice president of EHS programs and environmental
11 sciences.

12 Q. Thank you, Mr. Wells. And did you cause to
13 be prefiled in this docket, rebuttal testimony
14 consisting of 68 pages?

15 A. I did.

16 Q. Do you have any changes or corrections to
17 your prefiled rebuttal testimony?

18 A. I do not.

19 Q. If I were to ask you the same questions
20 today, would your answers be the same?

21 A. They would.

22 Q. Did you also cause to be prefiled, Wells
23 Rebuttal Exhibits 1 through 4 to your rebuttal
24 testimony?

1 A. Yes, I did.

2 Q. Do you have any changes or corrections to
3 your prefilled rebuttal exhibits?

4 A. I have no changes.

5 Q. Mr. Wells, did you also prepare a summary of
6 your testimony?

7 A. I did.

8 MR. MARZO: Commissioner Clodfelter, at
9 this time I would move that Mr. Wells' prefilled
10 rebuttal testimony be entered into the record as
11 given orally from the stand, and that Mr. Wells'
12 Rebuttal Exhibits 1 through 4 to his rebuttal
13 testimony be marked for identification.

14 COMMISSIONER CLODFELTER: Unless there
15 is objections?

16 (No response.)

17 COMMISSIONER CLODFELTER: Hearing none,
18 it is so ordered.

19 (Wells Rebuttal Exhibits 1 through 4
20 were identified as they were marked when
21 prefilled.)

22 (Whereupon, the prefilled rebuttal
23 testimony of James Wells was copied into
24 the record as if given orally from the

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1219

In the Matter of:)	
	)	REBUTTAL TESTIMONY OF
Application of Duke Energy Progress, LLC	)	JAMES WELLS
For Adjustment of Rates and Charges	)	FOR DUKE ENERGY
Applicable to Electric Service in North	)	PROGRESS, LLC
Carolina)	

I. INTRODUCTION

1
2 **Q. PLEASE STATE YOUR NAME, OCCUPATION, TITLE, AND**
3 **BUSINESS ADDRESS.**

4 A. My name is James Wells. My business address is 526 South Church Street,
5 Charlotte, North Carolina 28202. I am employed by Duke Energy Business
6 Services, LLC, and my current title is Vice President – Environmental Health
7 and Safety (“EHS”), Programs and Environmental Sciences. I have held this
8 position since 2018.

9 **Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS REBUTTAL**
10 **TESTIMONY?**

11 A. I am submitting this rebuttal testimony on behalf of Duke Energy Progress, LLC
12 (“DE Progress,” or the “Company”).

13 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
14 **PROFESSIONAL EXPERIENCE.**

15 A. I have a B.S. in Technology from Regents College at the University of the State
16 of New York, an M.S. in Nuclear Engineering from the University of
17 Cincinnati, and a J.D. from the Salmon P. Chase College of Law at Northern
18 Kentucky University. Following law school, I clerked for the Honorable
19 William O. Bertelsman, Senior Judge, Federal District Court, Eastern District
20 of Kentucky. I then worked as an environmental lawyer in a Cincinnati law
21 firm providing compliance counseling and legal representation to industrial and
22 commercial clients, and later served as in-house environmental counsel for the
23 General Electric Company. I left General Electric and came to Duke Energy in

1 2009 as an Environmental Health and Safety (“EHS”) attorney. I transferred
2 from the legal department to EHS in 2015 as Vice President, EHS Coal
3 Combustion Products, then to my current role in 2018. Prior to entering the
4 legal profession, I attended Navy Nuclear Power School and served as a reactor
5 operator in the U.S. Navy’s nuclear submarine service. I also worked in various
6 technical capacities for Westinghouse and later Fluor Daniel at the Fernald
7 Environmental Management Project, a former feed material production facility
8 in the U.S. Department of Energy’s nuclear weapons complex.

9 **Q. PLEASE DISCUSS THE PURPOSE OF YOUR TESTIMONY.**

10 A. The purpose of my rebuttal testimony is to address several issues raised by the
11 testimony of Public Staff Witness Jay Lucas (“Lucas”), Sierra Club Witness
12 Mark Quarles (“Quarles”), and Attorney General Office (“AGO”) Witness
13 Steven C. Hart (“Hart”). More specifically, my testimony is intended to rebut
14 allegations by these witnesses related to the Company’s compliance with
15 industry standards and environmental laws pertaining to the management of
16 coal combustion residuals (“CCR”), otherwise referred to as coal ash.

17 **Q. ARE YOU SPONSORING ANY EXHIBITS WITH YOUR REBUTTAL**
18 **TESTIMONY?**

19 A. Yes. I am sponsoring the following exhibits, which were prepared at my
20 direction and under my supervision:

21 **Wells Rebuttal Exhibit 1** – 1989 Sutton Groundwater Monitoring Plan;

22 **Wells Rebuttal Exhibit 2** – 1984 Authorization to Construct Cape Fear;

23 **Wells Rebuttal Exhibit 3** – 2000 Barnhardt Letter; and

1 **Wells Rebuttal Exhibit 4 – 2009 Meeting with DEQ.**

2 **Q. WERE EXHIBITS 1 THROUGH 4 PREPARED OR PROVIDED**
 3 **HEREIN BY YOU, UNDER YOUR DIRECTION AND SUPERVISION?**

4 A. Yes.

5 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

6 A. With respect to the Company's compliance with industry and environmental
 7 standards for CCR management, the testimonies of Witnesses Lucas, Quarles,
 8 and Hart raise contested issues that were decided by the North Carolina Utilities
 9 Commission ("Commission") in Docket No. E-2, Sub 1142.¹ Therefore, my
 10 rebuttal testimony largely mirrors my rebuttal testimony filed in the Company's
 11 2017 Rate Case in Docket No. E-2, Sub 1142 ("2017 Rate Case").

12 I have organized my rebuttal testimony into five primary sections:

- 13 • First, I will begin by summarizing the recent orders that were
- 14 issued by this Commission relating to the recovery of CCR costs.
- 15 Specifically, I will discuss the Commission's rejection of the Public
- 16 Staff's theory that "culpability" for environmental violations and other
- 17 acts or omissions, for example the existence of seeps and groundwater

¹ Testimony of Jay Lucas, Docket No. E-2, Sub 1219, at 13, 41, 43, 44, 57, 63, 79 (April 13, 2020) (incorporating by reference the Public Staff's testimony and exhibits from DE Carolinas' last rate case (Docket No. E-7, Sub 1146) regarding (1) the development of state and federal regulations applicable to CCR management; (2) the legal actions filed against the Company for its management of coal ash, (3) historic academic, industry, regulatory, and utility documents, (4) what the Public Staff knew of the Company's environmental compliance up to the date of witness Junis' testimony in the Company's 2017 Rate Case).

1 exceedances, justifies an “equitable sharing” disallowance of CCR
2 costs.²

3 The AGO and Sierra Club offered the testimony of Hart and
4 Quarles, respectively, to criticize the Company’s past CCR management
5 practices. However, only Mr. Hart attempted to identify any specific
6 imprudently incurred CCR cost that was incurred due to any alleged
7 mismanagement by the Company. (*See* Lucas Direct Testimony, at
8 72:18-9 (“quantification of costs directly resulting from the acts or
9 omissions would be speculative”) (E-2, Sub 1219)). Even then, Mr.
10 Hart’s cost analysis is severely and irreparably flawed, which is
11 addressed in the rebuttal testimony of Company Witnesses Jessica
12 Bednarcik, Marcia Williams, and Erik Lioy. My testimony will show
13 that the Commission has consistently found that the hindsight criticisms
14 that are being directed at the Company, without any connection to
15 discrete and identifiable imprudent costs, are not bases for findings of
16 imprudence.

17 • The second part of my testimony will respond to intervenors’
18 allegations that DE Progress failed to take, or should have taken
19 different, actions with respect to its historical management of CCR.

² The Public Staff most recently proposed equitable sharing of CCR costs in DE Carolinas’ rate case, Docket No. E-7, Sub 1214. Before that, the Public Staff proposed equitable sharing in Dominion Energy North Carolina’s (“DENC”) 2019 rate case, Docket No. E-22, Sub 562 (“DENC 2019 Rate Case”). In DENC’s 2019 Rate Case, the Public Staff offered the testimony of Mr. Lucas, which in turn heavily relied on the testimony of Public Staff witness Junis that was submitted in DE Carolinas’ 2017 rate case.

1 I will also explain how intervenors are improperly attempting to
2 supplant the expertise and judgment of DE Progress' state
3 environmental regulators, the North Carolina Department of
4 Environmental Quality ("DEQ") and the South Carolina Department of
5 Health and Environmental Control ("DHEC"). Intervenors' positions,
6 if accepted by the Commission, would invade the authority of the
7 Company's environmental regulators and promote inefficiency and
8 inconsistency within the utility industry. The Public Staff's positions
9 are especially problematic because the Public Staff has consistently
10 acknowledged that it is not an environmental regulator. Whether Mr.
11 Lucas, Mr. Quarles, or Mr. Hart would have taken a different regulatory
12 approach to the Company's ash basins than DEQ and DHEC is
13 irrelevant in this case. Intervenors cannot now change the playing field
14 by replacing decades of DEQ's and DHEC's regulatory decisions with
15 their own hindsight opinions in the narrow pursuit of punishing the
16 Company.

17 Throughout its history of CCR management, the Company has
18 worked in lock-step with its regulators to site, construct, and operate ash
19 basins in compliance with regulatory and industry standards. When
20 deemed necessary to address environmental conditions at its sites, the
21 Company coordinated with regulators to develop a remedial response,
22 including further groundwater monitoring and assessment. DE Progress
23 also participated in voluntary efforts to help the industry and its

1 regulators better understand the potential impacts of ash basins on the
2 environment. These actions are affirmative evidence of prudence.

3 • Third, my testimony will rebut Mr. Lucas' contention that
4 impacts to groundwater and the existence of seeps in the vicinity of the
5 Company's ash basins are an indicator of culpability and
6 mismanagement. Like I demonstrated in the Company's 2017 Rate
7 Case, my testimony will show that impacts to groundwater and seeps
8 were known to federal and state environmental regulators at these sites
9 for decades, and regulators continued to permit the Company to operate
10 these basins under existing regulations. I will also explain that under
11 DEQ's past policy and now CAMA, the North Carolina groundwater
12 rules as applied to ash basins are intended to ensure corrective action
13 where groundwater impacts are detected; they are not intended to be
14 punitive unless the permittee fails to cooperate with the DEQ to
15 determine appropriate actions.³

16 • Fourth, I will respond to Mr. Lucas' testimony alleging that DE
17 Progress has caused significant new violations of North Carolina's
18 groundwater standards since its 2017 Rate Case, which I believe to be
19 misleading. My testimony will demonstrate that the data Mr. Lucas
20 cites represents further assessment under DEQ's direction to assist with

³ *Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase*, Docket No. E-2, Sub 1142, at 183 (February 23, 2018) ("2017 DE Progress Rate Case Order").

1 the development and implementation of closure strategies and does not
 2 evidence wrongdoing by the Company.

3 • Lastly, I will summarize DE Progress' achievements since the
 4 Company's 2017 Rate Case to comply with the CCR Rule and CAMA.

5 **II. INTERVENORS CANNOT TRACE ANY SPECIFIC**
 6 **IMPRUDENT ACTION(S) OR INACTION(S) TO ANY**
 7 **PARTICULAR, QUANTIFIABLE CCR COST THAT IS BEING**
 8 **INCURRED BY THE COMPANY.**

9 **Q. DOES THE PUBLIC STAFF TAKE SIMILAR POSITIONS ABOUT DE**
 10 **PROGRESS' COMPLIANCE HISTORY AS IT DID IN THE**
 11 **COMPANY'S 2017 RATE CASE?**

12 A. Yes. As it did in the Company's 2017 Rate Case, in this case the Public Staff
 13 has proposed an "equitable sharing" of the Company's CCR costs, which would
 14 result in a 50 percent disallowance of the Company's reasonably and prudently
 15 incurred CCR costs. Mr. Lucas argues that existence of seeps and groundwater
 16 exceedances at DE Progress' CCR impoundments are evidence of the
 17 Company's "culpability" with respect to CCR management that warrant
 18 "equitable sharing".

19 **Q. DID THE COMMISSION ACCEPT THE PUBLIC STAFF'S POSITION**
 20 **IN THE COMPANY'S 2017 RATE CASE?**

21 A. No. The Commission explicitly rejected the Public Staff's "equitable sharing"
 22 disallowance theory, as well as Mr. Lucas' "culpability" theory in support of
 23 such a disallowance. *See* 2017 DE Progress Rate Case Order, at 178-83. The

1 Commission also rejected that same disallowance methodology in DE
2 Carolinas' 2017 rate case.⁴

3 **Q. DID THE PUBLIC STAFF RELY ON THE SAME CULPABILITY**
4 **THEORY WHEN IT PROPOSED AN “EQUITABLE SHARING”**
5 **DISALLOWANCE OF CCR COSTS IN DOMINION ENERGY’S 2019**
6 **RATE CASE?**

7 A. Yes. The Public Staff proffered the testimony of Jay Lucas in DENC’s 2019
8 Rate Case, who incorporated by reference the testimony of Mr. Junis from DE
9 Carolinas’ 2017 Rate Case. Mr. Lucas similarly argued that DENC’s
10 “culpability” for environmental impacts relating to its past CCR management
11 practices justified an “equitable sharing” disallowance of DENC’s CCR costs.
12 *See Order Accepting Public Staff Stipulation in Part, Accepting CIGFUR*
13 *Stipulation, Deciding Contested Issues, and Granting Partial Rate Increase,*
14 *Docket No. E-22, Sub 562, at 94-95 (Feb. 24, 2020) (“2019 DENC Rate Case*
15 *Order”).*

16 **Q. DID THE COMMISSION ACCEPT THE PUBLIC STAFF’S**
17 **“CULPABILITY” THEORY AND ADOPT THE PUBLIC STAFF’S**
18 **“EQUITABLE SHARING” DISALLOWANCE IN DENC’S RATE**
19 **CASE?**

20 A. No. The Commission did not accept the Public Staff’s “culpability” standard
21 as a basis for disallowing prudently incurred CCR costs.

⁴ *Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction*, Docket No. E-7, Sub 1146, at 321 (June 22, 2018) (“2017 DE Carolinas Rate Case Order”).

1 **Q. IN THE COMPANY’S 2017 RATE CASE, DID ANY OTHER**
2 **INTERVENORS ATTEMPT TO QUANTIFY IMPRUDENTLY**
3 **INCURRED CCR COSTS CAUSED BY HISTORICAL CCR**
4 **MANAGEMENT PRACTICES?**

5 A. No. Mr. Quarles testified on behalf of the Sierra Club in DE Progress’ prior
6 rate case, and he did not attempt to quantify imprudently incurred costs. The
7 AGO similarly did not quantify imprudently incurred costs, admitting that it
8 tried, but was unable, to come up with supportable numbers. *See* 2017 DE
9 Progress Rate Case Order, at 205.

10 **Q. IN THIS CASE, HAVE THOSE SAME INTERVENORS ATTEMPTED**
11 **TO QUANTIFY IMPRUDENTLY INCURRED CCR COSTS?**

12 A. Both the Sierra Club and the AGO have changed their positions since the
13 Company’s 2017 rate case. In fact, Mr. Quarles has taken a position in his direct
14 testimony that he did not take in his direct testimony filed in February 2020 or
15 his supplemental testimony filed in March 2010 in DE Carolinas’ pending rate
16 case (Docket No. E-7, Sub 1214). Mr. Quarles, for the first time, purports to
17 calculate imprudently incurred costs that should be disallowed. Similarly, the
18 AGO has changed its position since the DE Progress and DE Carolinas 2017

1 rate cases by now attempting to quantify a disallowance;⁵ however, for the
 2 reasons stated in the rebuttal testimonies of Company Witnesses Bednarcik,
 3 Williams, and Lioy, these disallowance recommendations are flawed and
 4 unsupportable.

5 **III. DE PROGRESS HAS MANAGED CCR CONSISTENT WITH**
 6 **INDUSTRY STANDARDS AND ENVIRONMENTAL REGULATIONS.**

7 **Q. DO YOU AGREE WITH INTERVENORS' CRITICISMS OF THE**
 8 **COMPANY'S HISTORICAL CCR MANAGEMENT PRACTICES?**

9 A. Intervenor's rely on hindsight bias to criticize the Company's historical
 10 management of coal ash and support unjust and unjustifiable disallowances.
 11 Hindsight bias pervades Mr. Lucas', Mr. Quarles', and Mr. Hart's testimony.
 12 They apply modern environmental standards to historical practices, they ignore
 13 the discretion afforded to the Company's environmental regulators, and they
 14 cherry-pick data points to draw unreasonable inferences about what the
 15 Company and its regulators should have known or done at multiple points in
 16 time. At the same time, intervenors ignore or dismiss scientific conclusions and
 17 regulatory decisions that do not fit their narrative. The end result is a biased
 18 and unfair presentation, which the Commission should not countenance.
 19 Further, intervenors do not consider the cost, the impact on the Company's
 20 ability to generate affordable electricity, or the evolution of scientific
 21 knowledge and regulatory priorities. Intervenor's criticisms can be reduced to
 22 two general categories:

⁵ For a summary of the AGO's shifting positions between 2017 and this case, please see *DE Carolinas' Opposition to AGO'S Motion to Admit Supplemental Testimony and Motion to Strike the Proffered Testimony of AGO Witness Steven C. Hart*, Docket No. E-7, Sub 1214 (Mar. 10, 2020).

1 1. The Company knew or should have known about the risks of unlined
2 impoundments.

3 2. In response to evidence of actual groundwater impacts, the Company
4 should have conducted more comprehensive groundwater monitoring,
5 should have not used the ash basins to treat other site-generated
6 wastewaters, should have converted to dry ash handling to mitigate
7 potential groundwater impacts, should have ceased using the CCR
8 basins altogether, should have closed its unlined ash basins, or should
9 have taken some other unspecified corrective action to mitigate
10 environmental impacts.

11 My testimony will respond to each of those general criticisms and will
12 demonstrate why intervenors' reliance on 20/20 hindsight is unpersuasive and
13 unreliable.

14 **A. DE Progress' Response to Intervenor's Allegations that It Knew or**
15 **Should Have Known About the Risks of Operating Unlined**
16 **Impoundments.**

17 **Q. AS A THRESHOLD MATTER, WAS IT REASONABLE AND**
18 **PRUDENT FOR THE COMPANY TO CONSTRUCT AND USE**
19 **UNLINED BASINS TO TREAT ASH TRANSPORT WATER?**

20 A. Yes. Not only was the construction of unlined ash basins reasonable and
21 prudent at the time, their continued operation and use after 2010 was also
22 reasonable and prudent. Unlined ash basins, or impoundments, were the
23 accepted approach employed across the power industry at the times when the
24 basins were built. The Company's first ash basins were constructed in the
25 1950s, and its last basin was constructed in 1985 at Cape Fear. This
26 Commission has previously found my testimony instructive with respect to DE
27 Progress' utilization of unlined impoundments: "[a]t the time they were built –
28 between 1956 and 1985 – unlined basins were consistent with the industry

1 standard and considered by the EPA to be the best available control
 2 technology.” 2017 DE Progress Rate Case Order, at 182.⁶ State and federal
 3 environmental regulators have consistently reached the same conclusion, as
 4 Company Witness Marcia Williams will explain in more detail in her rebuttal
 5 testimony.⁷ Initially, ash basins were not regulated under federal or state solid
 6 waste laws. After the passage of the Clean Water Act in 1972, ash basins began
 7 to be regulated as wastewater treatment units. Under this new authority granted
 8 by Congress, the EPA began implementing various pollution control programs,
 9 which included setting wastewater discharge standards for industry and water
 10 quality standards for contaminants in surface waters. However, these
 11 regulations did not apply to groundwater.

12 Under delegated authority from EPA, DEQ and DHEC issued NPDES
 13 permits to the Company. These NPDES permits authorized the Company to
 14 collect CCR-containing water and other wastewaters from the site in surface
 15 impoundments and then, after settling, discharge water from the impoundments

⁶ See also 2019 DENC Rate Case Order, at 124-25 (“[U]nlined impoundments were the accepted repositories for storing CCRs prior to adoption of the CCR Rule, and compliance with the Clean Water Act and NPDES permits for water discharges was generally accepted as meeting the expectations of environmental regulators. Although the Commission does not view regulatory compliance as being prudence *per se*, such compliance is nonetheless evidence that could support a determination of prudence.”).

⁷ Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Steam Electric Power Generating Point Source Category, EPA 440/1-74 029-a (October 1974) at 149 (“Disposal of this quantity of solids from the waste water stream has prompted most utilities to install some sedimentation facility. In many cases, ash settling ponds are used. A typical ash pond is illustrated in Figure A-V-9, which is located in plant no. 211. However, in some cases, because of unavailability of land, aesthetics, or some other reason, utilities have installed more sophisticated materials-handling systems based on the sedimentation process.”); Development Document for Final Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Steam Electric Point Source Category, EPA 440/1-82 029 (November 1982) at 376 (“Wet, once-through systems with ponding are commonly used for ash handling.”).

1 directly to surface waters. DEQ and DHEC renewed NPDES permits
2 approximately every five years.

3 Even before ash basins came under the regulatory purview of EPA and
4 state environmental regulators, state utility regulators were well aware of, and
5 allowed, the continued use of unlined ash basins to store CCR. From 1967 until
6 2009, the Commission had the sole authority to regulate utility dams, including
7 all of the dams that formed DE Progress' ash basins. The Commission did not
8 ignore its responsibility and created a docket (Docket No. E-100, Sub 23) to
9 receive and review inspection reports for each of the Company's ash basins in
10 North Carolina every five years. The inspections were performed by
11 independent engineering consultants with the primary purpose of evaluating the
12 stability and relative safety of each basin. These submissions included analyses
13 of ash basin design and construction documents as well as analyses of data from
14 piezometers measuring the location of the groundwater table and the movement
15 of groundwater in or out of a basin. An important part of each inspection report
16 was also identifying, characterizing, and monitoring seeps that may be
17 emanating from the ash basins. As was the Commission's practice, it would
18 send the inspection reports for review and comment to DEQ, which possessed
19 the requisite expertise. Not once during that time did the Commission or the
20 Public Staff ever determine or opine that the continued use of surface
21 impoundments to store CCR was imprudent.

1 **Q. HOW DO YOU RESPOND TO INTERVENORS' CONTENTION THAT**
2 **DE PROGRESS KNEW OR SHOULD HAVE KNOWN THAT**
3 **UNLINED ASH BASINS POSED A POTENTIAL RISK TO**
4 **SURROUNDING GROUNDWATER AND SURFACE WATER**
5 **QUALITY BY THE 1980s?**

6 A. I do not believe that knowledge of potential impacts is evidence of
7 mismanagement. Certainly, the Company and its environmental regulators
8 were aware that surface impoundments, whether lined or unlined, had the
9 potential to impact surrounding groundwater and surface water in the 1980s.
10 But that general knowledge of potential for impacts does not resolve the crucial
11 issue of whether DE Progress' impoundments actually posed a significant risk
12 to human health or the environment. Most of DE Progress' ash basins were
13 commissioned before 1980. What was also widely accepted at the time was
14 that most impacts were insignificant, if they had materialized at all, and largely
15 depended on regional and other factors. Studies performed in the late 1970s
16 and through the 1980s that were applicable to DE Progress' ash basins showed
17 that impacts from its ash basins followed this trend. Given the absence of
18 evidence, or the likelihood of significant harm, I disagree with intervenors'
19 implication that DE Progress should have taken drastic and expensive measures
20 in response to the *potential* for impacts alone. As I discuss further in Section
21 III.B below, I believe that Mr. Lucas, Mr. Hart, and Mr. Quarles are wrong to
22 suggest that the appropriate response to uncertain and speculative future risks

1 was to take costly or expensive measures to remove unlined ash basins from
2 service, construct alternate wastewater treatment systems, convert to dry fly ash
3 and bottom ash handling, build solid waste landfills, install groundwater
4 monitoring well networks at all sites, or proceed immediately to groundwater
5 corrective action. In my opinion, it would not have been a proportionate
6 response to a potential risk (understood at the time to be minimal), especially
7 given the “evolving body of scientific knowledge over more than 50 years”
8 regarding CCR management and disposal. (*See* Lucas Direct Testimony, at
9 42:18-43:1 (E-2, Sub 1219)). Instead, DE Progress took a proportionate and
10 transparent response by providing information to regulators regarding dam
11 stability, groundwater, and surface water, and taking action in response to
12 actual, known environmental impacts.

13 **Q. DO YOU BELIEVE ANYTHING IS MISSING FROM INTERVENORS’**
14 **TESTIMONY, AND, IF SO, HOW SHOULD THOSE OMISSIONS**
15 **INFORM THE COMMISSION’S ASSESSMENT OF INTERVENORS’**
16 **RECOMMENDATIONS?**

17 A. Yes. Their testimony lacks context and perspective. As Company Witness
18 Williams discusses in her testimony, intervenors imply that DE Progress was
19 operating in a vacuum when it decided to construct and continue operating
20 unlined impoundments. For example, intervenors downplay that DE Progress’
21 environmental regulators, utility regulators, and intervenors themselves were
22 participants in the Company’s long history of coal-fired generation in the
23 Carolinas. Intervenors also do not seem to account for the fact that certain

1 actions that they have proposed would have impacted DE Progress' ability to
2 reliably generate electricity to meet demand and other economic impacts. The
3 Company is at all times balancing multiple – sometimes competing – interests,
4 as well as an ever-changing regulatory environment.

5 The environmental regulatory regime has evolved as scientific
6 knowledge and regulatory priorities have changed. This context is important
7 when evaluating activities spanning decades into the past through today's lens.
8 This evolution is most evident with EPA's approach to regulating CCR, which
9 has ranged from no involvement before the 1970s to its final promulgation of
10 the comprehensive CCR Rule in 2015, over 30 years after it began to study
11 CCR. Company Witness Williams provides a detailed discussion of EPA's and
12 states' history of regulating CCR.

13 **Q. DO YOU HAVE ANY EXAMPLES OF HOW INTERVENORS HAVE**
14 **TAKEN EVIDENCE OUT OF CONTEXT TO REACH MISLEADING**
15 **AND IMPROPER CONCLUSIONS?**

16 A. Yes, I do. Intervenor cherry-pick statements from three reports to argue that
17 DE Progress should have known by the early 1980s that wet storage of CCR
18 posed a risk to groundwater and surface water to suggest that the Company
19 improperly managed its ash basins. What the Company should have done or
20 when the Company should have taken actions in response to these reports is not
21 something that any intervenor witness actually addresses. Regardless,
22 evaluating those documents in their proper context reveals that DE Progress

1 responsibly evaluated the potential risks identified by the reports as it made
2 decisions about its operations.

3 First, Mr. Lucas, Mr. Quarles, and Mr. Hart each cite to the 1979 report
4 “Health and Environmental Impacts of Increased Generation of Coal Ash and
5 FGD Sludges” written by researchers from Arthur D. Little, Inc. and USEPA’s
6 Industrial Environmental Research Laboratory. Although the paper identifies
7 potential risks associated with CCR management, the paper is clear about its
8 conclusions:

9 Environmental impacts are dependent on the characteristics of
10 the disposal site, characteristics of the coal ash and FGD wastes,
11 control method and the degree of control employed. Impacts are
12 site-specific and cannot be easily generalized over a region.
13 Furthermore, the existing regulatory framework, if successfully
14 implemented, should prevent or minimize significant adverse
15 impacts.

16 The paper reiterates that “site-specific impacts could be significant and need to
17 be evaluated on a case by case basis.”

18 In a follow-up to this paper, two of the report’s authors, Chakra J.
19 Santhanam and Charles B. Cooper, performed a site-specific evaluation at Allen
20 as part of the report titled “Full-Scale Field Evaluation of Waste Disposal From
21 Coal-Fired Electric Generating Plants” (also known in this proceeding as the
22 Arthur D. Little study). That report concluded that “[d]ata from the study
23 suggest that no major environmental effects have occurred at any of the six
24 sites.” From this, I conclude that the recommendations of the 1979 Arthur D.
25 Little report were followed at DE Progress’ sites, resulting in the conclusion
26 that the potential impacts identified in the 1979 report had not materialized.

1 Mr. Lucas and Mr. Quarles also cite the 1981 EPRI publication, “Coal
2 Ash Disposal Manual, Second Edition.” (See Lucas Direct Testimony, at
3 41:17-42:9 (E-2, Sub 1219); Quarles Direct Testimony, at 12:1-14:27 (E-2, Sub
4 1219)). This forward-looking document was designed to aid with the
5 development of new CCR management facilities. It does not call for the
6 removal or closure of existing, unlined ash basins. DE Progress’ practice was
7 consistent with this manual: when the Company constructed new CCR
8 management units after the early 1980s, the Company constructed landfills –
9 not unlined ash basins.

10 A third document cited by Mr. Lucas and Mr. Quarles is the 1982 EPRI
11 publication, “Manual for Upgrading Existing Disposal Facilities.” While the
12 1982 manual does provide alternatives to the use of surface impoundments, it
13 does not recommend immediate changes to site waste disposal practices. As
14 stated there,

15 Regulations governing the disposal of utility wastes are in a state
16 of suspension at this time. Congress in the 1980 Amendments to
17 RCRA requested a detailed study of the effects of utility waste
18 disposal practices, and the EPA has a multimillion dollar project
19 under way to address some of the questions. The answers are
20 not expected to be known until late 1983. Until that time there
21 will be no firm design or performance standards applicable to
22 utility waste disposal that can be applied with confidence by the
23 industry. At the present time state standards for nonhazardous
24 wastes, which are also undergoing change, apply to utility waste
25 disposal. *For these reasons it may be premature for any utility*
26 *to embark on a program to update their existing disposal*
27 *facilities.*

28 It is expected that within two or three years, when the federal
29 and state regulations have been put in place, this manual will
30 need to be extensively revised. At that time it may be possible
31 to assess the impact of a given disposal operation using

1 groundwater monitoring results and modeling techniques and to
2 compare the results with specific disposal site performance
3 standards. *Today it is not possible.*

4 (*Id.*) (emphasis added).

5 **Q. IN THE 1970s AND 1980s, WAS THE COMPANY CONDUCTING**
6 **INVESTIGATIONS OF ITS SITES TO EVALUATE POTENTIAL**
7 **GROUNDWATER IMPACTS FROM ITS ASH BASINS?**

8 A. Yes. The Company conducted studies at Mayo, Roxboro, and Sutton in the
9 1970s and 1980s.

10 **Q. HOW DO YOU RESPOND TO INTERVENORS' CONCLUSIONS**
11 **WITH RESPECT TO THE COMPANY'S INVESTIGATION AT**
12 **MAYO?**

13 A. I disagree with Sierra Club Witness Quarles and AGO Witness Hart that the
14 investigation at Mayo should have alerted the Company that its ash basins posed
15 a significant risk that would have justified aggressive actions to change its
16 operations. In 1979, DE Progress hired a licensed engineer specializing in
17 groundwater hydrology to prepare a report titled, "Evaluation of the Potential
18 For Contamination of the Ground-Water Aquifer By Leachate From the Coal-
19 Ash Storage Pond at the Mayo Electric Generating Plant Site." (*See* Quarles
20 Exhibit 7, Docket E-2, Sub 1219) ("1979 Mayo Report"). The 1979 Mayo
21 Report was commissioned to evaluate the potential environmental and human
22 health risks of constructing an unlined ash basin at Mayo, specifically focusing
23 on groundwater impacts. Mr. Quarles cites this report to argue that DE Progress
24 was aware of impacts to groundwater resulting from its ash disposal sites as

1 early as 1979. To serve his purpose, Mr. Quarles omitted the fact that the 1979
 2 Mayo Report supported DE Progress' decision to construct an unlined ash basin
 3 at Mayo in 1983. Due to the nature of the soils in the region, the engineering
 4 firm hired to conduct the study concluded that the proposed ash basin at Mayo
 5 would have no significant adverse impact on groundwater:

6 Soil conditions at the proposed ash pond site at the Mayo Electric
 7 Generating Plant are adequate to provide excellent protection to the
 8 ground-water aquifer both in preventing significant leakage from the
 9 pond and in reducing the concentrations of the heavy minerals by
 10 filtration before the leachate reaches the aquifer. Average permeability
 11 of the natural soil should be in the order of 3×10^{-6} . In those parts of
 12 the ash pond where soil cover over the rocks is thin or absent, such as
 13 at rock outcrops and in the stream channels, special effort must be
 14 made to seal the possible leakage paths with the addition of natural
 15 clay and bentonite. Settlement of ash and sludge will continually
 16 reduce the permeability of the pond bottom with usage...

17
 18 In consideration of the natural action of the soils on heavy minerals in
 19 the leachate, the dilution effects of mixing with the natural ground
 20 water, and the fact that there are no water supply sources or major water
 21 courses for miles downstream from the ash pond dam, it is difficult to
 22 imagine that any significant adverse impact on the ground water aquifer
 23 could be caused by ponding of the ash wastes at the proposed site.

24
 25 (Quarles Exhibit 7, at 14-5) (emphasis added). The same conclusion was
 26 reached in the September 2015 Comprehensive Site Assessment Report after
 27 years of monitoring: "[n]o imminent hazard to human health or the environment
 28 has been identified as a result of COI migration from the ash basin."⁸

29 AGO Witness Hart cites the same report, but, unlike Mr. Quarles, he
 30 states the ultimate conclusion of the report. However, in attempting to prove
 31 that the Company did not adequately respond to known risks, Mr. Hart attempts

⁸ Mayo Comprehensive Site Assessment ("Mayo CSA"), at ES-ii, available at
<https://edocs.deq.nc.gov/WaterResources/DocView.aspx?id=305054&dbid=0&repo=WaterResources>.

1 to second-guess the engineering firm's conclusions. (Hart Direct Testimony, at
 2 69:9 ("This was the report's conclusion despite the fact that...")). Mr. Hart
 3 does not go so far as to suggest that DE Progress should not have relied on the
 4 conclusions in the report to support its decision-making. Instead, Mr. Hart
 5 states that it is "unknown" whether the Company followed the 1979 Mayo
 6 Report's recommendation to seal areas of thin soil cover where there are rock
 7 outcrops. That information is known and was available to Mr. Hart.

8 Publicly available documents show that the recommendation was
 9 followed. Design and construction documents included with the History of
 10 Construction Report for the Mayo ash basin include a specification for sealing
 11 rock outcrops with impervious soil:

12
 13 7. ALL ROCK OUTCROPS WITHIN THE POND AREA SHALL
 14 BE SEALED WITH A COVER OF COMPACTED
 15 IMPERVIOUS FILL MATERIAL. THE COVER SHALL
 16 HAVE A MINIMUM THICKNESS OF 3 FEET.

17 "All rock outcrops within the pond area shall be sealed with a cover of
 18 compacted impervious fill material. The cover shall have a minimum
 19 thickness of 3 feet."⁹

20 The 1979 Mayo Report demonstrates that DE Progress was responsive
 21 to DEQ's concerns and devoted the necessary resources to investigate a site
 22 *before* constructing the ash basin at Mayo. Following DE Progress'
 23 investigation, DEQ authorized construction of the ash basin based on the
 Company's designs and issued an NPDES permit to the Company allowing it
 to sluice ash to the basin.

⁹ See Duke Energy Coal Combustion Residuals Management Program, prepared on behalf of Duke Energy Progress, LLC by AECOM (October 12, 2016), available at <https://www.duke-energy.com/media/pdfs/our-company/ash-management/ccr-may-hist-con.pdf?la=en>.

1 **Q. WHAT DID THE INVESTIGATION AT ROXBORO REVEAL, AND**
2 **DID THE COMPANY RESPOND APPROPRIATELY TO THOSE**
3 **FINDINGS?**

4 The 1979 Mayo Report cites to another groundwater study that was performed
5 a year earlier at DE Progress' Roxboro plant. The ash pond at Roxboro was
6 constructed in 1966 and, like the Mayo plant, was located in the Piedmont
7 Region of North Carolina. The 1978 Roxboro Study sampled groundwater
8 wells down-gradient of the ash pond and also collected a sample of well water
9 from a residence 2500 ft. away from the ash basin. "With the exception of zinc
10 and copper, all tested constituents were below the limits of detection." These
11 results reinforced that the naturally occurring clay soils in the region "can give
12 essentially complete protection against the trace elements that occur in ash pond
13 sludge." (*Id.* at 12-3.)

14 **Q. HOW DO YOU RESPOND TO MR. HART'S CHARACTERIZATION**
15 **OF DE PROGRESS' STATE OF KNOWLEDGE OF GROUNDWATER**
16 **CONCERNS WITH REGARD TO SUTTON?**

17 A. I disagree with each of the conclusions that Mr. Hart draws from his review of
18 historical documents relating to Sutton. Mr. Hart alleges that the Company's
19 response to issues at Sutton establish that "by the mid-1980s, DEP was aware"
20 that:

21 1. "DEQ had significant concerns about the presence of groundwater
22 contamination from coal ash basins.
23

- 1 2. Bottom liners were a potential method to minimize the potential for
2 groundwater impacts.
3
4 3. If concentrations of compounds were elevated from a coal ash pond but
5 did not exceed the groundwater standards, they were of concern to DEQ
6 and needed to be evaluated further.”¹⁰

7 Regarding Mr. Hart’s first point, I disagree with his implication that
8 DEQ viewed the unique facts that faced the Company at Sutton as being
9 representative of the entire fleet. I also believe that Mr. Hart has overstated
10 DEQ’s concern with respect to groundwater issues at Sutton.

11 Mr. Hart suggests that DEQ had concerns about groundwater impacts
12 from the unlined ash basin as early as 1978; yet, the Environmental
13 Management Commission (“EMC”) approved the construction of a larger,
14 unlined ash basin at Sutton in 1983. Only *after* the EMC’s approval of the
15 unlined landfill did the neighboring property owner, Hercofina, bring its earlier
16 concerns about chloride levels in its groundwater wells to DEQ’s attention.
17 After extensive meetings with Hercofina, DE Progress agreed to construct the
18 new ash basin with a clay liner and submitted those revised plans to the EMC
19 for approval. As reflected in DEQ’s records, the agency’s concern in 1978 was
20 with the cooling pond (Sutton Lake), not the ash basin. (*See* Hart Direct Exhibit
21 24B, at 105 (E-2, Sub 1219)). When DEQ did express “significant concern”
22 about potential groundwater impacts from the Old Ash Basin – which was in
23 1984, not 1978 – DEQ also provided steps that DE Progress could take to
24 assuage those concerns. (*Id.* at 44-5). Specifically, DEQ requested “that action

¹⁰ (Hart Direct Testimony, at 72:10-18).

1 be taken by [DE Progress] to establish existing groundwater quality prior to any
2 of the proposed modifications or expansions proposed.” (*Id.*) DE Progress
3 responded by installing the requested groundwater monitoring wells in 1984.

4 DEQ approved the revised plans to construct the new, lined ash basin,
5 and made groundwater monitoring a condition of that approval. However, DEQ
6 did not require DE Progress to take any action to install a liner, close, or remove
7 ash from the Old Basin when it reached capacity. Nor did it apply these
8 requirements to all ash basins across the state. In fact, the groundwater
9 monitoring plan reflects that the agency’s primary concern in 1989 was still the
10 cooling pond. In August of 1986, DE Progress added a new intake structure to
11 allow the cooling pond to draw water from farther upstream in the Cape Fear,
12 which allowed the company to maintain lower chloride concentrations in the
13 pond. In 1989, the groundwater monitoring plan approved by DEQ stated,

14 The Director and the permittee agree that maintenance of the
15 above stated total dissolved solids and chlorides
16 concentration in Lake Sutton should result in a reduction in
17 total dissolved solids and chlorides concentrations in
18 groundwaters at the permittee’s perimeter of compliance.
19 The new groundwater monitoring wells should enhance the
20 capabilities of the Director and the permittee to evaluate the
21 impact of the above required actions on groundwater quality.

22 (Wells Rebuttal Exhibit 1, 1989 Sutton Groundwater Monitoring Plan).

23 DE Progress installed additional wells in 1986 and 1990. In 1995, DEQ
24 actually scaled back the monitoring requirement to once a year. By then, the
25 Company was sampling for arsenic, chloride, iron, selenium, total dissolved
26 solids, water level and pH. All sampling results were shared with DEQ. While
27 supposedly having significant concerns about groundwater contamination,

1 DEQ allowed DE Progress to continue diverting wastewaters to the Old Ash
2 Basin and continue sluicing ash to the New Ash Basin. At the same time, DEQ
3 did not require DE Progress to reline, excavate, or close the Old Ash Basin and
4 authorized DE Progress to expand the New Ash Basin in the early 2000s.
5 Sutton is a prime example of DE Progress working with its regulators and its
6 neighbors to develop focused strategies to address their concerns while also
7 maintaining the Company's ability to generate affordable energy for its
8 customers.

9 Regarding Mr. Hart's second point, I agree that liners may slow the rate
10 at which contaminants can leach into groundwater, but liner technology in the
11 1980s would not necessarily prevent leaching altogether. As the 1988 EPA
12 Report indicates, liner use in surface impoundments was becoming more
13 prevalent in the mid-1980s. The most common liners at the time were clay and
14 synthetic. Depending on the location of the impoundment, the effect of clay
15 liners could be achieved naturally (i.e. Mayo and Roxboro) or by bringing clay
16 from offsite (i.e. New Ash Pond at Sutton). Under the CCR Rule and CAMA,
17 DE Progress is required to close all of its ash basins, whether they are lined or
18 unlined. At Sutton, the Company is required excavate ash from the unlined and
19 lined ash basins. At Mayo, the Company must excavate the entire ash basin.
20 And at Roxboro, the Company must excavate all ash from the West Ash Basin
21 and most of the ash from the East Ash Basin. Had the Company retrofitted all
22 of its unlined ash basins with liners in the 1980s in response to the issues facing
23 Sutton, as Mr. Hart and Mr. Quarles suggest should have occurred, the

1 Company may have been in the same position today of having to close all and
2 excavate most of its basins. In that situation, costs would not be lower for
3 customers, as Mr. Hart suggests, they would be higher, since costs to retrofit
4 the basins would not have avoided today's costs. That, of course, assumes that
5 the Commission would have approved such drastic, costly, and operationally
6 disruptive measures absent any regulatory directive from EPA or DEQ.

7 In fact, the EMC considered, but did not require, DE Progress to install
8 a liner in the Old Ash Basin at Sutton when it approved the plans for the New
9 Ash Basin. DE Progress would have had no basis for going to the Commission
10 to ask customers to pay for a liner at the unlined basin at Sutton, let alone at
11 other sites when DEQ was not even requiring liners for *new* ash basins. For
12 example, the same year DEQ approved a new lined ash basin at Sutton and
13 required groundwater monitoring as a condition of its approval, DEQ approved
14 the construction of an unlined basin at Cape Fear and did not require
15 groundwater monitoring as a condition of its approval. (Wells Rebuttal Exhibit
16 2, 1984 Authorization to Construct Cape Fear). It is understandable that Mr.
17 Hart, who has no prior experience with regulatory matters before this
18 Commission, failed to recognize the practical implications of his opinions.

19 Regarding Mr. Hart's third conclusion, I disagree that DEQ had a
20 general concern about DE Progress' ash ponds causing elevated levels of
21 contaminants in groundwater that would have justified investigations mirroring
22 those at Sutton. It was DEQ that made groundwater monitoring a condition of
23 its approval to construct the New Ash Pond. DE Progress submitted those

1 results to DEQ, which are the same results that were made available to Mr. Hart
2 in this case. DEQ was aware that DE Progress operated six other coal-fired
3 plants with ash ponds in the state. At that time a separate company, DE
4 Carolinas (then Duke Power) operated seven coal-fired plants in the state with
5 ash basins. Yet by 1990, DEQ only required DE Progress to conduct
6 groundwater monitoring as a condition of operating its basins at Sutton and
7 Weatherspoon. DE Progress was also collecting and submitting groundwater
8 data to DEQ at Roxboro beginning in 1987 related to its construction of the
9 onsite landfill. DE Progress voluntarily collected and submitted groundwater
10 data for all sites beginning in 2006. Yet, DEQ did not make groundwater
11 monitoring mandatory for all sites with ash basins until after 2009. The urgency
12 and alarm that Mr. Hart is projecting on DEQ simply did not exist.

13 **Q. MR. QUARLES SIMILARLY DRAWS CONCLUSIONS ABOUT THE**
14 **STATE OF THE COMPANY'S KNOWLEDGE BASED ON ACTIONS**
15 **TAKEN AT SUTTON. DO YOU AGREE WITH THOSE**
16 **CONCLUSIONS?**

17 A. No. Mr. Quarles argues that the "1983 investigation regarding contaminant
18 migration from Sutton and its decision to construct a new ash basin with a liner
19 in order to meet proposed groundwater regulations was a warning sign and early
20 indication that unlined surface impoundments leaked and presented risks to
21 groundwater quality. The Company's failure to take action to end disposal of
22 coal ash in unlined basins was unreasonable." This position would have been
23 extreme and unsupportable 37 years ago. After compiling and analyzing years

1 of data about coal ash basins, the EPA in its 1988 report to Congress did not
2 advocate for ceasing use of unlined basins. To the contrary, EPA concluded
3 that “current waste management practices [including unlined ash basins] appear
4 to be adequate for protection of human health and the environment.” (1988
5 EPA Report, at 7-11). Even today under the CCR Rule and CAMA, utilities
6 are not required to immediately cease operating unlined ash basins.

7 As discussed above, the conditions at Sutton were not representative of
8 the Company’s entire fleet. For example, DEQ was aware that the volume of
9 groundwater that Hercofina was pumping to support its operations was altering
10 the groundwater flow and likely contributing to the chloride levels in its wells.
11 No other DE Progress site is located next to an industrial facility that draws
12 millions of gallons of groundwater per year. Further, had the Company
13 transitioned to lined disposal using existing technology in the 1980s as a knee-
14 jerk response to Sutton, the Company would very likely be in the same position
15 that it is in today. In order to comply with the CCR Rule and CAMA, the
16 Company is closing and excavating its clay-lined basin at Sutton.

17 **Q. OVERALL, WHAT CONCLUSIONS SHOULD BE DRAWN FROM**
18 **THE COMPANY’S OWN STUDIES IN THE CONTEXT OF EPA’S**
19 **BROADER INVESTIGATIVE EFFORT?**

20 A. The Company’s ash basins did not represent a significant risk to human health
21 or the environment that would justify taking drastic and costly measures to
22 prematurely close and eliminate the use of ash basins.

23 **B. DE Progress’ Response to Intervenor’s Allegations that the**
24 **Company Should Have Been More Proactive in Evaluating and**

**Responding to Groundwater Impacts from Its Ash Basins By
Taking Remedial Actions Earlier.**

**Q. HOW DID DE PROGRESS' ENVIRONMENTAL REGULATORS
RESPOND TO POTENTIAL RISKS FROM UNLINED ASH BASINS?**

A. As I mentioned above, DEQ developed groundwater monitoring rules for North Carolina in 1979, but those rules were not specific to ash basins. When the 2L rules' corrective action requirements were later promulgated in 1984, North Carolina developed a process by which historical treatment ponds, such as ash basins, would be phased in to corrective action when necessary. This approach is expressly stated in the Hearing Officer's Report¹¹ associated with the adoption of the relevant corrective action requirements, which states:

3. Will Pits, Ponds, and Lagoons that are part of an NPDES permitted facility be in violation of these regulations?

Our NPDES permittees overall do a good job of mitigating their environmental impacts, and we have no reason to suspect that wholesale violations of the standards exist in these facilities. However, it is probable that some violations do exist where facility construction predated the groundwater standards. When NPDES permits come up for renewal, their groundwater impacts will be analyzed, and some facility modifications may be required. In the interim, we will work with these and other groundwater dischargers through the compliance schedule procedure.

Throughout the next two decades, DE Progress expanded its groundwater monitoring program to other sites, both voluntarily and as required by DEQ- and DHEC-issued NPDES permits. Consistent with DEQ's phased

¹¹ Hearing Officer's Report and Recommendations: Groundwater Regulations, at 8 (1983).

1 approach to implementing groundwater monitoring assessments, monitoring
2 was not required at all sites at the same time.

3 **Q. WHAT ACTIONS HAS THE COMPANY TAKEN OVER TIME TO**
4 **EVALUATE POTENTIAL GROUNDWATER IMPACTS FROM ITS**
5 **ASH BASINS?**

6 The Company took measured steps, in coordination with its environmental
7 regulators, to assess the potential risks from its ash basins and then made
8 decisions on the basis of the information it developed. Groundwater regulations
9 did not come into effect in South Carolina until 1977 and in North Carolina
10 until 1979. DE Progress' ash basins had been properly and legally operating
11 for years, and in some cases decades, before the adoption of any regulatory
12 requirements related to groundwater corrective action.

13 That said, the Company did not ignore the risk of groundwater
14 contamination. In 1978, a year before North Carolina promulgated
15 groundwater regulations, DE Progress initiated a groundwater study at Roxboro
16 to evaluate impacts to groundwater from its 12-year old unlined ash basin.
17 (Quarles Exhibit 7 (E-2, Sub 1219). A year later, DE Progress commissioned
18 a study to evaluate potential groundwater impacts from a yet-to-be-built unlined
19 ash basin at Mayo. The studies of the existing ash basin at Roxboro and the
20 proposed ash basin at Mayo indicated to the Company that its unlined ash basins
21 in North Carolina did not pose a substantial threat to groundwater quality or
22 human health.

1 The Company would have also been aware of industry efforts, such as
2 the monitoring that was conducted at Allen on behalf of the EPA beginning in
3 1981, which are discussed earlier in my testimony. Allen “was selected as being
4 representative of the Piedmont region and the combined ponding of fly and
5 bottom ash. The site was also selected to investigate Duke Power’s practice of
6 treating boiler cleaning waste in the ash basin.” (*Id.* at 31). The EPA later
7 relied on Arthur D Little, Inc.’s report’s scientific contributions to support its
8 findings and conclusions in its 1988 “Report to Congress, Wastes from the
9 Combustion of Coal by Electric Utility Power Plants” (“1988 EPA Report”).

10 In 1991, EPRI published a study, “Comanagement of Coal Combustion
11 By-Products and Low-Volume Wastes: A Southeastern Site.” (*See* Hart Exhibit
12 15 (E-2, Sub 1219)). EPRI’s study focused on potential groundwater impacts
13 from an ash basin in the Piedmont Region. As Mr. Hart notes, DE Progress’
14 “Asheville, Cape Fear, Mayo, and Roxboro facilities located in the Piedmont
15 and Blue Ridge Regions of North Carolina have similar geology as that
16 described in the 1991 study.” (Hart Direct Testimony, at 56:7-9). Mr. Hart
17 cherry-picks certain data from the report in his testimony, but fails to include
18 the reports major conclusion with respect to groundwater:

19 “Effects of the L-site ash-disposal ponds on downgradient
20 groundwater chemistry are limited to relatively small
21 increases in the concentrations of a few common chemical
22 species. No statistically significant increase in
23 concentrations of ash-derived metals was found in
24 downgradient groundwater, and no measurable impact on
25 river water chemistry was detected.”

26
27 (*See* Hart Exhibit 15 – Part 2, at 82 of 100).
28

1 Based on DE Progress' internal studies, the Arthur D Little, Inc.'s study,
2 the 1988 EPA Report to Congress, and the 1991 EPRI Study, it was reasonable
3 for the Company to conclude that continuing wet disposal of coal ash would
4 have no significant impact on groundwater at DE Progress sites. Thus, while
5 the Company may have been aware in the 1980s that unlined impoundments, in
6 general, could potentially impact groundwater, there was no substantial
7 evidence showing that there was significant impacts resulting from *DE*
8 *Progress' facilities*. Where potential offsite impacts were identified, such as at
9 Sutton, the Company responded appropriately to address those concerns. Any
10 reflexive reaction to the EPRI reports would have also been premature, given
11 EPA's conclusion in 1988 "that current waste management practices [including
12 unlined ash basins] appear to be adequate for protection of human health and
13 the environment." (1988 EPA Report, at 7-11).

14 The Company began monitoring groundwater at Sutton in 1984.
15 Groundwater monitoring was required by DEQ-issued NPDES permits for
16 Sutton and Weatherspoon (both in the Coastal Plain Region) beginning in 1990.
17 However, in 2000, based on the groundwater monitoring data provided by the
18 Company for Weatherspoon, DEQ allowed the "temporary closure of the
19 monitoring wells around the lagoon and no further groundwater monitoring at
20 this time." (Wells Rebuttal Exhibit 3, 2000 Barnhardt Letter). Additionally,
21 the Company began to monitor groundwater at Roxboro in 1987 in conjunction
22 with the construction of the ash landfill. For the remaining sites, the Company
23 began to voluntarily monitor groundwater around 2006 through its participation

1 in an industry-wide effort to provide regulators more data to evaluate potential
2 groundwater impacts from ash basins. DE Progress installed wells
3 approximately at the review boundaries of the ash basins and provided results to
4 the Department. At the time, the Department took no action with respect to that
5 monitoring. Although the monitoring did indicate some exceedances of
6 groundwater standards, they were primarily the standards associated with
7 naturally occurring conditions—iron, manganese, and pH. The data did not
8 reflect a pattern of ash constituents migrating out from the landfills at levels
9 that posed a significant risk to the environment or human health.

10 In 2008, after the TVA dam failure, the Department became more
11 interested in the monitoring results and asked the Company to resubmit all of
12 its monitoring data. The Department subsequently began systematically adding
13 groundwater requirements to NPDES permits as they were reissued or
14 modified.

15 As additional data became available and both the Company's and
16 DEQ's understanding of groundwater impacts matured, the Department issued
17 a policy memo, dated June 17, 2011, titled "The Policy for Compliance
18 Evaluation of Long-Term Permitted Facilities with No Prior Groundwater
19 Monitoring Requirements" ("2011 DEQ Policy").¹² The memo included a
20 detailed flow chart dictating the steps to be taken by the Department and the
21 utilities upon the identification of a groundwater exceedance near a coal ash

¹² N.C. Dept. of Env't and Nat'l Res., Policy for Compliance Evaluation of Long-Term Permitted Facilities with No Prior Groundwater Monitoring Requirement (June 17, 2011).

1 pond. Those steps included, but were not limited to: (1) verifying the accuracy
 2 and significance of the results of the groundwater testing; (2) determining
 3 whether and to what extent the identified substance could be naturally
 4 occurring; and (3) evaluating other possible sources of the identified
 5 substance.¹³ After these steps were completed, and it was determined that a
 6 particular exceedance may have been caused by migration of water from coal
 7 ash ponds, the 2011 DEQ Policy dictated that the parties work together to
 8 develop a corrective action plan in accordance with 15A N.C.A.C. 2L.0106.¹⁴
 9 DE Progress continued working with the Department under this policy until it
 10 was eventually superseded by CAMA's groundwater assessment and corrective
 11 action procedures.

12 **Q. DO YOU AGREE WITH INTERVENORS' CRITICISM THAT THE**
 13 **COMPANY DID NOT DO ENOUGH TO EVALUATE**
 14 **GROUNDWATER IMPACTS RESULTING FROM ITS ASH BASINS?**

15 A. No. I will note that intervenors' testimony on this issue was all over the map.¹⁵
 16 Mr. Lucas argued that the Company should have implemented comprehensive
 17 groundwater monitoring at all of its sites in the 1980s but did not do so until
 18 after 2000. (Lucas Direct Testimony, at 45:23-46:2 (E-2, Sub 1219)). Mr. Hart,
 19 on the other hand, criticizes the Company for not installing more wells, but does

¹³ *Id.*

¹⁴ *Id.*

¹⁵ See 2017 DE Progress Rate Case Order, at 317-18 ("The Commission deems the various Intervenor theories for remediation cost disallowance "all over the map" and deficiently inconsistent. With so much disagreement over what DEC should have done or is doing to comply with EPA requirements and CAMA, the Commission determines that insurmountable obstacles exist to quantify the alleged offsets that are a fundamental element to Intervenor's disallowance theory.")

1 not state when the wells should have been installed. (Hart Direct Testimony, at
2 162:16-9 (E-2, Sub 1219)). Similarly, Mr. Quarles testified that the Company
3 should have performed additional groundwater monitoring but did not provide
4 any timeframe for when the Company should have taken such action. (Quarles
5 Direct Testimony, at 6:11-12 (E-2, Sub 1219)).

6 As discussed above, DE Progress initiated studies at Roxboro and Mayo
7 in the late 1970s to evaluate groundwater impacts from older and new ash
8 basins. In 1984, the Company voluntarily began groundwater monitoring at
9 Sutton. This study followed an EPA study that collected additional
10 groundwater data beginning in 1981 from another North Carolina ash basin.
11 The results of those investigations showed that groundwater near DE Progress'
12 ash basins did not present a significant risk that warranted expansive
13 monitoring.

14 Notwithstanding its regulatory authority – and with this same
15 information and data in hand – DEQ *did not* impose a blanket groundwater
16 monitoring requirement for all of DE Progress' sites. Instead, DEQ *gradually*
17 added groundwater monitoring requirements to the Company's NPDES permits
18 over a span of two decades, beginning in 1990. Groundwater sampling data
19 was submitted to DEQ, and DEQ possessed the expertise to evaluate that data
20 and the authority to require additional monitoring or other corrective action, if
21 deemed necessary. Had DEQ determined that DE Progress should have begun
22 groundwater monitoring at all of its sites earlier, DEQ certainly had the
23 regulatory authority to include groundwater monitoring as a condition in all of

1 DE Progress' NPDES permits at any time after 1984. Instead, monitoring
2 requirements were first added to the Company's NPDES permits in 1990, and
3 it was not until 2010 that DEQ required groundwater monitoring at all of the
4 Company's ash basins. As this Commission concluded in DE Carolinas' 2017
5 Rate Case,

6 "[d]etermining the number and placement of monitoring
7 wells, not an inexpensive endeavor (Tr. Vol. 26, p. 92), is an
8 inexact science. The prevalent and cost-effective process is
9 to install monitoring wells iteratively to best identify harmful
10 groundwater contamination. Tr. Vol. 26, pp. 92-93."

11 2017 DE Carolinas Rate Case Order, at 264.

12 Considering the results of the Company's participation in voluntary
13 studies and given that DEQ was still developing its groundwater monitoring
14 regime as of 1984, it is not reasonable for Mr. Lucas to suggest that the
15 Company should have implemented groundwater monitoring networks at all of
16 its sites in the 1980s, or at some undefined point in time as Mr. Quarles and Mr.
17 Hart suggest. DEQ's iterative approach to implementing groundwater
18 monitoring requirements, as well as the findings in the Arthur D. Little, Inc.
19 report, particularly in the context of the evolving body of law, scientific
20 understanding, and public policy, support my position that implementing
21 system-wide groundwater monitoring all at once would have been
22 unreasonable.

23 Further justification for this approach is found in EPA's evaluations of
24 these sites in the 1990s. In 1980, DE Progress submitted applications for
25 permits under RCRA Part A, which would have allowed the plants to treat,

1 store, and dispose of hazardous waste. Although the plants did not at that time,
2 and had no plans to, handle hazardous waste, the Company was unsure whether
3 future operations might generate hazardous waste and submitted the
4 applications as a precaution. The Company did not pursue permits, but, because
5 of the applications, the sites were added to EPA's Emergency and Remedial
6 Response Information System (ERRIS) database and scheduled for Preliminary
7 Assessments.

8 In 1985, the North Carolina Department of Human Resources, Division
9 of Health Services, conducted Preliminary Assessments of Asheville, Cape
10 Fear, H.F. Lee, Mayo, Roxboro, Sutton, and Weatherspoon. The Preliminary
11 Assessments identified the sites as "Low Priority" for additional site inspections
12 to "address on-site ash disposal areas for the presence of heavy metals." The
13 site inspections were subsequently carried out by NUS Corporation on behalf
14 of EPA in 1989 and 1990. Based on the site inspections, in 1995 and 1996,
15 EPA classified all sites except Sutton as "No Further Remedial Action Planned"
16 ("NFRAP"), s stated in the decision letter for Mayo.

17 Even if this Commission disregards DEQ's and EPA's expertise and
18 judgment based on available information at that time, Mr. Lucas', Mr. Quarles',
19 and Mr. Hart's hindsight positions are flawed because they do not provide
20 sufficient standards or guidelines with which to establish what type of
21 monitoring program should have been established. The Public Staff has
22 admitted that developing a "well network for each site depends on the specific
23 characteristics of that site." (Wells Rebuttal Exhibit 1, Public Staff Response

1 to DR (E-7, Sub 1214)). No intervenor is able to explain precisely when or to
2 what extent the Company should have taken further action to monitor
3 groundwater.

4 Mr. Hart faulted DE Carolinas for not achieving a *voluntary* goal to
5 implement groundwater monitoring at all of its sites by 2006 as part of its
6 participation in the USWAG Action Plan. (Hart Direct Testimony, at 9:10-18;
7 Ex. 13 (E-7, Sub 1214)). In this case, Mr. Hart criticizes DE Progress for not
8 working “with the regulatory agency to further assess conditions and, as needed,
9 develop corrective action programs. Instead, DEP submitted the data to DEQ
10 without evaluation or responsive action.” (Hart Direct Testimony, at 160:8-16.)
11 Mr. Hart’s contention that DE Progress did not do enough to work with its
12 regulator to respond to the groundwater data it was submitting is wrong.

13 As an initial point, Mr. Hart did not fully discuss the timeline of the
14 USWAG Action Plan. The Action Plan was submitted to EPA in November
15 2006, but the plan was not intended to be binding immediately on the utility
16 participants. Rather, it was understood that each utility would determine the
17 timing of its participation. Thus, the plan identifies an “Effective Date” as six
18 months after the date on which the participant notified USWAG of its
19 agreement to participate in the Plan with respect to a facility. DE Progress
20 submitted its notification in December 2007. Although it had begun resampling
21 existing wells and installing additional wells in preparation to participate,
22 December 2007 was the date of its formal commitment to the Plan. As
23 previously promised to the Department, DE Progress initially provided notice

1 only of exceedances of groundwater standards. In the fall of 2008, following a
2 site visit at Cape Fear, the Department asked DE Progress to submit all of the
3 monitoring data. DE Progress did so for all further sampling events, continuing
4 to flag exceedances if and when they were identified. In March 2009, the
5 Department requested resubmission of the complete data set and well maps,
6 which DE Progress did on April 30, 2009. After receiving the resubmitted data,
7 the DEQ spent a number of months consulting with the Attorney General's
8 Office regarding questions concerning the interpretation of the 2L corrective
9 action rules as they related to the Company's coal ash basins, virtually all of
10 which were constructed or permitted before December 30, 1984. DEQ also
11 held joint meetings with DE Progress and DE Carolinas over the summer to
12 coordinate on a strategy to further evaluate groundwater quality at the
13 companies' sites. Ultimately, in December 2009, DEQ directed DE Progress
14 to install additional wells at the compliance boundary, which the Company did.
15 By placing the Company's actions in the proper context, it becomes clear that
16 DE Progress complied with its obligations under the USWAG Action Plan. In
17 fact, at a meeting with DEQ on July 23, 2009, DEQ staff told the companies
18 that "when asked by the public, the [Aquifer Protection Section] had
19 commended [DE Progress and DE Carolinas] for volunteering this groundwater
20 monitoring program and maintaining a productive working relationship with
21 the agency." (Wells Rebuttal Exhibit 4, 2009 Meeting with DEQ).

22 As Mr. Hart well knows, determining the source, extent, and scope of
23 groundwater contamination at complex sites requires collecting many years of

1 reliable data before developing corrective actions can even be considered. If
2 the risks posed by the potential source of the contamination are high, a regulator
3 may accelerate the assessment timeline. On the other hand, if the risks are less
4 urgent, a regulator may allow for a more methodical and gradual assessment
5 process. DEQ and DE Progress worked together over the course of several
6 years to evaluate this issue and develop a plan to address it. Considering that
7 groundwater around DE Progress' ash basins did not pose a significant risk to
8 human health or the environment, it was appropriate for DE Progress to follow
9 the timeline set by DEQ.

10 As Mr. Hart may not be aware, DE Progress did approach DEQ where
11 groundwater data showed that further investigation was needed. In 2008,
12 groundwater data at Sutton showed exceedances of boron at the compliance
13 boundary. DE Progress alerted DEQ to this data and initiated an investigation
14 to better understand the data. The subsequent investigation involved two
15 phases: Phase I, involving temporary wells, was submitted to DEQ on February
16 11, 2011, and Phase II, involving permanent wells, was submitted on August 2,
17 2012. After that investigation, DEP agreed with the agency to defer further
18 work while the company developed a plan for basin closure. DEP also worked
19 proactively with the Cape Fear Public Utility Authority ("CFPUA") to address
20 its concerns about the possibility of migration of constituents from the ash
21 basins to CFPUA's water supply wells. In 2013, CFPUA detected boron in its
22 well. Based on the Phase I and Phase II investigations, CFPUA became
23 concerned that boron was travelling to its well from the Sutton ash basins,

1 contacted the Department, and proposed to install additional monitoring wells
2 on DE Progress property. In response, DE Progress acknowledged the concerns
3 and worked with CFPUA to remove the water supply wells from service and
4 connect to an alternative water supply line. Subsequent investigation has
5 indicated that boron is not travelling from the pond in the direction of the well,
6 but DE Progress timely action in this case reassured members of the public
7 about the quality of their water supply, avoided a dispute over data
8 interpretation, and preserved a positive relationship with a neighboring utility.
9 Consistent with its history, the company took targeted action to resolve a
10 specific concern.

11 I further disagree with Mr. Hart's criticisms of DE Progress' evaluation
12 of the data it collected from its voluntary efforts. Hart acknowledges that the
13 primary constituents of concern were originally iron and manganese. He
14 understands that these two constituents were listed by EPA as secondary MCLs,
15 meaning that they were of concern primarily due to aesthetic considerations
16 (e.g. taste and odor). He then asserts that this fact is irrelevant to North
17 Carolina's 2L groundwater standards. He is correct that their status as
18 secondary MCLs does not have bearing on whether the North Carolina
19 groundwater standard is exceeded, but he is incorrect in suggesting that this
20 status was irrelevant to the decision-making process. They are clearly relevant
21 to the risk profile associated with the basins and the urgency with which those
22 exceedances needed to be addressed. Migration around the basins of
23 ubiquitous, naturally occurring groundwater constituents identified by EPA as

1 secondary MCLs did not pose a high risk of injury to human health or the
2 environment. It follows that they did not call for the same type of approach that
3 might have been justified for a different type of constituent.

4 I would also note that Mr. Hart's review of historical groundwater trends
5 was only possible because DE Progress collected so much groundwater
6 monitoring data, first voluntarily and later in collaboration with DEQ. The
7 trends that Mr. Hart identified in the data can be seen in the complete data set,
8 but it took time to develop that data set. It took time to review the data and
9 determine which wells were best suited for use as background wells, and it took
10 time for DE Progress and DEQ to decide where to put additional wells to
11 develop the kind of information that would ultimately be useful for a trend
12 analysis. For that reason, I disagree with the implication in Mr. Hart's
13 testimony that DE Progress should have reached in 2005 all of the conclusions
14 he reached in 2020.

15 **Q. DO INTERVENORS IDENTIFY GENERAL ACTIONS THE**
16 **COMPANY SHOULD HAVE TAKEN IN RESPONSE TO THE**
17 **POTENTIAL FOR OR EVIDENCE OF GROUNDWATER IMPACTS**
18 **FROM THE COMPANY'S ASH BASINS?**

19 A. Yes. But in my view the intervenors' criticisms are extreme, inconsistent, and
20 non-specific. Mr. Lucas' testimony cites studies from the 1980s and contends
21 that the Company "failed to improve and modernize its practices despite the
22 available knowledge..." (Lucas Direct Testimony at 45:19-21 (E-2, Sub
23 1219)). However, Mr. Lucas does not articulate the specific actions the

1 Company should have taken, other than vague “comprehensive” groundwater
2 monitoring, where the Company should have taken those actions, or when the
3 Company should have acted.

4 Mr. Hart identifies actions that he contends could have been taken to
5 minimize groundwater contamination, including “converting to dry fly ash and
6 bottom ash handling (if not done already), removing ash from the basin on a
7 frequent basis, eliminating wastewater streams and hydraulic loading from non-
8 coal ash sources, removing the ash and installing a bottom liner, lowering the
9 water level and/or dewatering the pond to decrease hydraulic loading, and
10 ultimately pond closure.” (Hart Direct Testimony, at 90:13-8 (E-2, Sub 1219)).
11 Like Mr. Lucas, Mr. Hart’s testimony does not state where or when the
12 Company should have taken any or some of these.

13 Mr. Quarles takes the position that it was unreasonable to *even operate*
14 an unlined basin after the 1980s (Quarles Direct Testimony, at 27:12-13 (E-2,
15 Sub 1219)), and that it should have begun “transition[ing] away from wet
16 handling and disposal of coal ash much sooner.” (*Id.* at 27:23-28:1). Like Mr.
17 Lucas and Mr. Hart, Mr. Quarles does not identify with enough specificity
18 discrete actions or omissions that constitute mismanagement by the Company.

19 **Q. DO INTERVENORS SUBSTITUTE THEIR JUDGMENT FOR THE**
20 **EXPERTISE AND INFORMED DECISIONS OF DE PROGRESS’**
21 **ENVIRONMENTAL REGULATORS?**

22 A. Yes. Mr. Lucas, Mr. Hart, and Mr. Quarles argue that DE Progress should have
23 ignored the expertise of its environmental regulators and its consultants to

1 varying degrees by prematurely installing extensive groundwater monitoring
2 wells at all sites, converting to dry ash handling, ceasing operation of ash basins,
3 installing liners, installing alternative wastewater treatment, building landfills,
4 and/or other measures to overhaul its CCR management practices. Throughout
5 the decades in question, DE Progress was open and transparent with its
6 regulators, sharing its findings and conclusions, and worked with them to
7 continue to provide reliable, efficient, and cost-effective electricity. I disagree
8 that intervenors' hindsight opinions in this case should be substituted for the
9 judgment of the environmental regulators charged with such oversight,
10 particularly without the requisite expertise, experience, or knowledge that the
11 regulatory agencies possessed.

12 Regarding groundwater monitoring, the Public Staff has admitted that
13 its theory substitutes its judgment for that of environmental regulators:

Request:

2-56. Please state whether it is the Public Staff's contention that DEC should have installed groundwater monitoring wells beyond those required in its various permits. If so, please state the basis for this contention.

Response:

Yes, it is. Please see Junis Testimony pages 49-53.

14 (See Wells Rebuttal Exhibit 1, Public Staff Response to DE Progress' DR (E-
15 7, Sub 1214)). The Public Staff takes this position even though it is not an
16 environmental regulator. In short, the Public Staff is not only advocating for
17 the Commission to take a "fresh look" at the Commission's own decisions, it is

1 advocating for the Commission to take a fresh look at the decisions of separate,
2 independent regulatory agencies.

3 Mr. Hart argues that the Company should have made sweeping changes
4 to its ash basins, yet I did not see where he has experience in CCR ash basin
5 management, including designing, recommending, or implementing the
6 changes for which he advocates.¹⁶

7 Likewise, Mr. Quarles argues that the Company should have completely
8 overhauled its management of CCR sometime in the past, yet cites to no prior
9 experience, other than his involvement in the Company's recent rate cases,
10 where he has studied the management of CCR in ash basins or potential
11 environmental impacts resulting therefrom.

12 Intervenors do not contend that DE Progress, North Carolina, or South
13 Carolina were outliers by using or permitting the use of unlined basins, nor
14 could such contentions be reasonably made given well-published facts about
15 coal power generation practices at that time.

16 **Q. WOULD IT HAVE BEEN REASONABLE FOR DE PROGRESS TO**
17 **TAKE ANY OF THESE OTHER DRASTIC REMEDIAL MEASURES**
18 **SUGGESTED BY INTERVENORS AT ALL OF ITS SITES?**

19 **A.** No. A one-size-fits-all approach to CCR management was never the industry
20 or regulatory standard in North Carolina or South Carolina. In the absence of
21 any environmental or regulatory justification at a particular site and given the

¹⁶ (Wells Rebuttal Ex. 2, AGO Response to DE Progress' DR 2-1 (Docket E-7, Sub 1214)).

1 information before the Company over the time period in question, overhauling
2 its operations at all of its sites would not have been economically justified or
3 reasonable. The fact that intervenors do not even agree as to what actions could
4 or should have been taken in the past reinforces my point.

5 The Commission concurs. In its Order issued in DE Carolinas' 2017
6 Rate Case, the Commission concluded,

7 "[t]he best evidence of the difficulty in determining what
8 DEC should have done, when it should have done so and
9 what the cost should have been prior to 2015 is the
10 significant dispute that arises in this case over what DEC
11 should have done, when it should have done so and what the
12 costs should be with respect to the actual 2015-2017 costs.
13 DEC actually incurred these costs in its efforts to comply
14 with EPA CCR and CAMA published standards and
15 requirements undertaken under NC DEQ's supervision and
16 guidance. Parties to this case hotly dispute where
17 replacement repositories should be constructed, when and
18 how CCRs should have been transported, and which CCRs
19 should have been designated for beneficial reuse.

20
21 Consequently, the Commission determines that efforts to
22 recreate the past as no party has been able to do so is a
23 fruitless endeavor that the Commission is unable and
24 unwilling to undertake. "

25
26 2017 DE Carolinas Rate Case Order, at 264-5. Intervenors' evidence of the
27 Company's purported knowledge is irrelevant unless intervenors can, at a
28 minimum, explain the specific actions that should have been taken in response
29 to that knowledge, provide a concrete schedule for implementing those actions,
30 and quantify the direct and secondary costs of those actions. No intervenor
31 witness attempts to make this showing.

1 Q. DO YOU AGREE THAT THE COMPANY SHOULD HAVE
2 CONVERTED ALL OF ITS SITES TO DRY ASH HANDLING
3 EARLIER?

4 A. No. Because this recommendation ignores the regulatory context, as well as
5 Duke Energy's efforts to understand and manage environmental risks
6 associated with these sites. From a regulatory perspective, in November 1982,
7 EPA promulgated effluent limitations guidelines for the steam electric point
8 source category. As reflected in the associated Development Document, EPA
9 considered requiring power plants to install dry fly ash and bottom ash handling
10 equipment but decided against it for existing plants. With respect to fly ash
11 handling, EPA concluded that "the high cost of retrofitting [did] not justify the
12 additional pollutant reductions."¹⁷ As stated above, North Carolina
13 promulgated rules for groundwater corrective action but publicly stated that it
14 did not expect significant groundwater contamination around ash basins.
15 Moreover, for most of the 1980s, the industry expected EPA to take some action
16 to regulate CCR under RCRA, although the nature of that action was unknown.
17 In 1988, EPA issued its report concluding that regulation of CCR was not called
18 for at the time. That report was followed by formal regulatory action in 1993.
19 Given the lack of a regulation requiring dry ash handling or evidence indicating
20 actual, significant impacts from ash basins, there was no point during this period

¹⁷ *Development Document for Final Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Steam Electric Point Source Category*, Effluent Guidelines Division, Office of Water and Waste Management, USEPA, at 496 (1982).

1 at which it would have made sense for DE Progress to take on the significant
2 expense of switching to dry fly ash or dry bottom ash handling at all facilities.

3 That said, DE Progress did convert to dry ash handling when it was
4 warranted by evidence of environmental impacts. For example, Roxboro
5 converted to dry fly ash handling in the late 1980s as part of an effort to address
6 surface water quality impacts in Hyco Lake.

7 By 2000, EPA was again considering the need for regulation of CCR
8 under RCRA Subtitle D, but the direction was unclear. EPA was working with
9 the industry, as represented by the Utility Solid Waste Action Group, to
10 determine whether the agency's concerns could be addressed through a non-
11 regulatory approach. As reflected in the USWAG Action Plan, the agency's
12 concern at the time was that "the utility industry consider dry handling
13 technology prior to constructing new landfills or surface impoundments to
14 manage fly ash." DE Progress participated in the Action Plan in part by joining
15 the voluntary initiative to install groundwater monitoring around the basins.
16 EPA eventually finalized these regulations in the form of the CCR Rule in 2015.
17 It would not have made sense for DE Progress to take on the cost and effort of
18 converting to dry fly ash and dry bottom ash handling, which would have
19 required the construction of a landfill to receive the ash, at a time when EPA
20 was still developing the requirements both for the continued use of ash basins
21 and the construction of new landfills.

1 **Q. DO YOU AGREE WITH THE CONTENTION THAT THE COMPANY**
2 **SHOULD NOT HAVE USED THE ASH BASINS TO TREAT OTHER**
3 **WASTEWATERS AT THE SITE?**

4 A. No. Mr. Hart criticizes the Company's use of ash basins to treat other process
5 wastewater generated at its facilities, suggesting that these wastewaters
6 increased groundwater contamination. (Hart Direct Testimony, at 14:2-10 (E-
7 2, Sub 1219)). I believe that Mr. Hart's criticisms are without merit for several
8 reasons.

9 First, the effect of Mr. Hart's argument here is that the Company should
10 not be able to rely on the NPDES permits that were issued by DEQ and DHEC.
11 As Mr. Hart acknowledges, the Company's introduction of waste streams, in
12 addition to sluiced CCR, to its unlined ash basins was only done after it received
13 explicit authorization from DEQ and DHEC to do so. (*Id.* at 51:9-52:12). The
14 waste streams placed in the basins were classified by EPA as "low volume
15 wastes." Under the effluent limitations guidelines in place before 2015, surface
16 impoundments were classified as "Best Available Technology" for this waste
17 stream. As reflected in EPA's 2013 proposed rule amending the effluent
18 limitation guidelines, handling of these waste streams was the common practice
19 in the industry. EPA's data indicate that 54 percent of the power plants that
20 generated FGD wastewater at the time used surface impoundments as the sole
21 treatment technology for the wastewater, while an unstated percentage above
22 that used surface impoundments in conjunction with another treatment method.

1 Most of the 54 percent combined their FGD wastewater with other waste
2 streams.

3 Second, Mr. Hart fails to give due consideration to the fact that several
4 waste streams were introduced to the Company's ash basins as a direct result of
5 compliance with other environmental regulations. For example, the Company
6 installed various air pollution control devices to comply with increasingly
7 stringent air emissions standards under the Clean Air Act at certain facilities.
8 Mr. Hart does not suggest an alternative to complying with emissions standards,
9 nor does he suggest how the additional waste streams resulting from the control
10 devices should have been handled differently.

11 Finally, Mr. Hart fails to demonstrate how groundwater conditions
12 would be different at any site or how the Company's closure strategy under
13 federal or state law would be any different had the Company not introduced
14 those waste streams to the ash basins as permitted.

15 **Q. DO YOU AGREE THAT THE COMPANY SHOULD HAVE CEASED**
16 **USING OR CLOSED ITS UNLINED ASH BASINS EARLIER?**

17 A. No. This is another example of intervenors substituting their judgment for that
18 of DE Progress' environmental regulators. There was no environmental
19 impetus to stop using or close the Company's ash basins at an earlier date. As
20 Company Witness Marcia Williams discusses in her testimony, the regulatory
21 uncertainty created by the EPA's draft CCR Rule in 2010 meant that closure
22 before 2014 would have been premature and financially irresponsible.

1 Far from operating in a vacuum, DE Progress' CCR facilities have been
2 actively regulated by DEQ and DHEC to minimize potential impacts to human
3 health and the environment. This has included reviewing decades-worth of
4 surface and groundwater data from DE Progress' sites and other CCR facilities.
5 Neither DEQ nor DHEC ever ordered DE Progress to cease using or to close
6 any of its ash basins before 2014. Nor did the agencies require DE Progress to
7 complete any of the following less sweeping measures:

- 8 • DE Progress' environmental regulators did not require the Company
9 to retrofit its existing impoundments with liners;
- 10 • DE Progress' environmental regulators did not require the Company
11 to close impoundments that no longer received CCR, and,
- 12 • DE Progress' environmental regulators did not require the Company
13 to excavate CCR from its existing impoundments.

14 DE Progress' environmental regulators, equipped with the same data and
15 studies that have been produced to and which are available to intervenors in this
16 case, did not see a sufficient environmental justification for requiring the
17 Company to overhaul its CCR management practices or cease operating unlined
18 basins altogether. To the contrary, DE Progress' regulators continued
19 authorizing the Company to operate its unlined ash basins.

20 That said, DE Progress did plan ahead to comply with new federal
21 regulations when it became clear that EPA intended to adopt a CCR rule. The
22 Company's 2006 20-Year CCP Management Plan was developed around the
23 assumption that plants would be required to switch to lined basins or dry ash

1 handling by 2010. As a result of this planning, Mayo upgraded its dry fly ash
2 handling system in 2009 and began the process of developing an on-site landfill.
3 In 2013, Mayo converted to dry bottom ash handling, in conjunction with
4 installation of the new FGD wastewater treatment. Similar conversions were
5 not planned for Cape Fear, H.F. Lee, and Weatherspoon, as those coal-fired
6 units were scheduled to retire within the decade and additional CCR storage
7 capacity was not needed.

8 It was not until 2009 that DEQ begin to consider requiring DE Progress
9 to formally close ash basins, and even then it was only contemplated for sites
10 that were retiring their coal-fired units. Mr. Hart correctly states that DE
11 Progress was developing a closure plan for Weatherspoon beginning in 2011.
12 (Hart Direct Testimony, at 80:7-9.) He then goes on to “note” that the Company
13 did not complete a closure plan for Weatherspoon until 2015, (*id.* at 9-10),
14 implying that there was an unreasonable delay. However, Mr. Hart buries the
15 lede by failing to mention that both the CCR Rule and CAMA were passed in
16 2014. These laws changed the regulatory landscape for the Company and
17 caused it to reevaluate its closure strategy for Weatherspoon. The Company
18 now had to coordinate and balance its development of closure strategies for all
19 of its ash basins, not just those at retired sites.

20 **Q. DO YOU AGREE WITH WITNESS HART’S CONTENTION THAT**
21 **LACK OF CONFIDENCE IN THE COMPANY “PROMPTED**
22 **REQUIREMENTS THAT DEP TAKE MORE EXTENSIVE AND HIGH**

1 **COST APPROACHES, SUCH AS THE HIGH-COST BENEFICIATION**
 2 **REQUIREMENT””?¹⁸**

3 A. No. I am not aware of any statement by regulators or members of the General
 4 Assembly that the requirement to beneficiate coal ash was prompted by a lack
 5 of confidence by regulators and the public. Based on my reading of CAMA
 6 and the beneficiation report produced by the Coal Ash Management
 7 Commission, beneficiation was considered a positive opportunity to recycle
 8 coal ash as a marketable product and to divert it from landfills. CAMA’s
 9 beneficiation requirement is also consistent with EPA’s decision not to regulate
 10 CCR as hazardous waste in the CCR Rule in order to encourage recycling
 11 opportunities.

12 North Carolina is not alone in its support for beneficiation opportunities.
 13 Last year, Virginia passed legislation that will require DENC to beneficiate a
 14 percentage of the CCR that will be excavated from its basins. Well before
 15 CAMA was passed, South Carolina utilities installed the same beneficiation
 16 technology that is now being deployed at H.F. Lee and Cape Fear. Considering
 17 this context, I do not see how CAMA’s beneficiation requirement could be
 18 viewed as a punishment to the Company.

19 **IV. THE EXISTENCE OF GROUNDWATER EXCEEDANCES AND SEEPS**
 20 **NEAR ASH BASINS IS NOT EVIDENCE OF MISMANAGEMENT.**

21 **Q. DO YOU AGREE WITH MR. LUCAS’ CONCLUSION THAT**
 22 **EXCEEDANCES OF GROUNDWATER STANDARDS ARE AN**

¹⁸ (Hart Direct Testimony, at 166:3-5 (E-2, Sub 1219)).

1 **INDICATION THAT DE PROGRESS HAS MISMANAGED ITS ASH**
2 **BASINS?**

3 A. No. Impacts to groundwater around ash basins are not the result of
4 mismanagement. The existence of groundwater exceedances at or beyond the
5 compliance boundaries at these sites is a function of where these sites are on
6 the timeline of groundwater assessment and corrective action under modern
7 laws that have changed the way that unlined basins are viewed. As these views
8 have changed, the Company has taken every action required by the DEQ and
9 DHEC to address groundwater impacts as they have been identified. Further,
10 in studying ash basins and developing the CCR Rule, the EPA was aware that
11 the design of ash basins had resulted in groundwater concerns throughout the
12 industry; however, EPA determined that immediately closing basins, which
13 would require shutting down operating coal plants, would be more harmful to
14 the human health and environment than taking a measured approach.¹⁹

15 Under the 2L rules, an owner/operator must report an exceedance and
16 work with DEQ to determine whether it was due to permitted activity, assess
17 the extent of the exceedance, and undertake corrective action. A violation of a
18 2L standard and exceedances, in and of themselves, are not evidence of
19 mismanagement, wrongdoing, or environmental harm. The existence of past
20 and present groundwater exceedances reflects historical construction practices
21 and the evolution of groundwater assessment and corrective action under

¹⁹ See 80 Fed. Reg. 21302, 21423 (Apr. 17, 2015) (recognizing that “the risks to the wider community from the disruption of power over the short-term outweigh the risks associated with the increased groundwater contamination from continued use of leaking or improperly sited CCR units”).

1 modern laws. An exceedance is a data point that informs whether and to what
2 extent further study is required to assess potential risk. This is a complex and
3 highly technical task that takes into account many different factors and simply
4 triggers additional investigation and potential corrective action. The Company
5 has worked with DEQ and complied with this process, and the Commission
6 found my testimony instructive in the 2017 Rate Case Order and acknowledged
7 that “when the predecessor to DEQ promulgated the corrective action
8 provisions of the 2L Standards, it acknowledged that groundwater surrounding
9 many existing permitted facilities was likely to exhibit some exceedances of the
10 2L standards through no fault of the facility owner.” 2017 Rate Case Order at
11 182.

12 A better way to measure the severity of groundwater contamination is
13 to look at the impacts to human health and safety and the environment. By
14 those measures, groundwater contamination around DE Progress’ ash basins is
15 not severe. Groundwater contamination at these sites does not threaten human
16 health and safety. Groundwater contamination does not threaten wildlife or
17 create a risk of harm to adjacent rivers and lakes. Surface water assessments
18 were conducted as part of the site assessment/corrective action process. The
19 exceedances are almost entirely confined to DE Progress’ property, close to the
20 basins.

1 **Q. WAS THE EXISTENCE OF SEEPS AT DE PROGRESS' ASH BASINS**
2 **INDICATIVE OF MISMANAGEMENT?**

3 A. No. All earthen dams, including those that create ash basins, are prone to the
4 movement of liquid through porous features within those structures through a
5 process known as seepage. Such seepage is common, expected, and, to a
6 degree, necessary to maintain the stability of an earthen dam or dike wall;
7 otherwise they become saturated, which may reduce margins of safety with
8 respect to their structural integrity. Certain of DE Progress' CCR
9 impoundments feature engineered toe drains within the dam structures to collect
10 seepage. Where these toe drains discharge to surface waters, DE Progress
11 included these discharges in its 2014 NPDES permit applications. The
12 characteristics of these wastewater flows are similar to those discharging from
13 other permitted outfalls for ash basin effluent, although the flows are orders of
14 magnitude lower. Each of DE Progress' coal ash wastewater treatment facilities
15 also exhibit areas of wetness at locations adjacent to, but beyond the confines
16 of, the coal ash basins where seepage, often intermixed with groundwater, has
17 reached the land surface, and sometimes flows from that area. These areas of
18 wetness can be manifested as isolated stagnant areas, the point of origin of a
19 stream feature, the contribution of flow to a permitted outfall or historical
20 stream feature, or flow to an existing surface water. Such seeps often exhibit
21 no or low flow volume and may be both transient and seasonal in nature.

1 **Q. PLEASE EXPLAIN THE HISTORY OF STATE AND FEDERAL**
 2 **REGULATION OF SEEPAGE FROM DE PROGRESS' CCR**
 3 **IMPOUNDMENTS.**

4 A. DEQ and the Commission were aware of seeps from DE Progress' ash basins
 5 since well before the development of the CCR Rule and the passage of CAMA.
 6 DEQ dam safety regulations specifically address seepage.²⁰ However, DEQ
 7 did not consider them to be a priority for NPDES permitting. In his deposition
 8 as DEQ's Rule 30(b)(6) witness on surface water permitting, Sergei Chernikov
 9 explained DEQ's decision not to devote resources to permitting seeps:

10 [T]he decision was made in terms of the resource allocation
 11 whether or not the effort to permit [seeps] would give enough
 12 return in terms of the protection of the environment. The seep
 13 permitting present unique challenge that we have encountered
 14 during the last several years and many states have as well. All
 15 the NPDES programs are still struggling on this issue.

16 The decision was made that it was not high priority since the
 17 composition of the seeps is similar to the effluent from the ash
 18 ponds, but the concentration of the constituents is substantially
 19 lower because of the filtering through the dam and typically the
 20 combined seep discharge from the ash ponds.

21 We are trying to evaluate and protect the entire receiving water
 22 body. The most impact is from the ash pond that has anywhere
 23 from 5 million gallons per day to 18 million gallons per day. If
 24 there is some additional discharges that are less than one percent
 25 of that the representative discharge from the ash pond would
 26 basically present the entire impact for the given facility on the
 27 environment.²¹

28 In 2010, the EPA instructed states with delegated authority to issue
 29 NPDES permits that seeps from earthen impoundments should be addressed as

²⁰ 15A NCAC 02K .0207 Seepage Control.

²¹ Transcript, Deposition of Sergei Chernikov, State of North Carolina v. Duke Energy Progress, LLC, No. 13-CVS-11032 (Wake County Superior Ct. Nov. 27, 2016), at 34-35.

1 part of the NPDES permitting process. Subsequently, DE Progress engaged
 2 with DEQ to determine the appropriate approach to address seeps, and the
 3 Company began including them in permit applications. However, there did not
 4 appear to be agreement between EPA and DEQ on how to do so until well after
 5 2014. Mr. Chernikov explained the challenge DEQ faced:

6 North Carolina is probably one of the first – if not the first – states
 7 in the nation that is trying to permit seeps. It presents a very
 8 unique challenge to regulators that have very substantial
 9 implications to the entire NPDES wastewater program as seeps
 10 exist in numerous states. Setting a precedent requires a
 11 substantial effort and consultation with EPA. There have been a
 12 lot of discussions trying to come up with a strategy to
 13 accommodate seeps into NPDES wastewater permits.

14 Lagoons are used as wastewater discharge systems by many
 15 industries. We have agriculture which uses lagoons. Most of
 16 them are non-discharge systems. We have some municipalities
 17 that still have lagoons; although our state do [sic] not have many
 18 of those – relatively few. Many of the states have a significant
 19 number of such lagoons. There are water treatment plants that
 20 have lagoons to treat sludge or temporary storage sludge. We
 21 believe that many of those lagoons would have seeps. If we are
 22 required to permit seeps for Duke Energy we might have to
 23 permit seeps for other facilities and that's one of the reasons why
 24 EPA have been involve to a great extent because the decision and
 25 guidance they give us might force them to give similar guidance
 26 to other states that will require very substantial effort on the part
 27 of the states and EPA if we have to permit all the seeps.²²

28 In 2014, DE Progress conducted a survey (as required by CAMA) of
 29 each coal-fired generation station to identify potential unauthorized discharges
 30 from seepage from the coal ash surface impoundments. Given the difficulty in
 31 discerning which, if any, of the identified seeps were point source discharges
 32 and the need for regulatory clarity, DE Progress conservatively included all

²² *Id.* at 39, 44-45.

1 areas of wetness (“AOWs”) identified around the basins and submitted
2 applications to include those AOWs in NPDES permits. Beginning in 2015,
3 DE Progress implemented semi-annual surveys to identify any new seep
4 discharges. Additional areas of wetness have been observed and documented
5 during these surveys and reported to DEQ pursuant to a Discharge Identification
6 Plan. Further, additional investigation determined that not all of areas identified
7 in 2014 are seeps.

8 **Q. HAVE DEQ AND THE COMPANY REACHED AGREEMENT AS TO**
9 **HOW TO ADDRESS SEEPAGE FROM THE IMPOUNDMENTS IN**
10 **CONNECTION WITH THE NPDES PERMITTING PROGRAM?**

11 A. Yes. Some of DE Progress’ coal ash impoundments contain engineered
12 features on or within the dam structures (such as toe drains or filter blankets) to
13 collect seepage. This wastewater is conveyed via a pipe or a constructed
14 channel directly to a receiving water. DEQ determined that these discrete,
15 identifiable, point source discharges are or will be covered and regulated by the
16 respective NPDES permits and designated as outfalls therein, and all are now
17 covered in the more recently issued permits. The characteristics of these
18 wastewater flows are similar to those discharging from other permitted outfalls
19 for ash basin effluent. Such features are referred to as “engineered seeps” or
20 “constructed seeps.” Seeps that do not convey wastewater via a pipe or
21 constructed channel directly to a receiving stream are referred to as “non-
22 engineered” or “non-constructed” seeps.

1 DEQ and DE Progress have now entered into a series of special orders
 2 by consent (“SOCs”) to address seeps at DE Progress’ stations acknowledging
 3 that:

4 Non-constructed seeps at the Duke Energy Facilities often exhibit
 5 low flow volume and may be both transient and seasonal in
 6 nature, and may, for example, manifest as an area of wetness that
 7 does not flow to surface waters, a point of origin of a stream
 8 feature, or flow to an existing stream feature. These
 9 circumstances of the non-engineered seeps make them difficult to
 10 discern, characterize, quantify and/or monitor as discrete point
 11 source discharges. This creates challenges in permit development
 12 and compliance monitoring because it is difficult to accurately
 13 monitor for flow and discharge characterization.²³

14 Because decanting (i.e., removal of the free water on the surface of the coal ash
 15 basins), which is required before ash basins can be closed, is expected to
 16 substantially reduce or eliminate the seeps, the SOC provides regulatory clarity
 17 and certainty as to the appropriate monitoring frequency, parameters to be
 18 sampled and limits with respect to the non-engineered seeps, while requiring
 19 the Company to accelerate the schedule for decanting water from the basins.
 20 After completion of decanting, any remaining seeps will be addressed in the
 21 corrective action or closure plans under CAMA.

22 **V. MR. LUCAS HAS MISCHARACTERIZED THE NUMBER OF 2L**
 23 **VIOLATIONS THAT THE COMPANY HAS RECEIVED SINCE THE**
 24 **COMPANY’S 2017 RATE CASE.**

25 **Q. MR. LUCAS ALLEGES THAT “THE NUMBER OF 2L VIOLATIONS**
 26 **HAS INCREASED BY 4,554, OR 159%, SINCE MY TESTIMONY IN**

²³ Special Order by Consent, EMC SOC WQ S18-005 (August 16, 2018) (covering Mayo and Roxboro). This language also appears in the SOC’s for the Company’s other sites.

1 **THE LAST DEP RATE CASE.”²⁴ DO YOU AGREE WITH THIS**
2 **CHARACTERIZATION?**

3 A. No. As I explained earlier in my testimony, the number of measured
4 exceedances, even if upon assessment they constitute violations, are not
5 indicative of mismanagement or imprudence. Instead, sample data indicating
6 violations trigger corrective action to further analyze or address the
7 groundwater impacts. Under the CCR Rule and CAMA, closure of all of the
8 Company’s ash basins had already been triggered before the 2017 Rate Case
9 was filed and the triggering factor was not groundwater impacts.

10 Mr. Lucas’ allegation regarding an additional number of 2L violations
11 is disingenuous, because he implies that these “violations” are a result of actions
12 or inactions by the Company since the 2017 Rate Case. In other words, Mr.
13 Lucas suggests that DE Progress’ compliance record has gotten worse since
14 2017. This is misleading.

15 The increase in sample results that Mr. Lucas deems “violations” is the
16 result of the fact that intensive monitoring at the sites has continued since 2017.
17 In some cases, new wells have been installed since 2017. Additionally, the
18 location of compliance boundaries has changed, so that some wells were
19 reclassified as being located “at or beyond a compliance boundary.” The
20 purpose of the ongoing monitoring is to help the Company and its regulators
21 better understand site specific conditions to develop appropriate corrective
22 actions. The additional wells have achieved that purpose. For example, DE

²⁴ (Lucas Direct Testimony at 73:15-7 (E-2, Sub 1219)).

1 Progress retained the consulting firm Arcadis to perform trend analysis on the
2 wells at these sites. The trend analysis used several different methods to
3 determine whether concentrations of constituents in individual wells are
4 increasing, decreasing, or stable. Based on this evidence, the characteristics of
5 groundwater contamination around the ash basin remains similar to what we
6 saw in 2017.

7 Furthermore, merely counting the number of exceedances does not
8 provide an accurate picture of what is happening at the site. New wells were
9 often added in areas already known or suspected to be within a groundwater
10 plume. This is standard practice and was done intentionally to more precisely
11 delineate the plume boundary. Both old and new wells were sampled repeatedly
12 in this two-year period; in some cases, the same wells were sampled twice in
13 one day. When the same well is resampled during the same day or even months
14 later, and both results are above the groundwater standard, it does not mean that
15 conditions have worsened. Similarly, a site that samples the same well two
16 times a year is not two times worse than if it sampled that well just once a year.
17 Rather than indicating mismanagement, DE Progress' comprehensive
18 assessment demonstrates responsible actions that enable the Company and its
19 regulators to better understand the impacted areas and drive appropriate
20 corrective action. Mr. Lucas' position leaves the Company in an untenable
21 position. He seeks to punish the Company for prudently meeting its CCR Rule
22 and CAMA obligations to collect groundwater samples to characterize
23 groundwater impacts. If the Company had not complied with the CCR Rule

1 and CAMA by reducing the number of wells drilled or samples collected to
2 avoid Mr. Lucas' criticism, the Company would be vulnerable to legal
3 challenges for violating those regulations.

4 **Q. DO YOU AGREE WITH MR. LUCAS' COMPARISON OF THE**
5 **COMPLIANCE RECORDS OF DE PROGRESS AND DENC?**

6 A. No. I do not. I do not have an opinion about DENC's compliance record, and I
7 do not have a basis for comparing it with DE Progress. However, Mr. Lucas'
8 testimony suggests he is equally unjustified in offering an opinion. First, his
9 conclusion is explicitly based on his lack of understanding of DENC's
10 environmental record. As he states on page 82, lines 6 through 10 of his
11 testimony, "the Public Staff has evidence of thousands of groundwater
12 violations for DEP, whereas the number of Dominion groundwater exceedances
13 is lower, and evidence of violations is less clear due to a different state
14 regulatory framework and poor recordkeeping on the part of Dominion." From
15 this statement, it appears Mr. Lucas is basing his opinion on the number of DE
16 Progress violations and DENC violations of which the Public Staff has
17 evidence. However, he acknowledges that the Public Staff does not have
18 complete evidence, partly because the Public Staff does not clearly understand
19 the Virginia regulatory framework and partly because the Public Staff purports
20 to not have complete information about DENC's environmental record. By this
21 logic, DE Progress' compliance record could have been improved if DE
22 Progress had done a poorer job with recordkeeping or performed less
23 comprehensive monitoring.

1 Second, a direct comparison between DE Progress and DENC is clearly
2 inappropriate. The two companies have a different number of power plants and
3 ash basins and have installed a different number of wells. Under these
4 circumstances, comparing the number of exceedances provides very little
5 information about historical compliance with environmental laws and
6 regulations. In my opinion, it does not justify the conclusion Mr. Lucas reaches.

7 **VI. THE COMPANY IS DILIGENTLY WORKING WITH STATE**
8 **REGULATORS TO IMPROVE ENVIRONMENTAL CONDITIONS AT**
9 **ITS CCR FACILITIES.**

10 **Q. HOW HAVE CONDITIONS AROUND THE ASH BASINS CHANGED**
11 **SINCE YOUR LAST TESTIMONY IN 2017?**

12 A. Since 2017, DE Progress has made substantial progress to address seeps and
13 groundwater around the ash basins. The effort has transformed the way the coal
14 sites look and operate and provided a unique insight into environmental
15 conditions at these sites. The success of this effort is something about which
16 the Company is rightfully proud.

17 The Company has gained its long-sought regulatory clarity and
18 coverage by addressing seeps through NPDES permits and SOC's with the DEQ.
19 NPDES permits for Asheville (issued November 8, 2018), Cape Fear (issued
20 August 30, 2018), and Weatherspoon (issued August 3, 2018) authorize
21 discharges from constructed seeps (e.g., toe drains). Those sites, along with
22 Mayo, Roxboro, and H.F. Lee, are all covered by SOC's that provide compliance
23 schedules for addressing the remaining non-constructed seeps by accelerating
24 the timeline for removal of water from the basins.

1 In accordance with CAMA and the schedule in the SOCs, DE Progress
2 has completed decanting²⁵ at Asheville, Cape Fear, H.F. Lee, Roxboro, and
3 Weatherspoon. Decanting at Mayo began on June 27, 2019.

4 In another significant development, last December, DE Carolinas
5 submitted to DEQ groundwater Corrective Action Plans (“CAPs”) for Mayo
6 and Roxboro. The CAPs were the culmination of a major effort to describe the
7 important aspects of these sites. The CAPs include extensive descriptions of
8 site conditions, major modelling efforts for each site, determinations of
9 background threshold values (BTVs), Human Health and Ecological Risk
10 Assessments, and evaluations of potential surface water impacts, among other
11 things. In light of this substantial body of work, we have great confidence in
12 our understanding of site groundwater dynamics and in our ability to address
13 groundwater conditions through appropriate corrective action.

14 Another very significant milestone in the coal ash arena was DE
15 Progress’ submission of closure plans in December and the settlement
16 agreement announced by Duke Energy, DEQ, and environmental groups in
17 early January. Closure plans are not the primary subject of my testimony and
18 are addressed by Company Witness Bednarcik in her testimony. I mention them
19 here because basin closures are a significant milestone evidencing the great

²⁵ Under the approach developed by DEQ and DE Progress, “decanting” is the removal of standing water in the basin. Although there is variability from site to site, decanting typically ends when the water level in the basin reaches three feet above the ash. After that point, further removal of water is called “dewatering” and is subject to additional restrictions because the water has been in closer contact with settled ash.

1 progress the Company is making in conjunction with the efforts of its
2 environmental regulators and other stakeholders.

3 Finally, since 2017, DE Progress has completed the excavation and
4 closure of basins at Sutton and made significant progress toward that goal at
5 Asheville. The Sutton site completed excavation of the 1971 Ash Basin on June
6 14, 2019 and the 1984 Ash Basin on June 24, 2019. Sutton also began
7 excavation of the LOLA on July 9, 2019, and remains on track to complete that
8 project by June of this year. At Asheville, construction is underway on a
9 landfill to receive the remaining CCR in the 1964 Ash Basin (the 1982 ash basin
10 was closed in September 2016). The site is currently conditioning and
11 stockpiling ash within the basin so that it will be ready for placement when the
12 landfill is complete.

13 In short, DE Progress is addressing basin closure and groundwater
14 assessment/corrective action as anticipated by CAMA and the CCR Rule. This
15 process has demonstrated why premature closure or retrofitting of basins would
16 have been unreasonable without sufficient regulatory guidelines or impetus.
17 Ash basins are large, permitted wastewater treatment units, and DE Progress
18 operated its ash basins consistent with its permits for decades. They served
19 power plants with very little leeway for downtime, meaning that efforts to
20 transition to new ash handling equipment and treatment units had to be carefully
21 planned and executed. Changes to NPDES permits were carefully planned and
22 coordinated with DEQ to accommodate developing construction schedules.
23 Assessment of groundwater in association with closure requires installation of

1 a large number of wells, as well as an understanding of groundwater flow and
2 contaminant fate and transport over a large area. After the passage of CAMA
3 and even with decades of earlier data, it took DE Progress and DEQ over five
4 years of sustained effort to decide what kinds of information were necessary to
5 support decision-making, and to collect the information and present it in the
6 form of corrective action plans. DE Progress has been successful in this effort
7 because it had a clear mandate in the CCR Rule and CAMA, dedicated and
8 skilled employees, effective regulators in DEQ and DHEC, and financeable and
9 regulatory stability.

10 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

11 **A. Yes.**

1 MR. MARZO: Commissioner Clodfelter, I
2 also ask that Mr. Wells' summary, which was
3 provided to parties previously as required by the
4 Commission's orders also be entered into the record
5 as if given orally here today.

6 COMMISSIONER CLODFELTER: Without
7 objection, so ordered.

8 (Whereupon, the prefiled testimony
9 summary of James Wells was copied into
10 the record as if given orally from the
11 stand.)
12
13
14
15
16
17
18
19
20
21
22
23
24

**Duke Energy Progress, LLC
Summary of Rebuttal Testimony of James Wells
Docket No. E-2, Sub 1219**

I am the Vice President – Environmental Health and Safety, Programs and Environmental Services for Duke Energy Progress, LLC. My rebuttal testimony responds to the testimonies of the Public Staff witness Charles Junis, Attorney General’s Office witness Steven Hart, and Sierra Club witness Mark Quarles.

The purpose of my rebuttal testimony is to respond to intervenors’ unfounded criticisms of the Company’s historical coal ash management practices and allegations that those practices resulted in environmental violations and harm. My rebuttal testimony demonstrates that the Company has appropriately responded to the evolving scientific developments and knowledge regarding the management of coal ash. The Company has consistently and transparently worked in lockstep with its environmental regulators and industry partners to manage coal ash in compliance with regulatory and industry standards. At the same time, the Company has balanced its obligation to provide reliable, cost-effective energy for its customers. The Commission should not adopt the same intervenor theories that it previously rejected, because they were deemed unfairly punitive, biased, and unsupportable.

This concludes my summary of my rebuttal testimony.

1 Q. Ms. Williams, would you state your name and
2 business address for the record.

3 A. (Marcia E. Williams) Marcia Williams. My
4 business address is 2029 Century Park East,
5 Los Angeles, California 90067.

6 Q. By whom are you employed and in what
7 capacity?

8 A. I am employed by Nathan Advisors, which is an
9 international consulting firm, and I'm senior vice
10 president.

11 Q. Thank you, Ms. Williams. And did you cause
12 to be prefiled in this docket, rebuttal testimony
13 consisting of 134 pages?

14 A. Yes, I did.

15 Q. And did you also cause to be filed an errata
16 sheet identifying certain corrections to that
17 testimony?

18 A. Yes, I did.

19 Q. And can you tell me what you corrected on
20 your errata sheet?

21 A. Yes. I corrected several small typos, but
22 then I also corrected, on pages 66 and 67, a few
23 sentences of testimony that was corrected in response
24 to DEP's corrected filing on September 30th to the

1 Public Staff's Information Request 101-1.

2 Q. Thank you, Ms. Williams. And do the
3 corrections in your errata sheet alter your opinions or
4 conclusions in your testimony at all?

5 A. No, they do not.

6 Q. Okay. And do you -- and do you have any
7 additional changes or corrections to your prefiled
8 testimony?

9 A. No, I don't. Thanks.

10 Q. And with the errata sheet in place, if I
11 asked you the same questions today, would your answers
12 be the same?

13 A. Yes, they would.

14 Q. Did you also cause to be prefiled Williams
15 Rebuttal Exhibit 1 and 2 to your rebuttal testimony?

16 A. Yes.

17 Q. Do you have any changes or corrections to
18 your prefiled rebuttal exhibits?

19 A. No, I do not.

20 Q. And did you also prepare a summary of your
21 rebuttal testimony?

22 A. Yes.

23 MR. MARZO: Mr. Chairman, at this time I
24 would move that Ms. Williams' prefiled rebuttal

1 testimony as corrected by her errata be entered
2 into the record as if given orally from the stand,
3 and that Ms. Williams' Rebuttal Exhibits 1 and 2 to
4 her rebuttal testimony be marked for
5 identification.

6 COMMISSIONER CLODFELTER: You've heard
7 the motion. Is there any objection?

8 (No response.)

9 COMMISSIONER CLODFELTER: Hearing none,
10 motion is allowed.

11 (Williams Rebuttal Exhibits 1 and 2 were
12 identified as they were marked when
13 prefilled.)

14 (Whereupon, the prefilled rebuttal
15 testimony and errata of Marcia Williams
16 were copied into the record as if given
17 orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2 SUB 1219

In the Matter of:)	
	)	REBUTTAL TESTIMONY OF
Application of Duke Energy Progress, LLC	)	MARCIA E. WILLIAMS
For Adjustments of Rates and Charges	)	FOR DUKE ENERGY
Applicable to Electric Service in North Carolina	)	PROGRESS, LLC

1 **Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS**
2 **ADDRESS.**

3 A. My name is Marcia E. Williams. I am a Senior Vice President at Nathan
4 Associates, Inc., an international consulting firm, where I specialize in
5 environmental, health, and safety matters. My business address is 2029
6 Century Park East, Suite 1080, Los Angeles, CA 90067.

7 **Q. ON WHOSE BEHALF ARE YOU SUBMITTING YOUR**
8 **TESTIMONY?**

9 A. I am submitting this testimony before the North Carolina Utilities
10 Commission (“Commission”) on behalf of Duke Energy Progress, LLC (“DE
11 Progress” or the “Company”), formerly Carolina Power & Light and Progress
12 Energy.

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

14 A. Yes. I have attached two exhibits that I discuss further herein.

15 **Q. WERE THE EXHIBITS PREPARED BY YOU OR UNDER YOUR**
16 **DIRECTION AND SUPERVISION?**

17 A. Yes, they were.

18 **Q. PLEASE SUMMARIZE YOUR EDUCATION QUALIFICATIONS.**

19 A. I graduated from Dickinson College, Carlisle, PA with a B.S. in Math and
20 Physics in 1968. I graduated summa cum laude and was a member of Phi Beta
21 Kappa. I subsequently performed graduate work in physics at the University
22 of Maryland.

1 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

2 A. I have had (so far) an almost 50-year career centered on environmental
3 protection and regulation, spanning government service with the United States
4 Environmental Protection Agency (EPA, or the Agency) (over 17 years), a
5 senior management position in the waste management industry
6 (approximately 3 years), and consulting work (almost 30 years) in which I
7 have been a consultant to both private industry and government agencies on a
8 wide range of environmental matters, with a particular focus on compliance
9 with the Resource Conservation and Recovery Act (RCRA), the
10 Comprehensive Environmental Response, Compensation, and Liability Act
11 (CERCLA, commonly known as Superfund), the Clean Water Act, and the
12 Toxic Substances Control Act (TSCA), as well as their state equivalents.

13 **Q. PLEASE SUMMARIZE ASPECTS OF YOUR EPA EXPERIENCE**

14 A. My EPA service began from the Agency's inception in 1970 and continued
15 through February 1988. I held numerous positions at EPA and was a charter
16 member of the Senior Executive Service, beginning in 1979. Senior
17 management positions, in reverse chronological order, were Director, Office
18 of Solid Waste (OSW) with national responsibility for EPA's solid and
19 hazardous waste program; Deputy Director, Office of Pesticides and Toxic
20 Substances (OPTS); Acting Director and Deputy Director, Office of Toxic
21 Substances (OTS); and Division Director, Office of Special Pesticide Review,
22 Office of Pesticide Programs (OPP). Earlier positions included Chief,
23 Statistical Evaluation Staff; Special Assignment to the Senate Public Works

1 Committee; and various management and technical positions within the Office
2 of Mobile Source Air Pollution Control and the Office of Research and
3 Development. The following paragraphs describe some of my EPA experience
4 that is relevant for this matter in more detail.

5 In my position as Chief, Statistical Evaluation Staff, Office of
6 Planning and Evaluation, which I held from March 1978 through April 1979, I
7 developed and led a new EPA office responsible for reviewing all major EPA
8 regulations to ensure these regulations were adequately supported with data.
9 My office played a core role in EPA's implementation of Executive Order
10 12044, *Improving Government Regulations*. The office also provided
11 statistical consulting support to other EPA program offices, including
12 consulting support on developing Clean Water Act water quality criteria,
13 consulting support on the design of PCB enforcement strategies, and
14 participation in the early development of EPA's risk assessment and risk
15 management methodologies.

16 From May 1979 through September 1985, I held senior management
17 positions in the Office of Pesticides and Toxic Substances. This office
18 evaluated whether the risks associated with the uses of individual pesticides
19 and toxic substances exceeded the benefits of use. Where information was
20 inadequate to make necessary determinations, EPA collected additional data.
21 Where data demonstrated that risks of use exceeded benefits of use, EPA took
22 actions to control the risks. In the case of pesticides, this could involve
23 cancellation of the pesticide for some or all use applications. During my

1 tenure in these positions, I participated in the development of EPA's first
2 groundwater protection strategy. EPA used its full range of available statutory
3 authorities to develop and implement a national groundwater protection
4 strategy.

5 Starting in September 1985, I served as Director of the Office of Solid
6 Waste (OSW), a position I held until I left the Agency in February 1988. As
7 OSW Director, I led EPA's 250 person, \$40 million annual program to
8 implement RCRA and the 1984 amendments to RCRA, also known as the
9 Hazardous and Solid Waste Amendments (HSWA). These Amendments
10 fundamentally restructured and strengthened the federal hazardous and solid
11 waste management programs.

12 During this period, my office developed and issued over 40 proposed
13 and final rules relating to solid and hazardous waste. These regulations
14 included the "land disposal restrictions," a set of new requirements that
15 significantly curtailed the amount and types of untreated hazardous waste
16 which could be disposed of in land-based management units such as landfills,
17 waste piles, and surface impoundments. These regulations also expanded the
18 definition of hazardous waste and addressed waste management requirements
19 for waste generators, transporters, certain recyclers, and entities that managed
20 waste in treatment, storage, or disposal facilities (TSDFs). These new
21 regulations enhanced controls for various hazardous waste management units
22 including surface impoundment, landfills, and tanks. The new regulations also

1 strengthened solid waste management standards for certain types of units
2 including municipal landfills.

3 OSW provided national leadership and oversight for the RCRA
4 permitting program (both operating and post-closure permits) at over 5,000
5 individual hazardous waste facilities nationwide as well as the facility-wide
6 corrective action cleanup program at those facilities, a Superfund-like
7 remedial program that was imposed under the 1984 HSWA amendments to
8 RCRA and developed under my leadership. We also oversaw the delegation of
9 the RCRA program to state agencies and oversaw state agency performance.

10 As the national program manager for RCRA, my office developed
11 detailed guidance documents on many of the complex issues covered by the
12 RCRA regulations including groundwater monitoring, permitting, and
13 technical design issues associated with operating and closing hazardous waste
14 units. The guidance documents provided EPA regions, states, regulated
15 entities, and other interested parties with further detail as to how EPA intended
16 that affected parties implement EPA's waste regulations.

17 Also during my tenure as its Director, OSW worked on completing the
18 various reports to Congress on "special wastes" required by amendments to
19 RCRA that were enacted in 1980, including the Bevill Amendment. Among
20 other things, the Bevill Amendment exempted fossil fuel combustion waste
21 from the "hazardous waste" category pending further study by the Agency and
22 required EPA to submit a formal report to Congress regarding its findings. The
23 1988 Report to Congress entitled Wastes from the Combustion of Coal by

1 Electric Utility Power Plants was finalized and published by EPA at the end of
2 my tenure as OSW Director. During my tenure we were also completing a
3 multi-year effort to characterize the almost 200,000 non-hazardous waste
4 surface impoundments and over 15,000 landfills in the U.S. from the
5 perspective of environmental design and operational controls. This 1988
6 Report on Solid Waste Disposal in the United States, which summarized the
7 work performed by the Agency over the previous four years, was issued
8 shortly after I left EPA. During this time my office also worked on federal
9 procurement policies, as required by RCRA, which encouraged the use of
10 byproduct materials such as coal ash.

11 While at EPA, I had considerable direct interaction with Congress. In
12 1976, while employed with EPA, I undertook a special assignment to the
13 Senate Public Works Committee during a time period when several major
14 environmental laws, including RCRA, were being debated and finalized. In
15 my senior management positions at EPA, I was generally responsible for
16 tracking legislative developments within Congress in order to monitor how
17 new legislation might affect existing EPA programs I was managing. I also
18 routinely provided EPA input to Congress on specific legislative issues. In my
19 senior management capacity, I was also responsible for meeting with
20 congressional aides to inform them of the status of the implementation of
21 congressional mandates, addressing congressional concerns. These meetings
22 often involved discussions of congressional intent. I testified on numerous
23 occasions before House and Senate committees and subcommittees. After

1 leaving EPA, I continued to provide testimony at congressional hearings at the
2 invitation of congressional subcommittees, including testimony on RCRA and
3 CERCLA.

4 **Q. PLEASE SUMMARIZE ASPECTS OF YOUR EXPERIENCE AFTER**
5 **YOUR TENURE WITH EPA.**

6 A. When I left the Agency, I became the Divisional Vice President -
7 Environmental Policy and Planning for Browning-Ferris Industries (BFI), a
8 position I held until I left BFI in August 1991. In that role, I established an
9 environmental regulatory and legislative program for the company on issues
10 such as waste compliance, interstate movement of waste, rate regulation of the
11 waste industry, state solid waste planning, recycling, and disposal fees. I was
12 responsible for analyzing and forecasting environmental trends affecting the
13 commercial waste industry and for assisting operating managers in resolving
14 environmental conflicts in relation to permit hearings, siting decisions,
15 regulatory interpretations, and enforcement actions.

16 During 1988 and 1989, I also held the position of Vice President of
17 Environmental Compliance for CECOS, BFI's hazardous waste subsidiary. In
18 that capacity, I addressed numerous issues associated with the proper
19 characterization of solid and hazardous waste, the management of these
20 wastes, the permitting of hazardous waste and TSCA PCB waste facilities,
21 groundwater monitoring of hazardous waste sites, and the closure and
22 remediation of waste sites. My staff was responsible for auditing the
23 company's existing hazardous waste facilities, performing due diligence on

1 new business acquisitions, obtaining needed facility RCRA and non-RCRA
2 environmental permits, and managing facility cleanups and closure.

3 Following my tenure at BFI I started my own consulting company,
4 assisting both private sector and governmental clients¹ on a wide range of
5 environmental matters. After 6 years, I folded my consulting firm into a larger
6 firm. I have helped entities evaluate and strengthen their compliance and risk
7 management programs. I have also helped regulated entities resolve ongoing
8 compliance issues and incorporate environmental planning into future
9 business planning.

10 As a consultant I have advised on numerous projects related to
11 remedial actions under both RCRA and CERCLA and state-equivalent
12 statutes, including engagements where I was asked to consult on the
13 application of federal and state waste regulations and both voluntary and
14 mandatory state remedial programs. I have also been engaged to consult on
15 the historical evolution of environmental information and regulations in order
16 to evaluate the environmental performance and compliance of regulated
17 entities in a historical context.

18 In addition to consulting work, I have been engaged to provide expert
19 opinions and testimony related to the evolution of knowledge and regulations
20 applicable to waste, chemical management, and environmental remediation

¹ Government clients have included U.S. Department of Energy, Bonneville Power Administration, State of Illinois, City of Los Angeles, City of Phoenix, King County Washington, government of Mexico, and government of Canada. Private sector clients have covered a wide range of industries including the aircraft industry, the petroleum industry, the aluminum industry, the automotive industry, the tanning industry, the semi-conductor and electronics industry, the telecommunications industry, the paper products industry, the chemical industry, the waste industry, and the general manufacturing industry.

1 across a range of industrial sectors. I have provided expert testimony at
2 deposition and at trial. Areas of testimony include – the federal regulatory
3 development process, risk assessment and risk management frameworks
4 applied to environmental decision-making, standard of care applied to various
5 environmental practices and remedial activities over different timeframes,
6 evolution of knowledge with regard to chemical and waste handling activities,
7 evolution and role of environmental management systems, application of
8 federal waste and chemical regulations to fact-specific situations, and
9 consistency of remedial actions when compared against the National
10 Contingency Plan.

11 A recap of my professional and educational background, including a
12 list of my testimony in prior cases, is included as Exhibit 1 to my testimony.

13 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS**
14 **COMMISSION OR OTHER STATE PUBLIC UTILITY**
15 **COMMISSIONS?**

16 A. No. However, I did submit rebuttal testimony to this Commission in March
17 2020 in connection with the Duke Energy Carolinas rate proceeding, Docket
18 No. E-7, Sub 1214.

19 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
20 **PROCEEDING?**

21 A. The purpose of my testimony is to respond to the testimony of various
22 intervenor witnesses by providing important context on the development of
23 federal environmental regulations for coal ash management and discuss the

1 uncertainty associated with regulatory outcomes during the regulatory
 2 development process, describing how this uncertainty would affect an electric
 3 utility's decision on the timing of upgrading or closing ash ponds. I have also
 4 been asked to provide rebuttal testimony, within my areas of expertise, in
 5 response to the testimony of Mr. Quarles, Mr. Hart, and Mr. Lucas. Based on
 6 my almost 50 years of environmental experience including almost two
 7 decades at EPA, these individuals have expressed opinions regarding the
 8 timing surrounding knowledge of risks to groundwater from coal ash ponds
 9 that are inconsistent with the weight of evidence regarding how that
 10 knowledge evolved over time.

11 **Q. HOW HAVE YOU ORGANIZED YOUR TESTIMONY?**

12 A. My rebuttal testimony is organized into three primary sections. In Section I, I
 13 provide an overview of the federal government's study and regulation of coal
 14 combustion residuals (CCR) dating back over four decades and continuing to
 15 the present. I also include an overview of North Carolina's regulation of
 16 CCR. In Section II, I present my conclusions regarding CCR regulation and
 17 the Company's activities in connection with CCR, which, in summary, are:

- 18 1. Under the federal regulatory process governed by the Administrative
 19 Procedure Act, it is difficult to predict the exact nature of future
 20 regulatory requirements until a final rule has been issued.
 21
- 22 2. In North Carolina, owners and operators of CCR surface
 23 impoundments faced significant uncertainty regarding the regulatory
 24 requirements for managing CCR until CAMA and the CCR rule were
 25 final.
 26
- 27 3. Given the uncertainties expressed above, owners and operators were
 28 acting prudently by waiting until after CAMA and the CCR rule
 29 became law to take specific actions to upgrade or close ash ponds

1 provided they were working cooperatively with environmental
2 officials to address any site-specific environmental issues.

- 3
4 4. Prior to the enactment of CAMA and the final CCR rule, it would have
5 been extremely difficult to accurately estimate costs associated with
6 ash pond closure. Such attempts would have a high likelihood for
7 significant over- or under- estimation.
8

9 Section II also includes my opinion that DE Progress took actions to ensure
10 that its ponds were not resulting in environmental harm while waiting for the
11 regulatory process to conclude. Section III of my testimony discusses the
12 testimony filed by Mr. Quarles, Mr. Hart, and Mr. Lucas and refutes many of
13 their collective opinions as well as a number of specific opinions set forth by
14 them individually.

15 **Q. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY.**

16 A. My testimony begins with an overview of the federal government's study and
17 regulation of coal combustion residuals, starting over four decades ago and
18 continuing to this day. My testimony explains the federal regulatory process
19 and the important reasons why owners and operators of coal ash ponds in
20 North Carolina faced significant uncertainty regarding regulatory
21 requirements for operating and closing coal ash ponds and the impact of that
22 uncertainty on making ash pond upgrade or closure decisions while both
23 knowledge of risks and final requirements remained in flux.

24 In providing rebuttal testimony to Mr. Quarles, Mr. Hart, and Mr.
25 Lucas, I provide a summary of the understanding of the groundwater resource
26 in the 1970s and 1980s, the types of site-specific factors that were understood
27 to be important in protecting the groundwater resource, the evolving

1 knowledge of the impacts from industrial landfills and surface impoundments,
2 the evolution of groundwater monitoring as an important tool for tracking the
3 impacts of waste management units, and the ways in which waste
4 management has changed when compared with earlier practices deemed
5 protective at the time they were utilized.

6 Mr. Quarles, Mr. Hart, and Mr. Lucas conclude that DE Progress' ash
7 pond practices, going back to the late 1970s and 1980s, were inconsistent with
8 what was understood to be necessary to protect groundwater. They also
9 conclude that had DE Progress taken different actions many decades ago, its
10 coal ash pond closure costs would be lower today. Based on my experience
11 and knowledge of this field, I conclude that DE Progress' ash pond
12 management was consistent with what was understood to be protective of
13 groundwater in the 1970s and 1980s. The information reasonably available to
14 the Company along with my review of Company analysis of the potential for
15 its ash ponds to result in groundwater environmental harm in the 1980s
16 supported a determination that its ponds would not be expected to result in
17 environmental harm. And its installation of groundwater wells between 1984
18 and 2008, for the purpose of monitoring groundwater impacts, was consistent
19 with the requirements and the evolving knowledge required to install such
20 systems. The expansion of those groundwater monitoring systems over the
21 last decade along with the development of corrective action plans to address
22 releases detected by groundwater monitoring systems also was consistent with

1 requirements and evolving knowledge. It was also consistent with the general
2 industry practices.

3 Had DE Progress made changes in its ash management systems in the
4 late 1970s through early 1980s, it is unclear whether or not those changes
5 would have resulted in costs that would have been lower or higher than the
6 Company's current cost estimates. It is a completely hypothetical analysis that
7 not only depends upon what changes they would have made but how they
8 would have designed new units and addressed old units back in that earlier
9 time period. Again, one cannot use today's 20/20 hindsight to know precisely
10 what changes would have been implemented based only on knowledge
11 available from over three decades ago. If old ponds continued to be used for
12 some waste streams, they would have remained open and potentially impacted
13 groundwater. If old ponds closed with liquid in place, they could have
14 potentially impacted groundwater. If new landfills were built in the early
15 1980s, it is likely they would have been constructed without synthetic liners.
16 Thus, because this type of analysis requires the use of a multitude of
17 assumptions, its conclusions have limited value.

1 **SECTION I – CCR LEGISLATION AND REGULATION**

2 **Q. PLEASE EXPLAIN WHY YOU BELIEVE IT IS IMPORTANT TO**
 3 **HAVE AN OVERVIEW OF THE HISTORY OF COAL CUMBUSTION**
 4 **RESIDUALS REGULATION?**

5 A. The history of CCR regulation is lengthy and complex. Providing an overview
 6 of CCR regulation is important to give context to the more detailed opinions
 7 presented in my testimony.

8 **Q. PLEASE PROVIDE AN HISTORICAL OVERVIEW OF FEDERAL**
 9 **REGULATION OF COAL COMBUSTION RESIDUALS.**

10 A. Because the regulatory history is lengthy and complex, I have organized this
 11 section of my testimony topically and chronologically, starting with CCR
 12 regulation prior to the passage of RCRA in 1976 and moving forward to the
 13 promulgation of EPA’s final CCR rule in 2015.

14 1. Regulation of CCR prior to the passage of RCRA

15 Prior to the passage of RCRA, the regulation of coal ash ponds as well
 16 as other industrial waste disposal was exclusively the province of states, not
 17 the federal government. Many states, including North Carolina, typically
 18 regulated coal ash ponds² under water quality laws, with a particular focus on
 19 discharges from the ponds to surface water, such as streams, rivers, and lakes.

20 2. The 1976 RCRA law and early regulations

21 Congress passed RCRA in 1976. The law required EPA to establish a
 22 cradle-to-grave federal regulatory program for the management of wastes

² Throughout this report, I use the terms ash or coal ash ponds, ash or coal ash basins, and surface impoundments interchangeably.

1 designated as hazardous as well as a set of minimum national criteria for the
2 protective management of non-hazardous, “solid wastes.” While the details of
3 the hazardous waste program were to be specified by EPA, the details of
4 implementing the non-hazardous waste program were left to the states.

5 a. Regulation of CCR as a hazardous waste under RCRA

6 A critical component of the RCRA regulatory program was
7 designating which wastes would be considered hazardous and therefore
8 subject to new stringent cradle-to-grave regulations. The law provided
9 considerable flexibility to EPA in designing both this classification system and
10 the regulations for those entities managing hazardous wastes.

11 EPA issued the first set of proposed RCRA regulations in late 1978.³
12 In that proposal, EPA established the basic framework that, while greatly
13 expanded over the years, generally remains in place today. EPA utilized a two-
14 prong approach to identify which wastes would classify as hazardous. First,
15 EPA identified specific types of wastes as hazardous and listed those, by
16 narrative definition, in the regulations (“listed wastes”). Some of the listed
17 wastes are industry-specific while others are common across industries or are
18 chemical-specific. For the remaining wastes, generators are required to
19 determine if their waste meets one of four characteristics (toxicity, reactivity,
20 corrosivity, or ignitability) at the point of waste generation. If the waste meets
21 any one of these characteristics, it is classified as hazardous. EPA also
22 proposed detailed regulations governing the handling of hazardous wastes by

³ 43 Federal Register 58946 (December 18, 1978).

1 generators, transporters, and by facilities accepting wastes for treatment,
2 storage, or disposal and, in some circumstances, for recycling.

3 In the 1978 proposed regulations, EPA did not “list” CCR as a
4 hazardous waste, but it did not exempt CCR from regulation either. CCR,
5 therefore, could be classified as hazardous if it met one of the four general
6 characteristics. However, EPA at the time recognized that the regulations it
7 was proposing for hazardous waste disposal facilities would not make sense
8 for certain large volume wastes including CCR. EPA stated the following in
9 the preamble to its 1978 proposed regulations:

10 The Agency has very little information on the composition,
11 characteristics, and the degree of hazard posed by these
12 wastes, nor does the Agency yet have data on the
13 effectiveness of current or potential waste management
14 technologies or economic practicability of imposing ... [the
15 proposed standards for hazardous waste facilities] on
16 facilities managing such waste.

17 The limited information the Agency does have indicates that
18 such waste occurs in very large volumes, that the potential
19 hazards posed by the waste are relatively low, and that the
20 waste generally is not amenable to the control techniques
21 developed in ... [the proposed standards for hazardous waste
22 facilities].⁴

23 Consequently, EPA designated CCR and other similar large volume wastes as
24 “special wastes” and proposed a more limited set of regulations for these
25 wastes if they failed one of the hazardous waste characteristics.

26 In the final rule issued in May 1980, however, EPA excluded CCR
27 from the hazardous waste regulations, pointing to legislation Congress was
28 considering that would likely repeal or suspend EPA’s authority to regulate

⁴ 43 Federal Register 58946, 58991 (December 18, 1978).

1 these wastes without further study.⁵ Indeed, Congress did amend RCRA later
 2 that year, exempting large volume wastes generated from combustion of coal
 3 or other fossil fuels and requiring EPA to conduct “a detailed and
 4 comprehensive study and submit a report on the adverse effects on human
 5 health and the environment, if any, of the disposal and utilization of fly ash
 6 waste, bottom ash waste, slag waste, flue gas emission control waste, and
 7 other byproduct materials generated primarily from the combustion of coal or
 8 other fossil fuels.”⁶

9 Congress gave EPA two years from the date of enactment of the
 10 amendments to complete the study and six months after submitting the study
 11 to decide on whether to regulate CCR as a hazardous waste based on the
 12 results of the study. In 1984, Congress amended the RCRA law again and
 13 added a provision allowing EPA, if it decided to regulate wastes from fossil
 14 fuel combustion under the hazardous waste regulations, to take into account
 15 the special characteristics of the waste and tailor or modify the regulations
 16 accordingly as long as the regulations were protective.⁷

⁵ See 45 Federal Register 33153, 33175 (May 19, 1980) for a discussion of this exclusion. At the time EPA finalized this regulation, both the House and Senate were moving forward with legislation to delay any classification of CCR as hazardous waste.

⁶ Public Law 96-482 (October 21, 1980).

⁷ Public Law 98-616 (November 8, 1984). The amendment added a new subsection (x) to Section 3004 of the law as follows: “If (1) solid waste from the extraction, beneficiation or processing of ores and minerals, including phosphate rock and overburden from the mining of uranium, (2) fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels, or (3) cement kiln dust waste, is subject to regulation under this subtitle, the Administrator is authorized to modify the requirements of subsection (c), (d), (e), (f), (g), (o), and (u) and section 3005(j), in the case of landfills or surface impoundments receiving such solid waste, to take into account the special characteristics of such wastes, the practical difficulties associated with implementation of such requirements, and site-specific characteristics, including but not limited to the climate, geology, hydrology and soil chemistry at the site, so long as such modified requirements assure protection of human health and the environment.”

1 b. Regulation of CCR as solid waste under RCRA

2 Under RCRA, Congress assigned the primary responsibility for
3 regulating non-hazardous waste facilities to the states. However, Congress
4 also banned the existence of “open dumps,” and required EPA to issue criteria
5 for determining whether or not a solid waste facility classified as an “open
6 dump.” To ensure open dumps were closed or upgraded in a timely manner,
7 Congress allowed citizens to file lawsuits against persons engaged in the act
8 of open dumping if those facilities were not subject to, and complying with,
9 state-issued compliance orders designed to upgrade any facility that classified
10 as an open dump.

11 EPA finalized minimum protective criteria for solid waste facilities in
12 September 1979 and they were effective October 15, 1979.⁸ The criteria
13 addressed the following eight topics, providing descriptions of practices that
14 were considered necessary to achieve environmental protection: (1)
15 floodplains, (2) endangered species, (3) surface water, (4) groundwater
16 beyond the facility boundary currently used or potentially used for drinking
17 water, (5) application to land used for the production of food-chain crops, (6)
18 disease, (7) air, and (8) safety. These criteria were applicable to both
19 municipal and non-municipal non-hazardous waste disposal units, including
20 all types of units that accepted CCR.

21 2. The 1988 CCR Report to Congress and EPA’s decision that CCR does
22 not warrant regulation as a hazardous waste

⁸ 44 Federal Register 53438 (September 13, 1979).

1 Even though it was required to issue the study within two years of the
2 1980 RCRA amendments, EPA did not complete the required report to
3 Congress on the regulation of CCR as a hazardous waste until February
4 1988.⁹ The report concluded that most previous studies of coal combustion
5 wastes found they do not meet any of the four hazardous waste characteristics.
6 The report also found that while there were some observed instances of
7 groundwater contamination above primary drinking water standards
8 downgradient of sites where coal combustion wastes were managed, it was not
9 always possible to connect the presence of CCR to these exceedances. EPA
10 also concluded that “the actual potential for exposure to human and ecological
11 populations is likely to be limited, however, since ground water in the vicinity
12 of utility waste disposal sites is not typically used for drinking water; the
13 concentrations of contaminants in the ground water also tend to be diluted in
14 nearby surface water bodies.”¹⁰

15 EPA reached these conclusions with the understanding that the current
16 management of CCR in surface impoundments rarely included the use of
17 liners or leachate collection and that most facilities managing CCR did not
18 have groundwater monitoring. The report found that 80 percent of CCR was

⁹ U.S. Environmental Protection Agency, Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants (February 1988) (hereinafter “1988 CCR Report to Congress”). This report only covered combustion wastes from coal-fired power plants. A separate report on combustion wastes from utility and non-utility facilities combusting other fossil fuels was not issued until 1999 (U.S. Environmental Protection Agency, Report to Congress: Wastes from the Combustion of Fossil Fuels (March 1999)).

¹⁰ 1988 CCR Report to Congress, p. ES-5. Chapter 7 of the same report expanded this discussion including: “Groundwater contamination does not appear to be widespread;” “When groundwater contamination does occur, the magnitude of the exceedance is generally not large;” “Human populations are generally not directly exposed to the groundwater in the vicinity of utility coal combustion waste management sites.”

1 disposed on the land (i.e., in surface impoundments, landfills, or other land-
 2 based units).¹¹ Of the 483 surface impoundments in use at the time, only 45
 3 were known to be lined while 303 were unlined and the liner status of 135
 4 were unknown.¹² In EPA's Region IV, which includes North Carolina, only 3
 5 of the 195 surface impoundments were lined, while 153 were unlined and the
 6 liner status of 39 were unknown.¹³ Whether the liners in use at the time were
 7 clay or synthetic was not known to EPA.

8 In the February 1988 CCR Report to Congress, EPA stated its intent
 9 not to regulate coal combustion wastes from electric utilities under the RCRA
 10 hazardous waste regulations. EPA concluded that "*current waste management*
 11 *practices appear to be adequate for protecting human health and the*
 12 *environment.*"¹⁴ (Emphasis added) While EPA was required to issue a
 13 decision on whether to regulate CCR as a hazardous waste six months after
 14 submitting the report, EPA did not formalize this decision until 1993, noting in
 15 the preamble that it did not publish this determination by the statutory
 16 deadline "because of other priorities."¹⁵ In finalizing this decision, EPA relied
 17 on both the information in the February 1988 CCR Report to Congress as well
 18 as additional information it collected after that report was issued. EPA stated

¹¹ 1988 CCR Report to Congress, p. 4-10.

¹² 1988 CCR Report to Congress, Exhibit 4-6.

¹³ 1988 CCR Report to Congress, Exhibit 4-6.

¹⁴ 1988 CCR Report to Congress, p. 7-11.

¹⁵ 58 Federal Register 42466, 42467 (August 9, 1993). EPA issued a similar decision for other fossil fuel combustion wastes on May 22, 2000 (65 Federal Register 32214). I note that the "other priorities" were the over 70 individual rulemaking deadlines that Congress had imposed on EPA between 1985 and the very early 1990s.

1 that regulating CCR as a hazardous waste was unwarranted because “of the
2 limited risk posed by them [CCR] and the existence of generally adequate
3 State and Federal regulatory programs. The Agency also believes that the
4 potential damage from these wastes is often most determined by site- or
5 region-specific factors and that the current State approach to regulation is thus
6 appropriate.”¹⁶

7 In 2000 EPA issued a similar decision for other combustion wastes
8 (i.e., oil and natural gas combustion wastes, non-utility coal combustion
9 wastes) determining that such wastes did not warrant regulation under the
10 hazardous waste regulatory framework.¹⁷ In that decision, EPA also revisited
11 the issue of coal combustion wastes (at both utilities and non-utilities), and
12 announced its intention to develop national regulations under RCRA Subtitle
13 D, the non-hazardous RCRA program, when CCR is disposed in landfills or
14 surface impoundments. EPA noted in the preamble that public comments and
15 other analyses, including the variability in state programs, had made it
16 reconsider the need for national regulations. It noted that while improvements
17 had been made to the management of CCR and in state regulatory programs,
18 there was evidence that adequate controls may not be in place and pointed to
19 the fact that 62 percent of existing utility surface impoundments do not have
20 groundwater monitoring. EPA also noted, however, that “some waste

¹⁶ 58 Federal Register 42466 (August 9, 1993).

¹⁷ 65 Federal Register 32214 (May 22, 2000).

1 management units may not warrant liners and/or groundwater monitoring,
 2 depending on site-specific characteristics.”¹⁸

3 3. The 2010 proposed federal CCR rule

4 After announcing its intent to develop national regulations for CCR
 5 disposed in landfills and surface impoundments under the federal non-
 6 hazardous waste program, EPA initiated the regulatory development process
 7 by collecting additional information on CCR that would inform its
 8 rulemaking. In 2007, EPA made some of that information available to the
 9 public in a formal Notice of Data Availability.¹⁹ The information included:

- 10 • A joint EPA-U.S. Department of Energy report on CCR management
 11 practices in landfills and surface impoundments constructed or expanded
 12 between 1994 to 2004;²⁰
- 13 • A draft risk assessment on CCR managed in landfills and surface
 14 impoundments;²¹
- 15 • A report on CCR damage cases;²²

¹⁸ 65 Federal Register 32214, 32216 (May 22, 2000).

¹⁹ 72 Federal Register 57572 (October 10, 2007).

²⁰ U.S. Environmental Protection Agency and U.S. Department of Energy, Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004 (August 2006). This report evaluated surface CCR surface impoundments and landfills built or expanded from 1994 to 2004. Among its findings were that almost all new surface impoundments and landfills have liners.

²¹ RTI, Human and Ecological Risk Assessment of Coal Combustion Wastes – Draft, prepared for the U.S. Environmental Protection Agency (August 6, 2007).

²² U.S. Environmental Protection Agency, Coal Combustion Waste Damage Case Assessments (July 9, 2007). This report documented 24 “proven” cases in which CCR management resulted in damage, sixteen of which were damage to groundwater and eight were damage to surface water. Of the groundwater damage cases, five were from unlined surface impoundments while the others were from either landfills or unlined sand and gravel pits. EPA also identified another 43 cases that were determined to be “potential damages” to groundwater or surface water.

- 1 • An action plan by the electrical utility industry for the management of
- 2 CCR;²³ and
- 3 • A proposal by a number of citizen's groups on a national regulation for
- 4 CCR.²⁴

5 Finally, in 2010 EPA issued a proposed rule for the national regulation
6 of CCR. In the proposed rule, EPA offered three different options for a final
7 regulation:

- 8 1. Even though EPA had previously announced its intent to regulate CCR
9 under the non-hazardous waste program, EPA included the option of
10 regulating CCR as a "special waste" under Subtitle C, the hazardous waste
11 regulations. Under this option, generators of CCR would be subject to
12 stringent controls on the storage and handling of CCR. Surface
13 impoundments and landfills accepting CCR would be subject to similar
14 requirements to hazardous waste facilities with some slight modifications
15 (e.g., composite liners instead of double liners).
- 16 2. EPA also proposed tailored regulations for the disposal of CCR under
17 RCRA Subtitle D, the non-hazardous waste regulations. Under this option,
18 CCR generators would not be subject to storage and handling

²³ Utility Solid Waste Activities Group, Utility Industry Action Plan for the Management of Coal Combustion Products (October 2006). The action plan represented a voluntary initiative by the utility industry and included establishing groundwater performance standards and a groundwater monitoring program and location restrictions on the placement of CCR in sand and gravel pits.

²⁴ Earthjustice et al., Proposal of the Federal Regulation of Coal Combustion Waste (January 31, 2007). The proposal included a ban on the construction of any new CCR disposal in surface impoundments and the closing of all existing surface impoundments within two years. It also included provisions addressing (1) location restrictions; (2) design criteria for new landfills similar to those for municipal solid waste landfills, (3) requirements for groundwater monitoring and corrective action; (4) closure and post-closure care requirements; and (5) financial assurance requirements.

1 requirements, but landfills and surface impoundments would require
 2 composite liners and groundwater monitoring and would be subject to
 3 closure and post-closure requirements. Existing surface impoundments
 4 without liners would have to retrofit within five years or close.

5 3. The third option, which EPA referred to as “D prime” was the same as the
 6 Subtitle D option but existing surface impoundments would not be
 7 required to close or install composite liners but could continue to operate
 8 for their useful life.

9 Note that the first option, regulation under Subtitle C, would be a federally
 10 enforceable national regulation. The two options under Subtitle D would be
 11 issued as federal criteria. Under RCRA, EPA cannot enforce the Subtitle D
 12 non-hazardous waste federal criteria directly, but the expectation was states
 13 would adopt the criteria in their regulations and provide enforcement as part
 14 of their non-hazardous waste programs.²⁵

15 Finally, in addition to these three options, EPA also requested
 16 comment on other approaches – including essentially a no action approach in
 17 which CCR would continue to be regulated at the state level under existing
 18 authority.²⁶

19 4. The 2015 final federal CCR rule and subsequent litigation and
 20 amendments

²⁵ In addition, the Subtitle D criteria could be indirectly enforced by EPA using its general authority to abate conditions that “may present an imminent and substantial endangerment to health or the environment” under section 7003 of RCRA. In addition, states and citizens can enforce using the citizen suit provision of section 7002 of RCRA.

²⁶ 75 Federal Register 35128, 35223 (June 21, 2010).

1 EPA published its final CCR rule on April 17, 2015.²⁷ The final rule
2 established national criteria under the non-hazardous Subtitle D program. It
3 required all new surface impoundments to have composite liners. The rule
4 allowed existing surface impoundments to continue to operate without a
5 composite liner if they met certain location standards, demonstrated through
6 groundwater monitoring that specified constituents were not in the
7 groundwater above groundwater protection standards,²⁸ and met structural
8 stability requirements. Therefore, the final rule allowed a subset of surface
9 impoundments without liners to continue to operate.

10 The final rule also required the installation of groundwater monitoring
11 systems and mandated corrective action to clean up contamination above
12 groundwater protection standards caused by a CCR unit. The rule included
13 closure and post-closure requirements specifying the steps and timeframes and
14 options for completing the closure of a surface impoundment, or other unit,
15 and for monitoring following closure. As noted above, under the rule, closure
16 can be triggered if a surface impoundment cannot meet the location criteria or
17 structural integrity standards. The final rule also required an unlined surface
18 impoundment to close if contamination above groundwater protection
19 standards is detected. Inactive surface impoundments at active sites (i.e.,
20 impoundments not receiving CCR after the effective date of the CCR rule but

²⁷ 80 Federal Register 21302 (April 17, 2015).

²⁸ The set of constituents covered by the groundwater monitoring requirement are listed in Appendix III and IV of 40 CFR Part 257. The groundwater protection standard is the MCL or background, whichever is higher. Constituents without MCLs are evaluated against background. I note that some compounds in North Carolina's 2L standards were not included in these appendices including manganese, iron, and zinc.

1 containing liquids) are also subject to the closure requirements unless
2 dewatering and capping of the impoundment occurs within three years of the
3 rule.

4 Both environmental and industry groups immediately challenged the
5 final rule. Among other items, environmental groups challenged the provision
6 allowing unlined surface impoundments to continue to operate as well as the
7 exemption from the closure requirements for inactive surface impoundments
8 if they dewater and cap within three years. Industry groups challenged EPA's
9 authority to regulate inactive impoundments at all. Environmental petitioners
10 further challenged EPA's failure to regulate legacy impoundments (i.e.,
11 inactive impoundments at inactive sites). Settlement was reached on certain
12 items and the DC Court of Appeals granted EPA's request to modify the
13 regulation to address these settled issues.²⁹ EPA proposed amendments to the
14 final CCR rule on March 15, 2018, addressing the settled issues as well as
15 other items.³⁰ EPA finalized some of these amendments on July 30, 2018.³¹

16 The court reached a decision on the remaining challenges to the CCR
17 rule on August 21, 2018.³² The court vacated the provision allowing unlined
18 surface impoundments that meet certain criteria to continue to operate, the
19 exemption of legacy impoundments from rule applicability, and the
20 classification of unlined impoundments with two feet of compacted clay as

²⁹ Utility Solid Waste Activities Group, et al., v. Environmental Protection Agency (June 14, 2016).

³⁰ 83 Federal Register 11584 (March 15, 2018).

³¹ 83 Federal Register 36435 (July 30, 2018).

³² Utility Solid Waste Activities Group, et al., v. Environmental Protection Agency (August 21, 2018).

1 “lined” units. Since that decision, EPA has issued three proposed rules to both
 2 address items stemming from the court decision and to make other changes to
 3 the requirements.³³

4 **Q. ARE THERE OTHER FEDERAL LAWS OR REGULATIONS (OR**
 5 **PROPOSED REGULATIONS) THAT IMPACT CCR**
 6 **MANAGEMENT?**

7 A. Yes. Two in particular merit consideration: (1) the Clean Water Act effluent
 8 guidelines, and (2) the Water Infrastructure Improvements for the Nation
 9 (WIIN) Act.

10 1. Clean Water Act effluent guidelines

11 At the same time EPA was developing regulations for CCR under
 12 RCRA, it was also considering revisions to the effluent guidelines for electric
 13 utilities under the Clean Water Act. Effluent guidelines establish limits on
 14 discharges of wastewater to surface water bodies such as streams, rivers,
 15 lakes, or oceans. The effluent guidelines directly affect ash ponds as overflow
 16 water is typically discharged from the ponds to adjacent waterbodies and is
 17 subject to these limits through the imposition of permits.

18 EPA proposed revisions to the effluent guidelines in 2013 and finalized
 19 them on November 3, 2015.³⁴ The new guidelines establish a zero-discharge
 20 limit for fly ash transport water and bottom ash transport water, the water used
 21 to sluice ash into ash ponds, and for flue gas desulfurization wastewater. As

³³ 84 Federal Register 40353 (August 14, 2019), 84 Federal Register 65941 (December 2, 2019), and
 85 Federal Register 12456 (March 3, 2020).

³⁴ 78 Federal Register 34432 (June 7, 2013); 80 Federal Register 67838 (November 3, 2015).

1 some discharge is inevitable in a wet system, the zero-discharge limit
2 essentially mandates that utilities switch to dry ash handling systems. The new
3 effluent limitations are imposed when a facility renews its NPDES permit
4 under the Clean Water Act. Under the 2015 final rule, the zero-discharge
5 limits could go into effect at a facility any time between November 1, 2018
6 and December 31, 2023.

7 Various groups filed petitions to have EPA review and reconsider the
8 2015 rule. In response, EPA extended the deadlines for compliance with the
9 limitations and then, on November 22, 2019, proposed to amend the 2015
10 regulations.³⁵ The 2019 proposal, which has yet to be finalized, would
11 remove the zero-discharge requirement for bottom ash transport water and
12 flue gas desulfurization wastewater.

13 2. Water Infrastructure Improvements for the Nation Act

14 On December 16, 2016, Congress passed the WIIN Act. The Act
15 included provisions that modify the Solid Waste Disposal Act and RCRA,
16 requiring that the coal ash regulations be implemented through a permit
17 program.³⁶ The provision requires states to demonstrate they have a program
18 that is at least as protective as the federal CCR rule and a permit program to
19 implement the rule in order to receive federal approval to implement the
20 program in lieu of EPA. The law also requires EPA, if appropriations are

³⁵ 84 Federal Register 64620 (November 22, 2019).

³⁶ Public Law 114-322 (December 16, 2016).

1 available, to implement a federal permit program in a state that does not apply
2 for EPA approval.

3 **Q. DID YOU ALSO CONSIDER NORTH CAROLINA LAWS AND**
4 **REGULATIONS IN YOUR REVIEW OF THE HISTORICAL**
5 **CONTEXT OF CCR REGULATION?**

6 A. Yes. In particular, I considered North Carolina's Coal Ash Management Act
7 (CAMA) and its 2L groundwater regulations, as follows:

8 1. CAMA, as amended

9 In 2014, the North Carolina General Assembly passed CAMA.³⁷ The
10 law required all facilities to convert to dry fly ash management by December
11 31, 2018 and dry bottom ash management by December 31, 2019. It also
12 required that a groundwater assessment be conducted at each facility with a
13 coal ash surface impoundment. CAMA also required the North Carolina
14 Department of Environmental Quality (DEQ),³⁸ to classify all coal ash surface
15 impoundments in the state not deemed "high-priority" by the General
16 Assembly as either high-, intermediate-, or low-risk and specified closure
17 dates for impoundments in each risk category (2019 for high-risk, 2024 for
18 intermediate-risk, and 2029 for low-risk).³⁹ The law requires the submittal of a
19 site-specific plan to DEQ for approval and provides several options for how
20 each category of impoundments can be closed. The law also provides that in

³⁷ Coal Ash Management Act of 2014, Session Law 2014-122.

³⁸ I have used DEQ in this testimony to refer to the North Carolina Department of Environmental Quality, including its predecessor agencies such as the North Carolina Department of Environment and Natural Resources.

³⁹ CAMA deemed the CCR surface impoundments at four sites as high-priority and mandated their closure by August 1, 2019.

1 approving closure, DEQ “may require implementation of any other measure it
 2 deems necessary to protect health, safety and welfare; the environment; and
 3 natural resources”⁴⁰

4 CAMA was amended in 2016. The amendments extended the
 5 deadlines for submitting site-specific closure plans and allowed closure for
 6 some impoundments to occur in accordance with the federal closure
 7 requirements promulgated by EPA in 2015. The amendments also modified
 8 the criteria under which DEQ would classify impoundments as high-,
 9 intermediate-, or low-risk.

10 2. North Carolina groundwater classification and standards (“2L
 11 standards”)

12 In the early 1980s, North Carolina adopted regulations for classifying
 13 different waters of the state and establishing groundwater standards for
 14 different classifications.⁴¹ Over time, the regulations also instituted
 15 requirements to address contamination through corrective action when the
 16 contamination is found to be sourced from the CCR management unit and to
 17 exceed the groundwater standards at the compliance boundary. The
 18 regulations and standards have been amended several times, expanding the
 19 number of constituents covered by the regulations as well as the associated
 20 chemical-specific standards.

⁴⁰ North Carolina General Statutes, Part 21, Article 9, § 130A-309.214(a)(3)(b).

⁴¹ 15A NCAC 02L.0100. The law requiring the development of these standards was passed in 1979.

**SECTION II – MY CONCLUSIONS ON CCR REGULATION AND
DE PROGRESS’ RESPONSE**

1 **SECTION II – MY CONCLUSIONS ON CCR REGULATION AND**
2 **DE PROGRESS’ RESPONSE**
3 **Q. WITH THIS HISTORICAL CONTEXT IN MIND, HAVE YOU COME**
4 **TO ANY CONCLUSIONS REGARDING CCR REGULATION AND**
5 **THE COMPANY’S ACTIVITIES IN CONNECTION WITH CCR?**

6 A. Yes. As noted above in the overview of my testimony, I have come to a
7 number of conclusions, as follows:

8 First, under the federal regulatory process governed by the
9 Administrative Procedure Act, it is difficult to predict the exact nature of
10 future regulatory requirements until a final rule has been issued. Even then,
11 for any given regulation, additional uncertainty can remain as to the costs of
12 rule compliance although regulated entities must move forward at that point to
13 implement rule requirements.

14 Second, in North Carolina, owners and operators of coal ash basins
15 faced significant uncertainty regarding the regulatory requirements for
16 managing CCR until the passage of CAMA and the promulgation of EPA’s
17 final CCR rule. Even after CAMA/CCR rule became law, uncertainty
18 remained as to the exact methods, timeframe, and costs associated with the
19 closure of ash ponds until site-specific clarity was obtained from
20 implementing regulators (in North Carolina, the DEQ). Site-specific clarity
21 for the Company was not achieved until court approval of the settlement of
22 the Company’s challenge to DEQ’s April 2019 direction that CCR in all of the
23 Company’s ash basins be excavated and landfilled. Approval of this
24 settlement occurred on February 5, 2020.

1 Third, in light of these uncertainties, owners and operators of coal ash
2 ponds were acting prudently by waiting until after CAMA and the CCR rule
3 became law to take specific actions to upgrade or close ash ponds as long as
4 they were working cooperatively with environmental officials to address any
5 site-specific environmental issues.

6 Fourth, prior to the enactment of CAMA and promulgation of the final
7 CCR rule, an accurate estimate of the costs associated with ash pond closure
8 (even assuming that closure would have been required) would have been
9 extremely difficult with a high likelihood for significant over- or under-
10 estimation. Even with those regulations, fully known and measurable
11 estimates required completion of recently finalized site-specific closure
12 agreements.

13 In the remainder of my testimony I provide detailed support and
14 reasons for my opinions.

15 **Q. PLEASE PROVIDE ADDITIONAL DETAIL FOR YOUR OPINION**
16 **RELATING TO REGULATORY UNCERTAINTY UNTIL A FINAL**
17 **RULE IS ISSUED.**

18 A. Under many of the major federal environmental statutes utilized for CCR,
19 including RCRA and the Clean Water Act, Congress establish a decision
20 framework and objectives for addressing a particular environmental concern,
21 directing EPA to promulgate the specific implementing regulations and often
22 allowing EPA considerable leeway in determining the level and nature of the

1 controls required to achieve the statutory objectives.⁴² Therefore, the passage
2 of a federal statute often provides only limited information on what an
3 eventual regulation will mandate.

4 The regulatory development process EPA must follow is governed by
5 the Administrative Procedures Act (APA).⁴³ The APA requires federal
6 agencies, such as EPA, to keep the public informed concerning its
7 “organization, procedures, and rules” and to provide for public participation in
8 the rulemaking process. While there are several options for promulgating rules
9 under the APA, the most common is the notice-and-comment procedure,
10 which requires an initial notice of a proposed rulemaking (i.e., a proposed
11 rule) that informs the public of the intention to develop a rule, the legal
12 authority to do so, the substance of the proposal, and the Agency’s support for
13 the proposal.⁴⁴ EPA must then allow the public adequate time to provide any
14 comments, data, or other information relevant to the rule and this information
15 must be considered by EPA before publishing a final rule. In promulgating a

⁴² While many federal statutes provide such broad leeway to EPA, others are more prescriptive. For example, the coal ash related provisions in the WINN are an example of more prescriptive statutory provisions that provided Congressional input on how EPA’s CCR regulation, recently promulgated, would be implemented and enforced.

⁴³ Public Law 79-404 (1946).

⁴⁴ In order to ensure that it meets its obligations to keep the public informed during the rulemaking process, EPA will also often publish an Advance Notice of Proposed Rulemaking (ANPRM) prior to publishing a proposed rule to inform the public of its intention to initiate a rulemaking process. In addition, EPA will often inform the public of new data it has collected or received relevant to a rulemaking in a Notice of Data Availability published in the Federal Register.

1 final rule, EPA must consider and respond to the significant comments
2 submitted on the proposed rule.⁴⁵

3 The APA also provides a framework for the judicial review of a final
4 regulation. Under the APA, a court can find unlawful, or set aside, a final rule,
5 or part of a final rule, for several reasons.⁴⁶ Among these reasons are finding
6 the rule “arbitrary and capricious,” a broad standard providing that courts
7 determine if the federal agency considered the relevant factors when issuing a
8 rule. The court can also set aside a final rule if the federal agency did not
9 follow the rulemaking procedures under the APA or if the rule is in excess of
10 statutory jurisdiction, in violation of the constitution, or unwarranted by the
11 evidence or facts.

12 In significant environmental rulemakings involving complex technical
13 issues with major potential administrative and economic impacts, the outcome
14 of the rulemaking process under the APA is inevitably uncertain. This
15 uncertainty is due in part, as noted above, to the considerable leeway EPA has
16 under environmental statutes to develop the nature and scope of regulatory
17 content. Frequently, the underlying laws simply do not provide a roadmap on
18 where the final regulation will end up. This uncertainty is compounded by
19 numerous additional factors.

⁴⁵ For a more detailed description of requirements under the APA and subsequent court decisions regarding the APA, see Congressional Research Service, A Brief Overview of Rulemaking and Judicial Review (March 27, 2017).

⁴⁶ 5 U.S.C. §§ 701-706.

1 **Q. PLEASE EXPAND UPON THE FACTORS THAT COMPOUND**
2 **UNCERTAINTY IN PREDICTING THE ULTIMATE SHAPE OF EPA**
3 **REGULATION.**

4 A. This is not necessarily an exhaustive list, but I have identified seven such
5 factors:

6 Factor 1: Participation of Diverse Stakeholder Interests

7 Federal regulations are not developed in a vacuum. Various
8 stakeholders are almost always engaged in the process, reviewing and
9 commenting on proposals and providing new information to EPA during the
10 process. These stakeholders typically include, but are not limited to,
11 representatives of the entities being regulated, environmental organizations,
12 state and local governments, and local community organizations. Because of
13 the open nature of the regulatory development process under the APA, EPA
14 must take into consideration input from these stakeholders and this input can
15 change the direction of a regulation. For example, an industry group may
16 provide technical information on the operations of its members that causes
17 EPA to reconsider whether a particular regulatory option is feasible. An
18 interested party may collect and provide environmental data that changes how
19 EPA understands the risk of a particular activity. In addition, states can
20 provide comments asserting that as written, they will not have the resources to
21 implement the proposed approach in a timely manner or at all. All of this can
22 change the eventual regulatory outcome.

23 Factor 2: The Length and Complexity of the Process

1 From start to finish, developing a new major regulation typically
2 requires years and can sometimes extend over a decade. The process is long
3 because it generally requires EPA to first collect detailed national information
4 to support any proposal. This includes collecting environmental information
5 (e.g., data on pollutants in soil, water, or air), information on instances of
6 environmental harm from the activities to be regulated, information on the
7 industry being regulated including how the regulated entities operate, and
8 information on the set of technical options available to control or prevent
9 pollution. In addition, EPA will often develop complex models to predict the
10 risk associated with existing operations and how that risk might be reduced
11 under various regulatory options as well as complex models to estimate the
12 economic impacts of different regulatory options.⁴⁷

13 The process also typically involves meeting with interested groups or
14 holding public meetings to gather information. Following the issuance of a
15 proposed rule, the drafting of which also requires considerable effort, EPA is
16 required to consider and respond to all significant comments on that proposal
17 from interested parties. This new information must be taken into consideration
18 when drafting a final rule. In the end, this extended process, because of its
19 length, creates additional opportunities for EPA to change the direction of a
20 regulatory process and end up with an outcome that is quite different from
21 where the Agency started.

⁴⁷ EPA must develop detailed cost information even though the decision framework in the statute may require EPA to base its regulatory decision solely on technology or risk considerations. Cost effectiveness is always relevant among equally acceptable options under any decision framework.

1 Factor 3: Collection of New Information

2 As noted above, EPA can receive significant new information
 3 throughout the regulatory development process, either information it collected
 4 itself or information provided from outside parties. This new information can
 5 modify the approach EPA takes to developing a final rule as it can change
 6 what is known about risk, technology, costs, and other factors. Depending on
 7 the significance of the new information, EPA may issue public notices on the
 8 availability of the new information to ensure that all interested rulemaking
 9 participants can update their comments.

10 Factor 4: Additional Analyses Required by Executive Orders

11 In addition to adhering to the APA, EPA must also comply with a
 12 variety of Executive Orders that have been issued since the early 1970s that
 13 require additional analysis and review of proposed regulations before they are
 14 made final.⁴⁸ Under these orders, EPA must conduct detailed cost-benefit
 15 analyses for all significant rulemakings justifying that the benefits exceed the
 16 costs and must also submit rules to the Office of Management and Budget
 17 (OMB) for their review before publishing either a proposed or final rule.⁴⁹

⁴⁸ See for example Executive Order No. 12866, 58 Federal Register 51735 (October 4, 1993); Executive Order No. 13563, 76 Federal Register 3821 (January 21, 2011).

⁴⁹ Other examples of analyses that EPA is required to perform include, but are not limited to: (1) the economic impact of the rule on small entities pursuant to the Regulatory Flexibility Act, (2) the requirements of the rule with regard to information collection pursuant to the Paperwork Reduction Act, (3) the impact of the rule on state, local, or tribal governments under the Unfunded Mandates Reform Act, (4) Executive Order 13211 that requires an evaluation of the rule on energy supply, distribution, or use, (5) Executive Order 12898 on the rule's conformance with environmental justice executive policy, Executive Order 13045 on the protection of children from environmental health and safety risks, (6) conformance of the rule with the National Technology Transfer and Advancement Act that directs EPA to use certain voluntary consensus standards.

1 These additional required analyses and the review by OMB can have
2 important impacts on the eventual final rule adopted.⁵⁰

3 Factor 5: Changes in Administration

4 Presidential administrations have different priorities when it comes to
5 environmental regulations. Therefore, a change in administration during an
6 ongoing regulatory development process can materially change the outcome
7 of that process. I witnessed several such changes during my time at the U.S.
8 Environmental Protection Agency and such changes continue to occur
9 following each Presidential cycle. Different administrations not only can have
10 different policy objectives but can interpret the same environmental data and
11 science differently in terms of priority.

12 As a recent example, EPA under the Obama administration spent
13 several years developing a detailed proposed rule to impose insurance
14 requirements to fund the cleanup of contamination at mining facilities. The
15 proposed rule was issued in the last week before the Trump administration
16 took office.⁵¹ EPA, under the new administration, reconsidered the need for
17 the proposal and eventually determined the risk did not justify the rule and
18 decided not to issue a final rule.⁵²

19 Changes in administration can result in such wholesale decisions to
20 issue or not to issue a rule and can also result in changes in how stringent a

⁵⁰ OMB also has responsibility for considering and addressing interagency impacts as EPA regulations can impact other federal agencies.

⁵¹ 82 Federal Register 3388 (January 11, 2017).

⁵² 83 Federal Register 7556 (February 21, 2018).

1 final rule is—either more or less stringent depending on the new
 2 administration’s priorities. Because complex rulemaking processes often take
 3 so long, there is a high probability a change of administration will occur
 4 during a rulemaking. In addition, a change in administration can also change
 5 how a rule is implemented at a site-specific level. For example, a new
 6 administration may have different priorities for how a particular regulation
 7 will be enforced.

8 Factor 6: Court challenges

9 As noted above, the APA provides a framework for the judicial review
 10 of a final regulation, allowing the court to strike down provisions in a final
 11 rule for several reasons. Almost all significant environmental rules are
 12 immediately challenged in courts, typically by both environmental and
 13 industry organizations. These challenges are often successful in remanding or
 14 vacating all or part of a rule. Prominent examples of this for major EPA
 15 rulemakings, including RCRA rulemakings, include:

- 16 • The 1991 court decision vacating RCRA’s “mixture” and “derived from”
 17 rule, finding that EPA did not provide adequate notice of either rule.⁵³
- 18 • The 2014 court decision vacating all of a rule that would allow hazardous
 19 waste to be exempt from RCRA regulation when used as a fuel under
 20 certain circumstances.⁵⁴

⁵³ *Shell Oil Co. v. U.S. Environmental Protection Agency* (December 6, 1991). This decision required EPA to re-promulgate the rules and precluded effective enforcement of the rule prior to the date of the new regulation.

⁵⁴ *Natural Resources Defense Council and Sierra Club v. EPA* (June 27, 2014).

- 1 • The 2017 court decision vacating certain provisions of a RCRA rule that
- 2 were found to exceed EPA’s authority to regulate hazardous waste
- 3 recycling.⁵⁵
- 4 • The 2017 court decision recently vacating EPA’s Significant New
- 5 Alternatives Policy (SNAP) rule, finding that EPA lacked authority to
- 6 regulate HFCs that were used as replacements for ozone-depleting
- 7 substances.⁵⁶

8 Therefore, while a regulated entity must plan for complying with a

9 final rule after it is promulgated, there still remains uncertainty regarding the

10 extent to which a final rule will stand until these challenges are decided. In

11 addition, if a particular rule or provision is remanded or vacated, EPA will

12 often initiate the regulatory process again and develop a new proposal for

13 response and comment, to address the remanded or vacated provisions. The

14 judicial review process continues to create considerable uncertainty, although

15 once the rule is final, regulated entities are required to move forward with

16 compliance.⁵⁷

17 Factor 7: Federal/State interface

18 Congress established the RCRA regulatory framework, as well as other

19 federal programs such as the Clean Water Act, as federal-state partnerships

⁵⁵ *API v. U.S. Environmental Protection Agency*, Docket No. 09-1038 (July 7, 2017). This decision struck down portions of EPA’s 2015 Definition of Solid Waste Rule, including one of the factors EPA proposed to distinguish between “legitimate recycling” and “sham recycling.” It also struck down requirements EPA imposed on recyclers of hazardous secondary materials.

⁵⁶ *Mexichem Flour, Inc., v. U.S. Environmental Protection Agency*, Docket 15-1328 (August 8, 2017).

⁵⁷ This same circumstance exists when after finalizing a regulation, EPA decides to make modifications to that regulation based on a petition or any number of other reasons. Once final, regulated entities must comply with a rule until such time it is modified.

1 and this creates uncertainty on how and when a federal regulation will be
 2 adopted and implemented at the state level. Under this framework of
 3 cooperative federalism, once EPA issues a rule, states can be the primary
 4 implementer and enforcer of the regulation if they develop state regulations
 5 that are no less stringent than the federal regulations and their program is
 6 approved by EPA. Importantly, the federal framework allows states to develop
 7 regulations that are either more stringent and/or broader in scope than federal
 8 regulations. Many states will use the federal regulation as a starting point and
 9 make changes or modification to the regulation before promulgating a state
 10 regulation.⁵⁸ So a regulated entity in a particular state may not know the exact
 11 requirements that it will have to comply with until the state has issued the
 12 companion regulations and been approved by EPA to implement them.⁵⁹

13 **Q. DOES THE PROMULGATION OF A RULE BRING AN END TO**
 14 **REGULATORY UNCERTAINTY?**

15 A. Not always. While some regulations are straightforward and self-
 16 implementing, others may allow for a range of regulatory approaches
 17 depending on site-specific conditions. Regulations also may be implemented
 18 through the issuance of site-specific permits or agreements and permitting
 19 authorities are often granted leeway to impose additional requirements beyond

⁵⁸ Some states, including North Carolina, have statutes that preclude them from implementing state RCRA regulations that are more stringent than the companion federal regulations.

⁵⁹ Note that there are situations under RCRA where both federal regulations and state regulations on the same topic may be enforceable. One example is when a state chooses to adopt regulations but not apply to EPA for authorization to implement the federal RCRA program. This has happened in various states with regard to state underground storage tank requirements. In these cases, regulated entities are subject to both the federal and state regulations.

1 what is in the regulations. For example, RCRA provides what is called an
2 “omnibus authority” to permit writers for hazardous waste facilities. This
3 authority explicitly allows permit writers to impose additional site-specific
4 permit conditions into RCRA permits if necessary to protect human health and
5 the environment.⁶⁰

6 **Q. PLEASE SUMMARIZE YOUR THOUGHTS ON REGULATORY**
7 **UNCERTAINTY.**

8 A. Simply put, with respect to complex environmental regulations, it is very
9 difficult to predict the final outcome. While the issuance of a proposed rule
10 may provide some guidance to those being regulated as to the potential scope
11 of a final rule, significant changes can and do occur before a final rule is
12 issued. In some cases, a final rule is never issued at all. Significant changes to
13 a proposed rule as well as the failure in some cases to finalize a rule are due to
14 many of the factors discussed above—new information, stakeholder
15 comments, OMB reviews, and changes in administrations. In addition, EPA
16 sometimes proposes multiple regulatory options in a proposed rule without
17 indicating which option will be selected in the final rule. In those cases, a
18 proposed rule is only a limited guide in understanding a final rule. And even
19 following promulgation, court challenges, the federal/state interface in terms
20 of rule implementation, and site-specific implementation by the implementing
21 authority (often the state) all combine to make the process even more
22 uncertain.

⁶⁰ Section 3005(c)(3) of RCRA, codified at 40 CFR 270.32(b)(2).

1 Ultimately, trying to predict the precise shape, reach, and impact of
2 pending EPA actions is a problematic exercise, where one can easily guess
3 wrong. When significant dollars are at stake, it is reasonable to wait for more
4 certainty.

5 **Q. APPLYING THE CONCEPTS OUTLINED ABOVE, PLEASE**
6 **PROVIDE ADDITIONAL DETAIL FOR YOUR OPINION RELATING**
7 **TO THE UNCERTAINTIES FACED BY OWNERS AND OPERATORS**
8 **OF COAL ASH BASINS IN NORTH CAROLINA PRIOR TO**
9 **PASSAGE OF CAMA AND THE ADOPTION OF THE CCR RULE.**

10 A. For many of the reasons I have described above, electric utilities faced
11 considerable uncertainty as to the future regulation of their ash ponds,
12 including the technical requirements that might be imposed on ponds and
13 whether older ponds would require closure and, if so, what closure would
14 entail.

15 Following the passage of RCRA in 1976, the uncertainty initially
16 centered on whether EPA would regulate CCR under the hazardous waste
17 regulations. That uncertainty was seemingly resolved in 1993 when EPA
18 announced its decision not to do so and its conclusion that existing regulations
19 at the state level were generally adequate. However, the uncertainty re-
20 emerged in 2000 when EPA announced its intent to develop tailored national
21 regulations under the non-hazardous, Subtitle D program.

22 When EPA made this announcement in 2000, there was little guidance
23 on what such national regulations for CCR might look like. EPA's conclusion

1 that some form of national regulation was warranted was based on the fact
2 that under certain conditions, EPA was concerned that CCR could pose risks
3 and that EPA's existing information raised questions as to whether state
4 regulatory programs were sufficiently comprehensive in requiring protective
5 controls on a site-specific basis. The only similar regulations EPA had
6 developed under the Subtitle D program were for municipal solid waste
7 landfills that accepted hazardous waste from exempt generators. These
8 regulations did not address any type of surface impoundments containing solid
9 waste. In addition, the focus on impacts to groundwater covered the same
10 wide range of organics and inorganics that were addressed in EPA's hazardous
11 waste regulations.

12 EPA used its hazardous waste landfill regulations as a starting point for
13 considering which requirements were appropriate for these municipal waste
14 landfills. The information available on ash ponds at the time showed
15 constituents limited to certain inorganics and evidence of damage to the
16 environment was limited. Additionally, in this same general time period, EPA
17 completed a study of non-hazardous waste industrial surface impoundments
18 and found little potential for risk:

19 Specifically, EPA examined the universe of impoundments
20 that manage non-hazardous wastewaters; characterized the
21 pollutants of concern, likely releases, and pathways from
22 these impoundments; and assessed potential risks to human
23 health and the environment. Little risk was found and, such as
24 it is, any risk is not widespread.⁶¹

⁶¹ U.S. Environmental Protection Agency, Industrial Surface Impoundments in the United States (March 2001), p. 5-2 and 5-9.

1 Therefore, at the beginning of the CCR regulatory development process in
2 2000, a utility would have only minimal guidance on the likely outcome.

3 **Q. DID EPA’S ISSUANCE IN 2010 OF A PROPOSED CCR RULE**
4 **ELIMINATE REGULATORY UNCERTAINTY?**

5 A. No. To the contrary, EPA’s issuance of a proposed federal CCR rule in 2010
6 included a range of possible regulatory outcomes and, therefore, did not create
7 any certainty as to the eventual scope or timing of new CCR requirements,
8 and did not remove the uncertainty around the future regulation of ash ponds.

9 The proposed rule offered regulatory options that varied significantly
10 in how they would address existing ash ponds. One of the options would
11 regulate CCR as a special waste under the hazardous Subtitle C regulations
12 (the Subtitle C Option). Existing ash ponds would be required to meet similar
13 requirements to hazardous waste surface impoundments or go through formal
14 closure. Another option would establish standards for ash ponds under the
15 non-hazardous Subtitle D regulations (the Subtitle D Option). Under this
16 option existing ash ponds would also need to meet new technical standards,
17 including composite liners, or close. However, EPA also offered a third option
18 it called “D prime.” This option was the same as the Subtitle D option, except
19 that existing unlined ash ponds would not have to close or install composite
20 liners but could continue to operate for their existing life.⁶² Therefore, the
21 proposal left open whether existing ash ponds would be required to upgrade or

⁶² 75 Federal Register 35128, 35134 (June 21, 2010).

1 close or could continue to operate as is and whether CCR would be regulated
2 as a hazardous waste or as non-hazardous waste.

3 In addition to the D prime option, EPA's proposal offered additional
4 uncertainty as to how existing ash ponds would be regulated. In the preamble,
5 EPA requested comment on another approach where existing surface
6 impoundments would not be phased out, but EPA would establish and fund a
7 program for conducting structural stability assessments for these
8 impoundments if warranted by their U.S. Army Corps of Engineers hazard
9 potential rating.⁶³ It also suggested that there was at least a possibility it
10 would not finalize any proposal at all and allow CCR to continue to be
11 regulated at the state level:

12 Some commenters have suggested that EPA not promulgate
13 any standards, whether they be RCRA subtitle C or D, but
14 continue to rely on the states to regulate CCRs under their
15 existing or new state authorities. The Agency solicits
16 comment on such an approach.⁶⁴

17 Accordingly, EPA's 2010 proposal left very much open whether the
18 regulations would force the closure of existing surface impoundments prior to
19 the end of their useful life and, if so, in what timeframe and under what
20 conditions.

21 The proposed regulation also created uncertainty as to the
22 requirements that would be imposed during ash pond closure as well as the
23 requirements for any new unit (landfills, impoundments, or other unit) that

⁶³ 75 Federal Register 35128, 35210 (June 21, 2010).

⁶⁴ 75 Federal Register 35128, 35223 (June 21, 2010).

1 might replace a closed ash pond. Under the Subtitle C option, surface
2 impoundments would have to meet the existing closure requirements for
3 hazardous waste impoundments at 40 CFR parts 264/265 which requires an
4 approved closure plan or closure permit and specific technical standards such
5 as a permeability requirement for caps. Under the Subtitle D option, as
6 proposed, a closure permit would not be necessary and the closure standards
7 would allow for either a closure-in-place, where liquids are removed and a
8 final cover system is installed, or a closure by removing CCR from the unit
9 and decontaminating areas affected by past releases when necessary to protect
10 health or the environment.⁶⁵

11 The standards for a new unit (either landfill or surface impoundment)
12 that might replace a closed unit also differed. Both options included siting and
13 location restrictions, but there were differences. The Subtitle D option
14 included additional restrictions (including restrictions related to the proximity
15 to water tables and wetlands) that did not exist under the Subtitle C option.
16 Both options would require the installation of similar composite liner systems,
17 but under the Subtitle D option, EPA indicated it would consider the option of
18 allowing alternative liners that met the same performance standards:

19 In the absence of a strong state oversight mechanism, such as
20 a permit, EPA is reluctant to allow facilities to modify this
21 key protection. Nevertheless, EPA would be interested in
22 receiving data and information that demonstrates whether
23 under other site conditions, an alternative liner would be
24 equally protective.”⁶⁶

⁶⁵ 75 Federal Register 35128, 35352 (June 21, 2010).

⁶⁶ 75 Federal Register 35128, 35203 (June 21, 2010).

1 Similarly, under the Subtitle C option, EPA suggested it was open to
2 considering clay liners as an option:

3 Although EPA has not confirmed damage cases involving the
4 failure of clay liners, it is not proposing to allow new disposal
5 units to be built solely with clay liners. EPA's modeling in its
6 risk assessment indicated that clay liners could be of concern;
7 EPA also believes that composite liners reflect today's best
8 practices for new units, and, as such can therefore be feasibly
9 implemented. Nevertheless, EPA solicits comments on
10 whether clay liners should be allowed under EPA's
11 regulations.⁶⁷

12 In addition, the Subtitle C approach would impose a variety of other
13 restrictions, such as land disposal restrictions that require CCR to meet certain
14 treatment standards before being disposed of in a landfill or surface
15 impoundment, regardless of whether the CCR was going into a lined landfill
16 or surface impoundment, as well as standards limiting the storage time for
17 CCR. These land disposal restrictions requirements did not exist under the
18 Subtitle D or D prime option.

19 These differences in the proposed regulatory options—in the standards
20 for existing surface impoundments, for the closure of units, for the siting and
21 standards for units to replace those that close, and in other important areas—
22 left electric utilities with little certainty as to the most likely eventual
23 regulatory outcome. Indeed, given EPA's express invitation for comment on
24 what amounted to a "no action" approach, some possibility existed, even if
25 small, for EPA not to issue any regulation at all.

⁶⁷ 75 Federal Register 35128, 35175 (June 21, 2010).

1 **Q. BEYOND THE VARIOUS OPTIONS FOR COAL ASH**
2 **MANAGEMENT IN THE PROPOSED CCR RULE, ARE THERE**
3 **OTHER SOURCES OF REGULATORY UNCERTAINTY FACED BY**
4 **ELECTRIC UTILITIES?**

5 **A.** Yes, and particularly in two respects: CCR beneficial use and the development
6 of new effluent guidelines for the electric industry.

7 Beneficial use of CCR includes the reuse of CCR in various
8 applications, including as a raw material in cement manufacturing, in
9 manufacturing wallboard, or as structural fill. Beneficial use can reduce the
10 amount of CCR being stored in ash ponds and can create alternatives to the
11 disposal of CCR during ash pond closure. Since the 1980s, EPA has been a
12 proponent of beneficial coal ash reuse because the practice can reduce the use
13 of virgin resources, lower greenhouse gas emissions, reduce the cost of coal
14 ash disposal, and add improved strength and durability to product materials.
15 Thus, the availability of markets for beneficial reuse was understood to have
16 an important effect on closure costs. In its February 1988 CCR Report to
17 Congress, EPA estimated that approximately 27 percent of all CCR was
18 beneficially used.⁶⁸ In its 2000 regulatory determination, in announcing its
19 intention to develop national criteria for CCR under Subtitle D, EPA
20 concluded that federal regulation was not warranted for beneficial uses, citing

⁶⁸ 1988 CCR Report to Congress, p. 4-45.

1 the lack of risk information and lack of damage cases and therefore exempted
2 such uses from regulation.⁶⁹

3 By 2008, the beneficial use of CCR had grown and the industry
4 estimated 37 percent of CCR was beneficially used in some capacity.⁷⁰
5 However, in its 2010 proposal, EPA hinted that it would consider regulatory
6 restrictions on certain types of beneficial reuse. Specifically, EPA requested
7 comments on whether the exemption from regulation should apply to what it
8 called “unencapsulated uses,” uses of CCR in which the CCR is not bound in
9 some way, such as using as structural fill.⁷¹ It also solicited information on
10 approaches it could take to defining beneficial use in order to describe more
11 clearly which uses would be regulated and which would not. Therefore, the
12 proposal created further uncertainty as to whether and how beneficial use
13 might be regulated. In the final rule, EPA did, in fact, promulgate a definition
14 of beneficial use designed to restrict those uses that would be exempt from
15 CCR regulation and to specifically limit certain unencapsulated uses.
16 However, until EPA completed its analysis as to what constituted beneficial
17 use, the volume of CCR that would require disposal in the future, as well as

⁶⁹ 65 Federal Register 32214, 32221 (May 22, 2000). “The Agency has concluded that no additional regulations are warranted for coal combustion wastes that are used beneficially (other than for minefilling) and for oil and gas combustion wastes. We do not wish to place any unnecessary barriers on the beneficial use of fossil fuel combustion wastes so that they can be used in applications that conserve natural resources and reduce disposal costs.” And, “We support increases in these beneficial uses, such as for additions to cement and concrete products, waste stabilization, and use in construction products such as wallboard.”

⁷⁰ Congressional Research Service, Managing Coal Combustion Waste (January 12, 2010), p. 18. In the final CCR rule, EPA estimated that as of 2012, the amount of beneficial reuse was approximately 40 percent of CCR generated. (80 Federal Register 21302, 21303, 21309 (April 17, 2015).

⁷¹ 75 Federal Register 35128, 35160 (June 21, 2010). The one exception EPA identified was minefilling, which EPA believed did warrant regulation.

1 the options available at ash pond closure, remained uncertain, impacting
2 accurate evaluation of closure alternatives and timeframes.

3 EPA's effluent guidelines rulemaking created additional uncertainty as
4 it was proceeding in parallel with the CCR rulemaking. EPA first proposed
5 revisions to the effluent guidelines in 2013, after the proposed CCR rule, but
6 before the final CCR rule. The effluent guidelines proposal included several
7 options, some of which would establish zero discharge for both fly ash and
8 bottom ash transport water (i.e., the water used to sluice ash to
9 impoundments), and therefore force the closure of most ash ponds; other
10 options were less stringent.⁷²

11 The proposal also left open the question of the timing of
12 implementation of the new effluent guidelines and how those deadlines might
13 interact with compliance deadlines under the CCR rule.⁷³ EPA also noted in
14 the preamble to the effluent guidelines proposal that it had collected
15 information for the rulemaking that might affect the outcome of the CCR
16 rulemaking:

17 However, it is also possible that the requirements established
18 under a final ELG rule could affect the development of any
19 final CCR rule more broadly. Since the close of the comment
20 period on the CCR rule, EPA has received significant new
21 data obtained from a 2010 Information Collection Request
22 (ICR) conducted by EPA's Office of Water for the
23 development of the ELG [effluent limitations guidelines],

⁷² 78 Federal Register 34432 (June 7, 2013). The proposal included several options for the revised effluent limitations. Under all of the proposals, the zero-discharge limit would have applied to fly ash, while only some of the options would apply a zero-discharge limitation for bottom ash.

⁷³ See 78 Federal Register 34432, 34442 (June 7, 2013) for a discussion of these implementation timing issues.

1 which have the potential to affect the risk assessment for the
2 CCR rule.⁷⁴

3 Therefore, the effluent guidelines rulemaking created additional
4 uncertainty as to whether existing ash ponds would be required to close, how
5 the requirements would be coordinated with the CCR rule, and whether the
6 CCR rule would change because of the effluent guidelines rulemaking.

7 **Q. DID THE ENACTMENT OF CAMA AND PROMULGATION OF THE**
8 **FINAL CCR RULE CREATE CERTAINTY AS TO THE CLOSURE**
9 **OF ASH PONDS AND THE GENERAL PROCESS FOR DOING SO?**

10 A. It did create certainty that closure of unlined ash ponds would be required and
11 that regulated utilities should begin planning for such closure. CAMA
12 required the conversion to a dry ash management system, specified the closure
13 dates for coal ash ponds at four facilities, and established a schedule for the
14 closure of other ash ponds dependent on the risk classification of the ponds by
15 DEQ. In addition, the federal CCR rule, as initially promulgated, mandated
16 the closure of unlined ash ponds that could not meet specified location and
17 other standards. Depending upon the specific ash pond, CAMA or the CCR
18 rule could result in a more stringent closure date. Therefore, while CAMA and
19 the federal CCRA rule did not resolve all regulatory uncertainties regarding
20 the exact timing or requirements for closure, as described in more detail
21 below, they did clarify the need to plan for the closure of ash ponds.

⁷⁴ 78 Federal Register 34432, 34442 (June 7, 2013).

1 **Q. WHAT REGULATORY UNCERTAINTY REMAINED EVEN AFTER**
2 **PASSAGE OF CAMA AND THE CCR RULE?**

3 A. With the passage of CAMA and the final federal CCR regulations, DE
4 Progress would understand that existing ash ponds would be required to close.
5 However, the details for closure were still uncertain. Under CAMA and the
6 CCR rule, as well as the effluent guidelines, the timing of closure for many
7 ash ponds was not certain. Furthermore, the specific requirements for pond
8 closure at a specific location were also not known and would not be
9 determined without site-specific regulatory clarity from DEQ.

10 **Q. PLEASE EXPAND.**

11 A. CAMA provides for several options for the closure of an ash pond, depending
12 on the classification of the pond as either high-, intermediate-, or low-risk.
13 The statute required DEQ to propose classifications of all CCR surface
14 impoundments in the state not already deemed high-priority by the General
15 Assembly in CAMA itself, with the classification due by the end of 2015. The
16 2014 statute included a list of information DEQ was required to consider in
17 making these risk classifications, but these criteria were removed from the
18 statute with the 2016 amendments.⁷⁵ The closure options for a pond classified
19 as either high or intermediate risk are limited and require the removal of all

⁷⁵ § 130A-309.213. In addition, the 2016 amendments directed DEQ to classify all impoundments where an alternative water supply has been established and where the impoundments are in compliance with dam safety requirements to be classified as low-risk; all other remaining impoundments were classified as intermediate-risk (§ 130A-309.213(d)).

1 CCR from the pond. The options for closing a low risk pond are more varied
2 and include either the removal of all CCR or closure by capping-in-place.⁷⁶

3 Accordingly, at CAMA's passage, with the exception of the surface
4 impoundments deemed high-priority under the statute, when an ash pond
5 would be required to close and whether it would be required to remove all
6 CCR was uncertain. That uncertainty would not be resolved until DEQ
7 classified the remaining surface impoundments as either high, intermediate, or
8 low-risk and then, for those classified as low-risk, made a final determination
9 on which closure option would be selected. Even then, the options available
10 for closure under CAMA, particularly for a surface impoundment classified as
11 low-risk, range significantly in scope and potential cost. The biggest range is
12 between a closure-in-place system, with a cap, and a closure involving the
13 excavation of all CCR. In fact, the timing of closure remained uncertain for
14 low priority ash ponds until a location-specific analysis was performed against
15 the CCR location criteria.

16 On April 1, 2019 DEQ issued an order requiring Duke Energy to
17 excavate coal ash at six plants it has classified as low risk: two DE Progress
18 plants (Mayo, and Roxboro) and four DE Carolinas plants (Allen, Belews
19 Creek, Cliffside, and Marshall). Duke Energy challenged these orders and on
20 December 31, 2019 entered into a settlement agreement with DEQ and

⁷⁶ Closure-in-place requires a cap system designed in conformance with state and federal regulations and the maintenance of a leachate collection system, installation and maintenance of a groundwater monitoring system, and establishment of financial insurance to ensure there are sufficient funds to maintain the closed pond and for corrective action, if there are releases from the pond. CAMA also allows low-risk ponds to close in compliance with the federal CCR rule, which also offers the option of either removal of CCR or closure-in-place.

1 community and environmental groups. That settlement agreement required
2 Duke Energy to excavate the majority of the coal ash remaining in the ash
3 ponds but allowed some coal ash to remain in certain portions of the ash
4 ponds under specified conditions.

5 **Q. IN LIGHT OF THE REGULATORY UNCERTAINTY YOU HAVE**
6 **TESTIFIED TO, IN YOUR OPINION WOULD A COMPANY HAVE**
7 **BEEN ACTING IMPRUDENTLY IN WAITING UNTIL AFTER CAMA**
8 **AND THE CCR RULE BECAME LAW TO TAKE SPECIFIC**
9 **ACTIONS WITH RESPECT TO CCR IN ITS COAL ASH BASINS?**

10 A. No. Companies with ash ponds did not act imprudently by waiting for
11 regulatory clarity as long as they continued to work with regulatory agencies
12 to address any site-specific environmental risks, including structural issues,
13 associated with ash basin operation. EPA had studied this issue since the late
14 1970s, collecting data and continuing to review state regulatory frameworks
15 that had been implemented to address site-specific risks. Had EPA's
16 information supported an unacceptable general risk across the large number of
17 unlined ash ponds, it would have been able to act to finalize requirements
18 much sooner than it did. As I noted previously, even with the issuance of the
19 2015 CCR rule, it did not require the closure of all unlined ash ponds.

20 **Q. WHAT IS THE BASIS OF THIS OPINION?**

21 A. Closing or upgrading an ash basin before issuance of the final requirements
22 could easily lead to actions that would, a relatively short time later when the
23 rules were finalized, be either insufficiently rigorous or overly stringent. In

1 either case, this could lead to expenditures that would be imprudent absent a
2 situation where environmental damage would occur or be exacerbated if the
3 ash pond was not upgraded or closed prior to the deadlines in the final
4 CAMA/CCR rule. For most ash ponds in the United States, that situation did
5 not exist. That is, it was reasonable and prudent to wait until the regulations
6 were final and comply with deadlines in those regulations. Such continued
7 operation without upgrading or closure was consistent with common industry
8 practices and the general and available knowledge about the risk of operating
9 unlined CCR ash basins.

10 EPA has been studying the characteristics, management, and risk of
11 CCR since the passage of RCRA in 1976 and therefore was, and is today, a
12 reliable authority on these matters. EPA's initial study resulted in the 1988
13 CCR Report to Congress and subsequent 1993 determination not to regulate
14 CCR under RCRA. The CCR Report to Congress did not identify risks from
15 the current management of CCR that warranted additional federal
16 regulation.⁷⁷ As I previously summarized, EPA found that based on most
17 studies, CCR generally did not meet any of the four hazardous waste
18 characteristics and while EPA did note a limited number of instances of
19 groundwater contamination downgradient of CCR sites, they could not always
20 connect these exceedances to the management of CCR. In terms of risk, EPA

⁷⁷ In terms of the CCR management at that time, EPA found that: (1) 80 percent of utilities employed some type of ash pond; (2) there were a total of 483 surface impoundments in the United States, 195 of them in EPA's Region IV, which includes North Carolina; (3) Of the 483 surface impoundments in the United States, only 45 were known to have liners—information on whether those were clay or synthetic liners was not available; (4) In Region IV, only three of the 195 surface impoundments were known to have any type of liner at that time. The report also found that approximately 65 percent of all utilities did not have groundwater monitoring. (1988 CCR Report to Congress, Chapter 4)

1 concluded that “the actual potential for exposure to human and ecological
2 populations is likely to be limited, however, since ground water in the vicinity
3 of utility waste disposal sites is not typically used for drinking water; the
4 concentrations of contaminants in the ground water also tend to be diluted in
5 nearby surface water bodies.”⁷⁸ EPA’s conclusion was that “current waste
6 management practices appear to be adequate for protecting human health and
7 the environment.”⁷⁹ EPA reached this conclusion even though it understood
8 that current management practices included the vast majority of surface
9 impoundments operating without liners or leachate collection systems and that
10 groundwater monitoring at ash ponds and landfills was limited. Further, the
11 report’s conclusions section (Chapter 7) states the following: (1)
12 “Groundwater contamination does not appear to be widespread”; (2) “When
13 groundwater contamination does occur, the magnitude of the exceedance is
14 generally not large”; and (3) “Human populations are generally not directly
15 exposed to the groundwater in the vicinity of utility coal combustion waste
16 management sites.”

17 EPA continued to study CCR after the 1988 CCR Report to Congress,
18 collecting additional information before making its final hazardous/non-
19 hazardous decision. In justifying its decision not to regulate CCR as a
20 hazardous waste, EPA stated that regulating CCR was unwarranted because
21 “of the limited risk posed by ... [CCR] and the existence of generally

⁷⁸ 1988 CCR Report to Congress, p. ES-5.

⁷⁹ 1988 CCR Report to Congress, p. 7-11.

1 adequate State and Federal regulatory programs. The Agency also believes
2 that the potential damage from these wastes is often most determined by site-
3 or region-specific factors and that the current State approach to regulation is
4 thus appropriate.”⁸⁰ Consequently, it is my opinion that it would be reasonable
5 and prudent in this pre-2000 period for an owner of an existing ash pond
6 without liners and/or without an ongoing groundwater monitoring system to
7 continue to operate the ash pond as long as the owner addressed any site-
8 specific environmental issues in coordination with regulatory personnel.

9 When EPA decided to reconsider the federal regulation of CCR in
10 2000, it initiated additional studies to further evaluate the risk associated with
11 existing CCR management. By 2010, as I have discussed, EPA proposed
12 options for establishing minimum national standards for CCR management. If
13 EPA had the risk and other data necessary to proceed with defensible
14 regulations for CCR management, its rulemaking would have been completed
15 far more quickly than what occurred. For example, if EPA had data showing
16 that a high percentage of unlined ponds resulted in off-property impacts to
17 groundwater above drinking water standards, proceeding with liner
18 requirements for existing ponds would have been straightforward. However,
19 the data did not demonstrate this. As a result, EPA faced challenges in
20 finalizing a defensible RCRA rule without the collection of additional
21 information. Under RCRA, a good and defensible rulemaking needs to find a
22 solution that protects health and the environment without causing regulated

⁸⁰ 58 Federal Register 42466 (August 9, 1993).

1 parties and the public to incur significant unnecessary costs. In other words,
2 EPA's choice of approach should be among the most cost-effective ways to
3 achieve the necessary protection of health and the environment.

4 While EPA recognized that some ash ponds could result in risks to
5 groundwater or surface water, most operating ash ponds were not known to be
6 resulting in these risks. That included ash ponds that were unlined. In 2000,
7 EPA had identified 14 proven damage cases and 36 "potential" damage cases
8 from CCR disposal in both landfills and ash ponds.⁸¹ This was a very small
9 number compared with the very large number of CCR waste management
10 units. Even as late as 2007, despite EPA's significant effort to identify and
11 evaluate damage incidents with significant inputs from interested
12 environmental groups, relatively few confirmed damage cases were known.
13 EPA's 2007 Notice of Data Availability noted 24 damage cases and 43
14 potential damage cases. With regard to groundwater, seventeen of the damage
15 cases were to groundwater and five or six of those were determined to be from
16 unlined ash ponds. That is against a universe of approximately 600 ash ponds,
17 the large majority of which were over 25 years old. And, as of 2000, EPA
18 estimated that 62 percent of ash ponds were unlined. Against this number of
19 unlined ash ponds, the number of confirmed pond damage cases to
20 groundwater from these units was quite small.

⁸¹ In its 2015 final CCR rule, EPA explained that potential damage cases involved situations where groundwater contamination had been found on the facility property but had not yet been found beyond the facility boundary.

1 In part to deal with the lack of data on all unlined ponds, EPA
2 performed a groundwater risk assessment in advance of the proposed rule.
3 While this risk assessment predicted groundwater risks outside of EPA's
4 traditional protective risk range for compounds like arsenic, present in unlined
5 ponds, EPA recognized that there were numerous remaining uncertainties in
6 the ability of this risk assessment to accurately predict these groundwater risks.
7 EPA noted that the current version of its risk assessment was unable to
8 compensate for the location of many ash ponds near surface water bodies, a
9 fact that would potentially reduce the impacts on drinking water sources from
10 any CCR leachate leaving the ponds. EPA also noted that the leach tests it was
11 using as inputs to its risk assessment were highly uncertain in their ability to
12 predict the actual leachability of the mixed CCR streams in ponds and
13 landfills.

14 Thus, based on the extensive evaluation by EPA to quantify the risks of
15 unlined ash ponds at the time of the 2010 proposal, the number of known
16 damage cases was a very small percent of operating ash ponds. However, as of
17 2010, EPA found that 58 percent of ash ponds lacked groundwater monitoring
18 and that many states still did not require groundwater monitoring, a protection
19 EPA concluded "is a minimum for any credible regulatory regime."⁸² Waiting
20 until EPA issued its final rule was prudent as long as entities took steps to
21 install groundwater monitoring so that any site-specific risks would be able to
22 be identified and properly evaluated during the time that it took to finalize

⁸² 75 Federal Register 35128, 35149 and 35152 (June 21, 2010).

1 new CCR rules and obtain a final closure decision for low risk ash ponds
2 under CAMA. Additionally, EPA had performed structural assessments at
3 most ash ponds and to the extent structural deficiencies had been identified, it
4 would have been prudent to proceed to address them without waiting for a
5 final CCR rule.

6 **Q. DID YOU SEE ANY EVIDENCE THAT DE PROGRESS TOOK**
7 **ACTIONS TO ENSURE THAT ITS PONDS WERE NOT RESULTING**
8 **IN ENVIRONMENTAL HARM WHILE WAITING FOR THE**
9 **REGULATORY PROCESS TO CONCLUDE?**

10 A. Yes, I did. As an important backdrop, DE Progress operated eight plants, all
11 but one of which began operation long before the existence of RCRA and
12 state equivalent environmental regulations focused on protection of
13 groundwater from land-based waste management activities. However, in the
14 late 1970s, as general awareness of the need for groundwater protection was
15 evolving and as DE Progress was preparing to construct a new coal-fired
16 generating plant, the Company engaged consultants to evaluate whether trace
17 elements contained in coal ash would be expected to infiltrate into the
18 groundwater aquifer above protective levels.⁸³ This was prior to the time that
19 EPA or North Carolina had established solid or hazardous waste requirements
20 that were applicable to ash ponds and shortly before the time that North
21 Carolina first implemented its initial 2L groundwater program.

⁸³ See Evaluation of the Potential for Contamination of the Groundwater Aquifer by Leachate from the Coal Ash Storage Pond at the Mayo Electric Generating Plant Site, prepared for Carolina Power & Light by Edwin Floyd at Moore, Gardner & Associates, Inc. (January 31, 1979).

1 The 1979 DE Progress analysis prepared by Mr. Floyd collected site-
 2 specific information, representative of the Piedmont region in North Carolina.
 3 Mr. Floyd also relied upon data collected from a publicly available 1975
 4 Radian study, prepared for EPRI.⁸⁴ The 1975 Radian study examined the
 5 likelihood of trace element contamination of groundwater from the ponding of
 6 ash and sludge by evaluating ash, sludge, and soil conditions at five operating
 7 generating stations. The 1979 DE Progress report consolidated these data and
 8 evaluated the ability of Piedmont soils, and soils more generally, to ensure that
 9 groundwater was protected from contamination from trace elements present in
 10 coal ash. The Radian report, which evaluated a range of soil types, concluded
 11 that “Over even an estimated 30-50 year active life most soils will provide
 12 substantial protection against trace elements reaching an aquifer. The
 13 assumptions used in these calculations are very conservative in that ash and
 14 sludge materials will tend to be self-sealing due to the small particles plugging
 15 the soil formation.”⁸⁵

16 The 1979 site-specific study prepared by Mr. Floyd, which included
 17 data collected at the Roxboro ash ponds, reached similar conclusions – that
 18 the soil conditions at the proposed ash pond site at the Mayo plant are
 19 adequate to provide excellent protection to the groundwater in preventing
 20 significant leakage from the pond and in reducing the concentrations of the

⁸⁴ See Environmental Effects of Trace Elements from Pondered Ash and Scrubber Sludge, Radian Corporation, Austin, Texas (September 1975). The Radian study was prepared for EPRI and was information reasonably available to DE Progress. The authors of the 1979 DE Progress report incorporated the analysis from the 1975 Radian study into their report.

⁸⁵Radian Corporation, Environmental Effects of Trace Elements from Pondered Ash and Scrubber Sludge (September 1975), p. 47.

1 heavy minerals by filtration before the leachate reaches the aquifer. The author
 2 concluded that “it is difficult to imagine that any significant adverse impact on
 3 the groundwater aquifer could be caused by ponding of the ash wastes at the
 4 proposed site.”⁸⁶

5 This was the type of analysis that EPA recognized as one appropriate
 6 way to demonstrate compliance with the federal solid waste criteria, issued in
 7 late 1979. These criteria defined in general terms, what constituted protective
 8 solid waste management practices with respect to groundwater. At this time,
 9 there was very limited groundwater monitoring at waste management units,
 10 including coal ash ponds, and research was just beginning on effective and
 11 protective ways to monitor groundwater.⁸⁷ Taken in conjunction with EPA’s
 12 assessment of the potential impacts of ash ponds in its 1988 CCR Report to
 13 Congress, it is my opinion that DE Progress reasonably and prudently would

⁸⁶ Floyd, Evaluation of the Potential for Contamination of the Groundwater Aquifer by Leachate from the Coal Ash Storage Pond at the Mayo Electric Generating Plant Site (January 31, 1979), p. 15.

⁸⁷ In EPA’s 1977 Report to Congress on the impact of waste disposal practices on groundwater, EPA found that “effective monitoring of potential sources of groundwater contamination was almost non-existent.” (U.S. Environmental Protection Agency, Report to Congress: Waste Disposal Practices and Their Effects on Groundwater (January 1977)) EPA’s 1983 study on surface impoundments showed that extremely low numbers of industrial surface impoundments had any groundwater monitoring. In North Carolina, less than 10 percent of over 300 waste surface impoundments across the state had any groundwater monitoring and only about 1 percent of almost 250 municipal impoundments had any groundwater monitoring. (U.S. Environmental Protection Agency, Surface Impoundment Assessment National Report (December 1983), Figures 4.14 and 4.15) In 1986, EPA found that 8.6% of industrial waste impoundments nationally had groundwater monitoring and only 3.8% of the nation’s almost 200,000 surface impoundments had groundwater monitoring of some kind. (U.S. Environmental Protection Agency, Subtitle D Phase I Report (October 1986), Table 4-18) The lack of early groundwater monitoring nationwide was consistent with the lack of detailed guidance on the appropriate number of wells, location of wells, depth of wells, and monitoring parameters to effectively monitor large, complex sites. It should also be viewed with the context that there was considerable concern at the time that siting groundwater wells through or too close to waste management units could result in transferring contamination into the groundwater that was the subject of the monitoring.

1 have believed that its ash basins would not result in groundwater
2 contamination at levels that would result in damage.⁸⁸

3 As of 1980, DE Progress notified EPA and North Carolina under
4 RCRA as to the presence of ash ponds at its North Carolina electric generating
5 plants. This notification was made under RCRA even though coal ash did not
6 classify as a RCRA hazardous waste and even though the facilities were not
7 managing hazardous waste at the time. This voluntary early notification
8 allowed federal and state agencies to evaluate whether or not these facilities
9 met the criteria, including the groundwater criterion, considered protective for
10 solid waste management facilities. In fact, North Carolina completed
11 screening assessments at these facilities by the mid-1980s, determining that
12 the facilities were considered low priority for a site inspection to evaluate
13 whether there were concerns about potentially significant impacts on the
14 environment.⁸⁹ This was consistent with the general understanding at the time
15 regarding impacts from unlined ash basins.

16 Many of the DE Progress facilities underwent additional screening by
17 EPA or its contractors in the late 1980s to early 1990s and in each case an
18 evaluation was performed, the sites were not considered candidates for further

⁸⁸ It is likely that DE Progress would have also been aware of the publicly available 1985 Arthur D. Little report prepared for EPA entitled Full-Scale Field Evaluation of Waste Disposal from Coal-Fired Electric Generating Plants. This was a detailed three-year study on groundwater at six coal ash plants including DE Carolinas' Allen facility. The report concluded that no major environmental effects had occurred at any of the six sites. The report noted that groundwater wells downgradient of disposal sites is typically less than primary drinking water standards.

⁸⁹ March 15, 1985 NC DHR letter to EPA on preliminary assessments for CP&L facilities.

1 evaluation work under federal remedial programs.⁹⁰ Additionally, although
 2 North Carolina also had the results of those assessments, North Carolina also
 3 did not prioritize the need for additional remedial work at those facilities. At
 4 the Sutton facility, the one site where North Carolina suggested to EPA that
 5 additional investigation be performed to assess groundwater impacts, DE
 6 Progress voluntarily began detailed groundwater investigations in
 7 coordination with North Carolina in the early 2000s.

8 DE Progress also incorporated groundwater monitoring at its facilities
 9 before EPA discussed the need for widespread groundwater monitoring in its
 10 2010 CCR proposed rule. As noted above, EPA found in its May 22, 2000
 11 regulatory determination that 62 percent of existing utility ash ponds did not
 12 have groundwater monitoring and 58 percent of ponds still lacked
 13 groundwater monitoring as of EPA's 2010 proposed CCR rule. In contrast, DE
 14 Progress installed a limited number of early groundwater monitoring wells at
 15 three of its facilities prior to 1980.⁹¹ Additional groundwater monitoring wells
 16 were installed at four of the DE Progress facilities, including three located in

⁹⁰ For example, see August 22, 1995 letter from EPA to DE Progress on removal of the Asheville facility from EPA's CERCLIS inventory. The letter states that the site was screened and determined to require no remedial action under the federal Superfund program. Also see April 29, 1996 letter from EPA to DEQ (North Carolina DEHNR at the time) noting that no further remedial action was planned under the federal Superfund program at the DE Progress Mayo facility, Roxboro facility, and Lee facility. The DE Progress Sutton facility underwent Superfund screening in the 1990s. North Carolina completed an Expanded Site Inspection Report and submitted it to EPA in 1999. North Carolina recommended that the Sutton facility be considered for further federal action under CERCLA. EPA did not proceed with further federal action and DE Progress entered into a voluntary agreement with North Carolina in 2004 to investigate and address historical ash management areas at the facility.

⁹¹ See Lucas Testimony, Corrected Exhibit 18. This exhibit contained DE Carolinas' response to the Public Staff Data Request No. 101-1 from March 2, 2020. The exhibit notes that prior to 1980, DE Progress installed 3 groundwater monitoring wells at the Asheville facility and one groundwater monitoring well each at the Sutton and Weatherspoon facilities.

1 the Coastal Plain areas of North and South Carolina, between the mid-1980s
2 and 1995.⁹² DE Progress voluntarily began regular groundwater monitoring at
3 its remaining facilities between 2006 and 2008 as part of the voluntary
4 USWAG program.

5 In my review, I also saw evidence that DE Progress worked
6 cooperatively with DEQ when data indicated the need for further evaluation
7 of potential releases to groundwater and surface water. One example is the
8 early identification of chloride in groundwater at levels below 2L standards at
9 the Sutton plant. This led to DE Progress' decision to line the ash basin
10 constructed in 1984 due to the site-specific hydrogeological conditions at that
11 facility. Another example was the identification of high selenium levels in
12 Hyco Lake in the 1986 timeframe resulting from operations at the Roxboro
13 facility. This led to DE Progress' decision to switch to dry fly ash management
14 and to construct an on-site ash landfill. A third example was the decision to
15 convert to full dry ash management at the Mayo facility in 2012 due to
16 difficulties in consistently meeting all NPDES effluent limits after the
17 installation of the FGD scrubber.

18 It is my opinion that DE Progress's decision to continue to operate its
19 ash ponds while waiting for the finalization of the CCR rule, and CAMA, was

⁹² At the DE Progress Sutton facility, voluntary groundwater monitoring began in 1984 and additional wells were installed in 1986. Groundwater monitoring was included in the 1990 NPDES permit. At the DE Progress Roxboro facility, groundwater monitoring downgradient of the east ash pond and landfill began in 1987. Two groundwater monitoring wells were installed downgradient of the west ash basin in late 1986. At the DE Progress Weatherspoon facility, regular groundwater monitoring began in late 1989 under the NPDES permit. At the DE Progress Robinson facility, groundwater monitoring began in 1995 and was included in the NPDES permit. Thus, by 1995, groundwater monitoring had occurred at five of the eight DE Progress facilities.

1 reasonable and prudent given the Company's ongoing efforts to work with
2 DEQ to address site-specific environmental issues as those issues were
3 identified. The Company's performance was consistent with the performance
4 of many other utilities that continued to operate unlined ash ponds, as noted in
5 EPA's proposed CCR rule.

6 During the time after Duke installed its groundwater monitoring
7 systems, it reported its data to DEQ as required. Evaluating groundwater data
8 and reaching conclusions as to appropriate corrective action steps is typically
9 a complex and iterative process. It may include consideration of numerous
10 factors including whether any exceedances of 2L standards in groundwater
11 wells are the result of background or other potential sources. One key factor is
12 often an evaluation of whether the exceedance is resulting in actual or likely
13 exposures to human or environmental receptors at levels constituting
14 environmental harm. Only after this type of thorough evaluation can the
15 regulatory agency determine an appropriate corrective action.

16 **Q. PLEASE SUMMARIZE YOUR OPINION REGARDING THE**
17 **COMPANY'S PRUDENCE.**

18 A. In sum, with respect to the period prior to the enactment of CAMA and the
19 promulgation of the final CCR rule, the Company took steps to evaluate the
20 potential impacts of its ash ponds on groundwater and surface water. I did not
21 see any evidence that the Company was presented with a compelling
22 environmental reason to act differently with respect to its management of
23 CCR for which it is requesting recovery of its costs. Moreover, there are

1 examples where, upon the existence of data indicating an environmental
2 problem, such as the surface water situation at the Roxboro plant, Duke
3 worked with North Carolina regulators to take appropriate action.⁹³

4 **Q. PLEASE PROVIDE YOUR OPINION WITH RESPECT TO**
5 **ESTIMATING ASH BASIN CLOSURE COSTS.**

6 A. My final opinion is that prior to the enactment of CAMA and promulgation of
7 the final CCR rule, an accurate estimate of the costs associated with ash pond
8 closure (even assuming that closure would have been required) would have
9 been extremely difficult with a high likelihood for significant over- or under-
10 estimation. Even with those regulations, fully known and measurable
11 estimates required completion of recently finalized site-specific closure
12 agreements.

13 **Q. WHAT IS THE BASIS OF THIS OPINION?**

14 A. For the many reasons I have discussed above, accurately estimating costs prior
15 to the passage of CAMA and the final CCR rule and prior to reaching site-
16 specific agreements is highly problematic. The difficulties and uncertainties
17 associated with doing so would, in my opinion, make the inclusion of such
18 costs in overall estimates of facility decommissioning cost estimates
19 speculative. As a result, such cost estimates might have difficulty meeting the
20 criteria for recovery of costs that are known and measurable. This is

⁹³ My information is based upon reviewing various documents discussing the presence of selenium in Hyco Lake and the timely actions taken by DE Progress to address that situation by switching to dry fly ash management. For example, see the July 10, 1986 Special Order on Consent (EMC WQ NO. 86-11) that addressed actions taken by DE Progress to address selenium in effluent discharges and in Hyco Lake.

1 particularly the case in light of guidance (or lack thereof) from the Company's
 2 environmental regulator, DEQ, regarding the criteria and parameters for ash
 3 pond closure. Accordingly, while it may not have been imprudent to include
 4 an estimate if one were available, it is certainly not imprudent not to include
 5 such estimates in light of the circumstances prevailing at the time.⁹⁴

6 ***SECTION III – GENERAL AND SPECIFIC REBUTTAL***
 7 ***OPINIONS OF TESTIMONY FILED BY MR. QUARLES, MR. HART,***
 8 ***AND MR. LUCAS***

9 **Q. HAVE YOU FAMILIARIZED YOURSELF WITH THE TESTIMONY**
 10 **OF MR. QUARLES, MR. HART, AND MR. LUCAS IN THIS**
 11 **MATTER, DATED APRIL 13, 2020?**

12 A. Yes, I have.

13 **Q. DO YOU HAVE ANY OPINIONS TO OFFER RELATED TO THEIR**
 14 **TESTIMONY?**

15 A. Yes, I do. Based on my experience, I have some general opinions that apply
 16 across all three of the testimonies and some specific opinions on each.

⁹⁴ A review of surface impoundment closure planning for facilities surveyed by EPA in its 2010 dam safety report and located in the neighboring states of Virginia, South Carolina, and Georgia show that most of these impoundments did not develop a closure plan until after the finalization of the CCR rule. Many have not yet begun the closure construction process. (See Exhibit 2, Rebuttal Testimony of Mr. Bonaparte, Geosyntec Consultants, Inc. (filed in E-7, SUB 1214, March 3, 2020)) The information in this Geosyntec summary table is instructive in putting the November 2004 EPRI Decommissioning Handbook for Coal-Fired Power Plants in context. While this EPRI handbook included a limited number of case summaries of ash pond closure projects, most southeastern ash pond closure plans were not developed in this timeframe. Ash pond closure plans developed in this time period frequently were associated with plants that were closing in situations where utilities were working directly with their regulators to provide for land reuse after full plant closure.

1 **Q. CAN YOU ELABORATE ON THOSE GENERAL OPINIONS**
2 **APPLICABLE TO MR. QUARLES', MR. HART'S, AND MR. LUCAS',**
3 **TESTIMONY?**

4 A. Yes. I have three such general opinions. First, in assessing whether DE
5 Progress' historic actions regarding its management of CCR were reasonable
6 and prudent, all three fail to use an appropriate methodology that considers all
7 relevant information and factors. Second, all three fail to give appropriate
8 weight to the role of DEQ in overseeing the Company's historic management
9 of CCR. Third, while the intervenors admit that it is difficult if not impossible
10 to accurately estimate the difference in costs if DE Progress had taken earlier
11 actions, all three attempt to do so using very different, if not conflicting,
12 methodologies.

13 **Q. CAN YOU EXPAND ON YOUR FIRST GENERAL OPINION**
14 **REGARDING THE METHODOLOGY FOR ASSESSING WHETHER**
15 **DEC CAROLINAS' HISTORIC ACTIONS REGARDING ITS**
16 **MANAGEMENT OF CCR WERE REASONABLE?**

17 A. Yes. This is an area in which I have considerable experience. For numerous
18 legal proceedings over the last twenty-five years, I have been asked to weigh
19 the reasonableness of an entity's historic actions for the purpose of evaluating
20 whether those actions would have been expected to result in environmental
21 harm at the time the activities were taking place. Reaching such a
22 determination requires me to understand and evaluate the range of information
23 available in the contemporaneous time that the actions were ongoing; it is

1 critical to guard against applying today's knowledge to actions from the past
2 or letting today's knowledge bias the interpretation of information available in
3 the past. It is also important to consider the full body of information and put
4 that body of information into proper context when making reasonableness
5 determinations. The types of information that are important to evaluate
6 include (1) available knowledge at the time with respect to the action at issue,
7 (2) the state of regulations related to the historic activities being evaluated,
8 and (3) the practices of others in the same or similar industries.

9 When considering available knowledge, it is important to include not
10 only the knowledge of the entity that is controlling the actions (i.e., DE
11 Progress in this proceeding) but also the knowledge and actions of
12 government public health and environmental officials, the entities charged
13 with protecting the environment. Taken as a whole, federal, state, and local
14 government officials across agencies have access to significant amounts of
15 information on the impact of specific constituents and waste management
16 practices on the environment. In performing this task, it is important to
17 recognize that a single research study or statement in a report does not
18 represent consensus that a particular activity is or is not reasonable. In my
19 review of testimony provided by these three witnesses (i.e., Hart, Quarles, and
20 Lucas), each selectively refers to various documents, without, in my opinion,
21 weighing the broader set of available knowledge and context on the topic at
22 issue during the contemporaneous time period. A weight of evidence approach
23 is the method I and other regulators used at EPA in evaluating whether or not

1 an activity warranted federal regulation and should be the approach used when
2 examining the historic reasonableness of a company's activities.⁹⁵

3 The three witnesses also appear to downplay or overlook the role of
4 regulations and permits (including applicable permit reporting
5 requirements).⁹⁶ CCR management had been studied extensively by EPA and
6 overseen for decades by state regulators. The fact that neither federal or state
7 regulations mandated either the use of liners at surface impoundments or the
8 installation of groundwater monitoring systems is an important input in
9 assessing the reasonableness of DE Progress' historic activities, but I saw no
10 indication that these three witnesses considered this factor. All three witnesses
11 repeatedly discuss the importance of the North Carolina 2L groundwater
12 regulations. However, they do not mention that from their inception, these
13 regulations did not require groundwater monitoring. That decision was left to
14 the discretion of the regulatory agencies in their issuance of site-specific
15 permits.

16 Finally, the three witnesses do not assess in any detail the state of
17 industry practices in either the utility industry or in other waste-generating
18 industries where surface impoundments were employed for waste disposal.
19 Whether a company's practices are outside the norm of other industry

⁹⁵ When I use the term "weight of evidence," I mean the integrated assessment of available information and data on a given topic. This approach involves the consideration of available information on a topic in order to determine the most probable result, after consideration of any conflicted and/or inconsistent data. It can be applied to toxicity data, exposure data, and other types of risk management data.

⁹⁶ Based on my EPA experience, regulations and ongoing regulatory development efforts provide a good indication of widespread practices that regulators have identified as requiring additional environmental controls. Site-specific concerns are often addressed through a permitting process.

1 practices in the same timeframe is a relevant and important factor in assessing
2 whether a company operated reasonably. In my almost 50 years of
3 environmental experience, even in the absence of regulations, it is very
4 unusual to see large parts of an industry continue to handle waste in a manner
5 likely to lead to environmental harm once knowledge of that environmental
6 harm is generally confirmed.

7 **Q. YOU STATED THAT ALL THREE WITNESSES IGNORED THE**
8 **ROLE OF DEQ IN OVERSEEING DE PROGRESS' HISTORIC**
9 **MANAGEMENT OF CCR. CAN YOU EXPAND ON THIS?**

10 A. Yes, I can. DEQ had regulatory authority over DE Progress' ash ponds for
11 decades including during the late 1970s through the 1980s.⁹⁷ They issued and
12 renewed permits for these ash ponds for decades. They conducted inspections
13 of the Company's operations for decades. By no later than the late 1980s,
14 DEQ also had the authority to require groundwater monitoring and to require
15 additional investigation or corrective action based on groundwater monitoring.
16 DEQ also had authority to modify NPDES permits as necessary to protect the
17 environment – including modifications to the design or operation of permitted
18 ash ponds.

19 EPA worked closely to obtain state input into its 1988 CCR Report to
20 Congress and into its work between 2000 and 2015 to evaluate minimum
21 national protections for CCR. During these collaborative efforts, I am unaware

⁹⁷ In South Carolina, the South Carolina Department of Health and Environmental Control (SCDHEC) serves the same regulatory function as DEQ serves in North Carolina. My opinion applies equally to the intervenors failure to incorporate the role of SCDHEC.

1 that North Carolina indicated that it did not possess adequate authorities to
2 protectively regulate CCR management. Moreover, DEQ had the ability to
3 request that EPA use its authorities, if needed, to address any imminent and
4 substantial endangerment. That DEQ did not require DE Progress to modify
5 the design of its ash ponds by requiring liners, did not require the ponds to
6 close, or did not mandate groundwater monitoring earlier than they did, is a
7 strong indication that DE Progress' operations were considered to be
8 reasonable and protective by the Agency charged with protecting the North
9 Carolina environment. Likewise, DEQ did not require pond closure upon
10 initial receipt of information on 2L groundwater exceedances and clearly
11 proceeded in a typical fashion to ask DE Progress to better define the nature,
12 scope, and risks associated with the releases. Yet, the role of DEQ and its
13 decisions do not seem to factor into the opinions reached by these three
14 witnesses.

15 **Q. YOUR THIRD GENERAL OPINION IS IN REGARD TO THEIR**
16 **ESTIMATION OF COSTS, CAN YOU ELABORATE?**

17 A. Yes. The intervenors acknowledge that it is difficult if not impossible to
18 accurately estimate the difference in costs if DE Progress had taken earlier
19 actions to address its ash ponds. Hart states that it "is difficult at this point in
20 time to estimate what costs would have been incurred 10 or more years ago if
21 DEP had responded more promptly to the evidence of groundwater
22 impacts."⁹⁸ He then admits that some actions would have increased DE

⁹⁸ Testimony of Steven C. Hart, PG (April 13, 2020), p. 167; hereafter "Hart Testimony."

1 Progress' costs and that he "cannot provide line-by-line estimates of earlier
2 costs." Mr. Lucas notes the "difficulty in identifying the costs of corrective
3 action for environmental violations that DEP would have incurred in the
4 absence of the CAMA and the CCR Rule" as well as the difficulty in knowing
5 how the State of North Carolina would have acted."⁹⁹ In the face of these
6 acknowledged difficulties, they each take wildly different approaches to
7 apportioning costs. Mr. Hart, as I discuss in more detail below, arbitrarily
8 removes certain categories of costs, then merely discounts costs using the
9 inflation rate. Mr. Quarles suggests that the cost of removing ash from ash
10 ponds should not be paid by rate payers after a certain date. And Mr. Lucas
11 abandons any attempt to distinguish the costs that should be paid by rate
12 payers from costs he contends are not reimbursable and suggests an arbitrary
13 50-50 split. The fact that these methodologies, which I discuss in more detail
14 later in my testimony, are entirely different suggests the real difficulties in
15 trying to create an alternative history in which the company took some
16 hypothetical earlier actions.

⁹⁹ Testimony of Jay Lucas, Public Staff – North Carolina Utilities Commission (April 13, 2020), p. 9; hereafter "Lucas Testimony."

1 **Q. IN ADDITION TO YOUR THREE GENERAL OPINIONS, DO YOU**
2 **HAVE ANY ADDITIONAL OPINIONS SPECIFICALLY RELATED**
3 **TO MR. QUARLES’ TESTIMONY ON WHEN THE UTILITY**
4 **INDUSTRY UNDERSTOOD THE RISKS ASSOCIATED WITH THE**
5 **USE OF UNLINED PONDS?**

6 A. Yes, I do. Mr. Quarles asserts that various historical documents “demonstrate
7 that the environmental risk associated with the disposal of coal ash in unlined
8 surface impoundments was understood by the electric utility industry in the
9 late 1970s and early 1980s” and that DE Progress’ operation of unlined
10 surface impoundments in this timeframe “was unreasonable and could be
11 expected to result in the introduction of CCR constituents to surface and
12 groundwater.”¹⁰⁰

13 Essentially, Mr. Quarles is asserting that because of this knowledge he
14 claims existed as of the late 1970s and early 1980s, DE Progress was
15 unreasonable and imprudent in the way it operated at that time. In my opinion,
16 based on my experience as an EPA official in this precise time period and
17 based on my private consulting practice, where I have assessed the
18 reasonableness of many different company’s operations during this time
19 period and earlier and later time periods, Mr. Quarles’ methodology in
20 reaching this conclusion is significantly flawed.

21 To assess the level of knowledge at a particular time, one must
22 evaluate the weight of evidence regarding the information available at the

¹⁰⁰ Testimony of Mark Quarles (April 13, 2020), p. 6; hereafter “Quarles Testimony.”

1 time, not only a limited number of isolated reports, or parts of those reports,
2 that discuss some “potential” for risk. While I was at EPA, the Agency was
3 specifically charged with the collection of all available information regarding
4 coal ash and with making a regulatory determination regarding that risk. That
5 determination, as issued in 1993, and as I have summarized throughout my
6 testimony, concluded the risk from CCR management did not warrant
7 establishing minimum national regulations—regulations that would have
8 modified the manner in which DE Progress was managing its coal ash under
9 the oversight of North Carolina regulatory agencies.

10 EPA based its 1993 determination, a decade after the time period
11 covered by Mr. Quarles opinion statement, on its review of available
12 information on coal ash, including, certainly, the reports cited by Mr. Quarles
13 from the late 1970s to early 1980s as well as significant additional information
14 not cited by Mr. Quarles. EPA also made its risk-based determination after a
15 thorough review of state regulatory authorities and, as I have previously
16 stated, with the full knowledge that most surface impoundments were
17 operating without liners and without groundwater monitoring. I can assure the
18 Commission that if EPA’s information did demonstrate a risk that was
19 generally not being addressed by existing state regulatory authorities, EPA
20 would have moved forward well before the final 2015 CCR regulations with a
21 recommendation for national minimum standards requiring liners and
22 groundwater monitoring, as it did with hazardous waste surface

1 impoundments and landfills, and, somewhat later, with municipal waste
2 landfills.

3 I would also point out that if the knowledge about potential
4 groundwater contamination was as well understood by the early 1980s as Mr.
5 Quarles contends, we would not have had 80 percent of 16,000 industrial
6 surface impoundments nationwide operating without liners and 70 percent of
7 125,000 oil and gas waste impoundments operating without liners as of the
8 mid-1980s. Nor would 90 percent of the industrial surface impoundments and
9 99 percent of the oil and gas impoundments have operated without
10 groundwater monitoring during that timeframe.¹⁰¹

11 Mr. Quarles not only ignores EPA's 1993 coal ash pond conclusion, he
12 also ignores the fact that regulators in North Carolina, as I have already noted,
13 approved the operation of all DE Progress' ash ponds and it was not until the
14 passage of CAMA that the operation of an unlined ash pond in North Carolina
15 was prohibited. DEQ was routinely visiting the Company's facilities for
16 inspections and when writing NPDES permits for its ash ponds. Where
17 environmental issues were identified at individual facilities, DE Progress
18 worked with DEQ to resolve them. Until CAMA, DEQ allowed the continued
19 use of unlined ponds at DE Progress' facilities. This DEQ role and the
20 Agency's determinations are important in any evaluation of whether DE
21 Progress operated reasonably, points seemingly ignored by Mr. Quarles.

¹⁰¹ See U.S. Environmental Protection Agency, Subtitle D Phase I Report (October 1986), Tables 4-17 and 4-18.

1 Furthermore, in evaluating whether a company operated reasonably it
2 is certainly appropriate to compare that company to others in the same or
3 similar industries. As I have noted, EPA's 1988 CCR Report to Congress
4 found that of the 483 CCR surface impoundments in the United States less
5 than 10% (45) were found to be lined and of the 195 surface impoundments in
6 the Southeastern United States (EPA's Region 4), less than 2% (3) were found
7 to be lined.¹⁰² EPA conducted a broader study across all industries in 2001
8 and found that only 18 percent of all industrial surface impoundments had
9 either a flexible membrane liner or composite liner (flexible membrane and
10 clay liner).¹⁰³ This includes impoundments used by the chemical, petroleum,
11 and paper industries that contained a wide range of common contaminants.

12 Over time, the use of liners became more common in the construction
13 of new surface impoundments, but surface impoundments already in use
14 continued to be commonly operated without liners in full compliance with
15 federal and state regulations and with the knowledge of state regulators. When
16 EPA issued the proposed 2010 CCR rule, it continued to state that 62 percent
17 of surface impoundments at that time operated without liners.¹⁰⁴ To accept Mr.
18 Quarles position, one would have to assert that all of these facilities, including
19 over 90% of all CCR facilities operating in the mid-1980s and the significant

¹⁰² 1988 CCR Report to Congress, Exhibit 4-6.

¹⁰³ U.S. Environmental Protection Agency, Industrial Surface Impoundments in the United States (March 2001), Table 2-10.

¹⁰⁴ 75 Federal Register 35128, 35151 (June 21, 2010).

1 majority of facilities in 2010, as well as thousands of other industrial facilities
2 that operated unlined impoundments, all operated unreasonably.

3 Similarly, groundwater monitoring was not commonly employed at the
4 time EPA issued the CCR Report to Congress in 1988. EPA estimated at the
5 time that 65 percent of utility facilities did not have groundwater monitoring
6 systems.¹⁰⁵ EPA's broader study of industrial surface impoundments across all
7 industries in 2001 found that 67% of all surface impoundments did not
8 employ groundwater monitoring systems.¹⁰⁶ Again, to accept Mr. Quarles
9 position, one would have to assert that all of these facilities, operated
10 unreasonably.

11 In fact, the knowledge regarding groundwater contamination generally
12 and the impact of managing CCR in surface impoundments specifically
13 evolved slowly over time, including both the timeframe while I was at EPA
14 and subsequently. As this knowledge evolved well beyond the early 1980s, it
15 was understood that an assessment of the need for liners was dependent upon
16 site-specific conditions. State agencies such as DEQ were in the best position
17 to determine those situations where existing units needed to upgrade to liners or
18 needed to install groundwater monitoring systems.

¹⁰⁵ 1988 CCR Report to Congress, p. 4-35.

¹⁰⁶ U.S. Environmental Protection Agency, Industrial Surface Impoundments in the United States (March 2001), p. 2-26. It is useful to note that the existence of most ash ponds near rivers or lakes further complicated the question of how and where to perform groundwater monitoring. The main purpose of groundwater monitoring is to ensure that any release of contaminants from waste units will not have any reasonable potential to affect drinking water sources. There were rarely any drinking water sources located between the ash pond and the surface water body. And, even with a contaminant release, the surface water body usually would intercept and dilute the release before it could impact a source of drinking water. EPA recognized this issue in discussing its efforts to model groundwater impacts from ash ponds in its 2010 preamble discussion to the CCR regulation.

1 **Q. DO YOU DISAGREE WITH MR. QUARLES' USE OF DOCUMENTS**
 2 **THAT HE CITES TO SUPPORT HIS OPINION REGARDING THIS**
 3 **EARLY KNOWLEDGE OF DE PROGRESS AND THE ELECTRIC**
 4 **GENERATING INDUSTRY?**

5 A. Yes, I do. My interpretation of many of these early documents differs from
 6 his.

7 **Q. CAN YOU ELABORATE?**

8 A. The following are examples of reports I believe Mr. Quarles has incorrectly
 9 relied upon to support his opinion.

10 1. 1979 Arthur D. Little, Inc./EPA Report on "Health and Environmental
 11 Impacts of Increased Generation of Coal Ash and FGD Sludges."¹⁰⁷

12 Mr. Quarles states that the 1979 Arthur D. Little/EPA report "identified
 13 groundwater and surface water contamination as major 'impact issues'
 14 associated with the storage or disposal of coal ash in unlined
 15 impoundments."¹⁰⁸ This paper was written in 1979 prior to the time EPA
 16 finalized its 1980 hazardous waste regulations and prior to the time that
 17 Congress adopted the Bevill amendment. The purpose of the 1979 paper is to
 18 focus on potential future impacts of coal ash and FGD wastes with increased
 19 use of coal, projecting impacts for the years 1985 and 2000. The paper notes
 20 that RCRA and related federal and state laws provide "a sufficient statutory

¹⁰⁷ Santhanam, Lunt, Johnson, Cooper, Thayer, and Jones (Arthur D. Little and U.S. Environmental Protection Agency), "Health and Environmental Impacts of Increased Generation of Coal Ash and FGD Sludges, *Environmental Health Perspectives, Volume 33* (December 1979).

¹⁰⁸ Quarles Testimony, p. 10.

1 basis for preventing significant adverse health and environmental impacts
 2 from coal ash and FGD waste disposal.” It goes on to note that much of the
 3 regulatory development had not yet been completed. It also notes that the
 4 potential environmental impacts of disposal “are dependent on the
 5 characteristics of the disposal site, characteristics of the coal ash and FGD
 6 wastes, control method and the degree of control employed” and that “Impacts
 7 are site-specific and cannot be easily generalized over a region.” Its
 8 conclusion on water-related impacts, based on existing information, was that
 9 “On a regional basis, hydrologic impacts are expected to be quite small.” It
 10 also concluded that because of the availability of existing regulatory
 11 authorities, “impact on groundwater quality should be minimal.”¹⁰⁹ And, it
 12 notes that “Both Federal and privately-funded programs are developing
 13 additional data and information on disposal of FGD sludges and coal ash.
 14 Continuation of these programs will provide additional vital information in the
 15 future.” This paper does not conclude that all ash ponds should be lined or that
 16 all ash ponds require groundwater monitoring to prevent environmental harm
 17 to groundwater.

18 2. 1981 EPRI Coal Ash Disposal Manual¹¹⁰

¹⁰⁹ Santhanam, Lunt, Johnson, Cooper, Thayer, and Jones (Arthur D. Little and U.S. Environmental Protection Agency), “Health and Environmental Impacts of Increased Generation of Coal Ash and FGD Sludges, *Environmental Health Perspectives, Volume 33* (December 1979), p. 133. The paper also notes on p. 140 that “...in an environment where accessible groundwater is useful for potable or irrigation supply, it is likely that either: (1) the disposal sites would be lined or have adequate impermeability and soil attenuative capacity to protect groundwater quality ...”

¹¹⁰ Electric Power Research Institute, Coal Ash Disposal Manual, Second Edition (October 1981).

1 Mr. Quarles as well as Mr. Lucas, cite to a 1981 Electric Power Research
 2 Institute (EPRI) Manual as a basis to argue that leachate from ash disposal
 3 sites is “of concern” due to the “possibility” that heavy metals present in the
 4 ash can enter the groundwater and contaminate drinking water.¹¹¹ This is a
 5 relatively weak statement, indicating the absence of data and knowledge, not
 6 the certainty of it. Mr. Quarles notes that this EPRI Manual was based on
 7 EPA’s solid waste disposal guidelines and that it recommended location
 8 criteria and that a groundwater monitoring system be installed.¹¹² However, a
 9 careful reading of this document shows that it is written as guidance for
 10 designing new disposal facilities, not applicable to existing operating
 11 facilities. In fact, the Manual states that “The prediction of ash leachate
 12 quality is not possible at this time” and that:

13 Evidence is still inconclusive as to the degree of hazard of the
 14 ash materials. EPA, recognizing that CCPs are of relatively
 15 low concern, has defined coal ashes as being non-hazardous
 16 while they conduct a site monitoring and evaluation program,
 17 which is designed to assess the potential hazards associated
 18 with ash disposal.¹¹³

19 Further, the Manual references a proposed EPA rule as support for the
 20 guidance despite the fact that the cited proposed rule was aimed at *landfills*

¹¹¹ Quarles Testimony, p. 12.

¹¹² See Electric Power Research Institute, Coal Ash Disposal Manual, Second Edition (October 1981), p. 4-12 and 4-14.

¹¹³ Electric Power Research Institute, Coal Ash Disposal Manual, Second Edition (October 1981), p. 2-17. On page 3-3, the 1981 Manual noted that “The possibility of groundwater pollution by ash leachates may, in the future, lead to regulations requiring the siting of ash basins in impermeable soils or the installation of liners.” It also noted in a case study of Duke’s Allen Plant, that “both the old and new ponds are underlain by relatively impermeable soils similar to constructed clay liners” (p. 6-15).

1 only, not surface impoundments.¹¹⁴ The Manual, and Mr. Quarles, also fail to
 2 note that this EPA proposed rule, on which the Manual relies, was never
 3 finalized and in its final solid waste criteria, issued in September 1979 and
 4 cited earlier in my testimony, EPA did not require or recommend location
 5 standards or groundwater monitoring for ash disposal ponds.

6 3. 1982 EPRI Manual for Upgrading Existing Disposal Facilities¹¹⁵

7 Similarly, Mr. Quarles also references an August 1982 EPRI Manual that
 8 focused on upgrading existing disposal facilities.¹¹⁶ The Manual stated: “The
 9 regulations governing the disposal of utility wastes are in a state of suspension
 10 at this time.” And, it noted that until at least 1983, there would be no firm
 11 design or performance standards applicable to ash disposal. In fact, the
 12 Manual stated: “For these reasons, it may be premature for any utility to
 13 embark on a program to update their existing disposal facilities.”¹¹⁷ There are
 14 numerous other statements in this Manual that provide appropriate context for
 15 general knowledge on coal ash disposal as of 1982.¹¹⁸ This document also

¹¹⁴ Mr. Quarles (p. 12) acknowledges that the EPA proposed regulations, which he fails to note were never finalized, applied only to landfills and not ash ponds. However, he states, without support, that the risk of groundwater contamination from unlined ash ponds and landfills are comparable. In fact, studies that EPRI later performed indicated that landfill leachate had higher concentrations of constituents than leachate from ash ponds. (See 2006 EPRI Study on Characterization of Field Leachates at Coal Combustion Product Management Sites, p. vi).

¹¹⁵ Electric Power Research Institute, Manual for Upgrading Existing Disposal Facilities (November 1981/August 1982).

¹¹⁶ Quarles Testimony, p. 12.

¹¹⁷ Electric Power Research Institute, Manual for Upgrading Existing Disposal Facilities (November 1981/August 1982), p. vi.

¹¹⁸ For example, there is a section of the Manual that discusses limitations of the Manual. It states that “Decision making with the context of this Manual is difficult,” given that EPA is still pursuing field research (p. 1-5). And, although the Manual intentionally highlights some worst case scenarios to increase awareness, it stated that: “In practice, however, there is no documented case of environmental

1 relies heavily on cited federal documents which, like the 1981 EPRI Manual,
 2 have been mis-cited.¹¹⁹ Again, most of the cited federal documents address
 3 landfills, not surface impoundments. In addition, one of the key EPA reliance
 4 documents cited by EPRI was issued in proposed form and never finalized.

5 4. 1985 Arthur D. Little Report on Full-Scale Field Evaluation of Waste
 6 Disposal from Coal-Fired Electric Generating Plants, prepared for
 7 EPA.¹²⁰

8 Mr. Quarles' reliance on this report is surprising and misleading.¹²¹ This
 9 was a detailed three-year study on groundwater downgradient of coal ash
 10 ponds at six coal-fired electric generating plants, including the DE Carolinas'
 11 Allen facility. The focus of the study was an evaluation of risks to
 12 groundwater and surface water from pond management of coal ash. The
 13 conclusion of the report, performed for EPA, is clear. It found that no major
 14 environmental effects had occurred at any of the six sites. At the Allen facility,
 15 the report concluded that the Piedmont soils prevented arsenic from migrating
 16 and impacting groundwater. The report noted that for the sites studied,
 17 concentrations in groundwater monitoring wells downgradient of disposal

health problems directly attributable to fly ash or FGD sludge disposal." (p. 2-2) In the groundwater section, this Manual notes that most fly ash has a high pozzolanic activity and tends to be self-sealing when wet.

¹¹⁹ Importantly, the Manual references the federal solid waste criteria but incorrectly notes the status of the federal groundwater guidelines and continues to confuse EPA's proposed guidelines for landfills with the finalized 1979 solid waste criteria which did not require groundwater monitoring. In fact, the 1980 guidance issued by EPA leaves the question of whether groundwater monitoring for any type of solid waste is appropriate to state regulatory agencies since the decision is highly site dependent.

¹²⁰ Arthur D. Little, Inc., Full-Scale Field Evaluation of Waste Disposal from Coal-Fired Electric Generating Plants (June 1985).

¹²¹ Quarles Testimony, p. 20.

1 sites are typically less than primary drinking water standards. While Mr.
2 Quarles implies that this report discusses the topic of groundwater monitoring
3 at coal ash disposal sites, the report is silent on this topic.

4 Many of the other references Mr. Quarles cites to support his opinion as
5 to the need for liners and groundwater monitoring systems prior to the 1990s
6 also, in my opinion, do not accurately portray the overall content of these
7 documents. I again emphasize that it is not appropriate to rely upon individual
8 sentences in a report without providing a weight of evidence evaluation of the
9 material in the report. That includes the 1988 CCR Report to Congress.¹²² I
10 have discussed this report already and will not repeat my views about it here.

11 In addition, Mr. Quarles relies on a 2007 EPA report that discusses soil
12 attenuation to support his views that it was understood prior to the 1990s that
13 ash ponds would adversely impact groundwater.¹²³ Given that this report was
14 issued in 2007, it sheds virtually no light on knowledge available on soil
15 attenuation for arsenic prior to the 1990s. More importantly, this report in no
16 way changes the conclusions of site-specific studies performed in the 1970s
17 and 1980s such as the conclusions of the 1979 DE Progress report covering
18 the soil attenuation properties of Piedmont soils.

¹²² Quarles Testimony, pp. 22-23. Mr. Quarles cites the following sentence out of the Report to Congress: "The primary concern regarding the disposal of wastes from coal-fired power plants is the potential for waste leachate to cause groundwater contamination" (E-3), but then fails to acknowledge the report's overall conclusion, that additional regulation, including national requirements for liners or groundwater monitoring, was not necessary.

¹²³ U.S. Environmental Protection Agency, Monitored Natural Attenuation of Inorganic Contaminations in Groundwater, Volume 2 (October 2007). The pages cited by Mr. Quarles, p. 43-47, 49, and 50, address chromium, not arsenic. Discussion on arsenic begins on p. 58.

1 Mr. Quarles also references a 2006 joint EPA and Department of Energy
 2 report which included the statement that “virtually all newly built or expanded
 3 units (97 percent of landfills and 100 percent of surface impoundments)” were
 4 constructed with liners.¹²⁴ That statement refers to 57 units that EPA and DOE
 5 surveyed of which 16 were surface impoundments and the rest were landfills.
 6 While the report covered both new construction and expansions, it did not
 7 distinguish which type of units were expansions. Thus, it is impossible to
 8 know whether any of the surface impoundment projects were expansions or
 9 whether they were all new projects.

10 Mr. Quarles also relies on certain documents discussing the Sutton
 11 facility as support for his view that DE Progress should have closed all of its
 12 unlined ash ponds during the 1980s. He states:

13 The continued operation of unlined coal ash disposal units
 14 after the 1980s was also unreasonable. Despite the industry-
 15 wide understanding of the risks of disposing of coal ash in
 16 unlined areas near water resources – including the Company’s
 17 own recognition in the mid-1980s that a liner was needed for
 18 a new disposal unit at its Sutton site – the Company
 19 continued to dispose of coal ash in unlined ponds for many
 20 years to come. This was unreasonable.¹²⁵

¹²⁴ Quarles Testimony, p. 15. The cited report is U.S. Environmental Protection Agency and U.S. Department of Energy, Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004 (August 2006).

¹²⁵ Quarles Testimony, p. 27. Also, on p. 6 of his testimony, Mr. Quarles states: “The Company’s 1983 investigation regarding contaminant migration from Sutton and its decision to construct a new ash basin with a liner in order to meet proposed groundwater regulations was a warning sign and early indication that unlined surface impoundments leaked and presented risks to groundwater quality. The Company’s failure to take action to end disposal of coal ash in unlined basins was unreasonable.” Quarles again makes similar statements on p. 33 of his testimony. And, on p. 20 of his testimony, Quarles provides an affirmative answer to his question of: “Did the Company conclude that North Carolina groundwater rules necessitated the use of liners at coal ash disposal sites.” Clearly, the analysis performed by the Company was specific to the new ash pond at Sutton.

1 In using his Sutton references to reach this conclusion, Mr. Quarles
2 fails to follow his own statements that one must perform site-specific analysis
3 to reach meaningful conclusions on soil attenuation and the impacts of ash
4 disposal on groundwater. On p. 29, Mr. Quarles states: “The ability of soil to
5 attenuate contaminants is based on numerous waste and site-specific geologic,
6 hydrogeologic, and geochemical factors.” The soil and groundwater
7 conditions at Sutton were nothing like the conditions at many of the other DE
8 Progress sites including those in Piedmont soils. Moreover, the lined pond at
9 Sutton was a new ash pond, not an existing ash pond. Mr. Quarles has
10 provided no reasonable basis for his statement that installing a new lined pond
11 at Sutton because of a need for additional ash disposal capacity was relevant
12 to a determination that continued operation of unlined existing ponds at other
13 locations was not prudent.

14 **Q. DO YOU HAVE OPINIONS TO OFFER ON MR. QUARLES’**
15 **TESTIMONY REGARDING THE COSTS ASSOCIATED WITH**
16 **CONSTRUCTING SURFACE IMPOUNDMENTS AND LANDFILLS?**

17 A. Yes, he offers the opinion that the cost to construct and operate an unlined
18 surface impoundment in the 1980s was *more* than the cost to construct a
19 synthetic-lined landfill.¹²⁶ He cites as support, data from the 1988 CCR
20 Report to Congress that provided a range of \$8.00 to \$17.00 per ton for
21 managing ash in unlined surface impoundments and a range of \$5.70 to
22 \$13.55 per ton for managing ash in a single clay lined landfill, and a range of

¹²⁶ Quarles Testimony, p. 25.

1 \$6.45 to \$15.15 per ton for managing ash in a synthetic-lined landfill. Since
2 these estimates were presented in overlapping ranges, there is no way to know
3 whether the actual cost of DEP installing and operating an unlined surface
4 impoundment at one of its sites would have been more than installing and
5 operating a lined landfill as Mr. Quarles asserts.

6 Furthermore, the hypothetical decision Mr. Quarles presents in his
7 report is not whether DE Progress would install an unlined surface
8 impoundment or a lined landfill, it is whether DE Progress, in 1988, would
9 cease using existing operating surface impoundments and replace them with
10 lined landfills. In fact, the same data from the 1988 CCR Report to Congress
11 indicate that if the industry had been required by EPA to install clay lined
12 landfills it would have resulted in an *increase* in total annual costs of \$600
13 million and if the industry had been required to install single synthetic lined
14 landfills it would have resulted in an increased annualized costs of \$400
15 million.¹²⁷ Furthermore, Mr. Quarles ignores entirely other costs associated
16 with converting to dry ash management.¹²⁸

17 Similarly, Mr. Quarles references data in the 1988 Report to
18 Congress to support a position that the cost of closure for landfills and surface
19 impoundments were comparable and that post-closure care costs for landfills
20 were less than for surface impoundments. But again, the choice DE Progress

¹²⁷ 1988 CCR Report to Congress, Exhibit 6-6.

¹²⁸ I note that Mr. Hart references such associated costs in his testimony: “For example, conversion to dry ash handling would have required investment in retrofitting the plant and may have increased costs to transport ash to an off-site or on-site landfill.” (p. 167). In addition, Mr. Quarles ignores the potential increase in costs of managing other co-managed waste streams when switching to dry ash management.

1 faced, according to Mr. Quarles, was not between installing a surface
 2 impoundment or installing a landfill, it is between continuing to operate an
 3 existing surface impoundment or closing the surface impoundment and
 4 replacing it with a landfill. Under that scenario, a company incurs both the
 5 costs of closing the surface impoundment and the costs of eventually closing
 6 the landfill with post-closure costs for both units.

7 It is worth noting that the 1988 CCR Report to Congress went on to
 8 estimate that if “new waste management regulations led to the closure of the
 9 current disposal site and the construction of a new lined facility with leachate
 10 control system, flood protection, and ground-water monitoring system, coal-
 11 fired generation costs at existing coal-fired power plants could increase by
 12 nearly 20 percent.”¹²⁹ It is just not the case as Mr. Quarles appears to believe,
 13 that the industry would have reduced its costs by replacing existing surface
 14 impoundments with lined landfills in 1988.

15 **Q. DO YOU HAVE ANY OPINIONS TO OFFER ON MR. QUARLES’**
 16 **TESTIMONY REGARDING WHAT HE REFERS TO AS**
 17 **“AVOIDABLE COSTS”?**

18 A. Yes, Mr. Quarles states that the costs DE Progress will incur to excavate
 19 CCRs from unlined basin would have been smaller if they had switched to dry
 20 ash handling sooner.¹³⁰ He then states that these “avoidable costs” can be

¹²⁹ 1988 CCR Report to Congress, p. 6-41.

¹³⁰ Quarles Testimony, p. 25. I note that Mr. Quarles also stated that dry ash handling systems could have been considered as early as the early 1980s, citing the 1981 and 1982 EPRI reports as support for the early availability of this approach. The 1981 EPRI Manual noted a trend towards dry ash handling systems for fly ash, not bottom ash. The 1982 EPRI Manual, which focused on existing coal ash management units, noted that dry ash conversion for fly ash was a “promising upgrading technique.”

1 calculated by multiplying the Company's estimated cost per ton for ash
2 excavation by the amount of ash disposed after 1988 "or whatever the
3 Commission concludes was the date by which the Company should have
4 known the risk posed by continuing to store coal ash in unlined ponds and
5 should have switched to dry disposal." As I have explained in my report there
6 is no basis for asserting that 1988 is the date where the reasonable knowledge
7 of risks warranted switching the management method for ash; in fact, the CCR
8 Report to Congress that year and the 1993 EPA Regulatory Determination in
9 no way supported such a conclusion. These key documents concluded, after
10 EPA's extensive review, that existing management methods were protective.
11 The information did not appreciably change until EPA began collecting data
12 in the 2000s for the development of national regulations. By that time, as I
13 have detailed, it was reasonable and prudent for DE Progress to wait for the
14 conclusion of that regulatory process as long as they worked with regulators to
15 address any site-specific environmental issues. Further, if DE Progress had
16 closed its existing surface impoundments prior to the CCR rule and CAMA,
17 there is no guarantee that a landfill constructed to replace the impoundment
18 before the new rules were in effect would have been in compliance and may

This was based on the 1982 effluent guidelines for newly constructed coal plants that prohibited the discharge to surface water of any pollutants from fly ash transport water. While conversion to dry handling systems did become more common, the conversions occurred primarily with fly ash and not bottom ash. When developing its recent revisions to the effluent guidelines, EPA found that only 28 percent of coal and petroleum coke-fired steam electric units used dry handling systems for bottom ash. The Agency also estimated that only three to seven percent of plants had converted their bottom ash handling to a dry system between 2000 and 2009. (See U.S. Environmental Protection Agency, Technical Development Document for Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (September 2015), Tables 4-9 and 4-10.)

1 have been required to close, in which case excavation may have been required
2 of the ash in that landfill.

3 **Q. DO YOU HAVE ANY OTHER OPINIONS TO OFFER ON MR.**
4 **QUARLES' TESTIMONY REGARDING THE COSTS ASSOCIATED**
5 **WITH GROUNDWATER MONITORING?**

6 A. Yes, Mr. Quarles also asserts that the cost of groundwater monitoring at the
7 Company's coal ash disposal sites would have been smaller if it had switched
8 to dry ash handling sooner.¹³¹ Putting aside the accuracy of his claim that a
9 landfill requires fewer monitoring wells than a surface impoundment, he again
10 ignores the fact that DE Progress would have been closing an existing
11 operating surface impoundment and then opening a new landfill. Unless the
12 surface impoundment was clean-closed (i.e., all ash removed) it would have
13 necessitated ongoing post-closure groundwater monitoring at that time or at
14 some future time, with the timing dependent upon the decision of regulatory
15 officials. Therefore, the correct comparison is the monitoring costs associated
16 with a closed surface impoundment and a landfill versus groundwater
17 monitoring for only an operating surface impoundment. Certainly, the
18 monitoring costs for the two units would have been more than the costs of
19 monitoring a landfill only.

¹³¹ Quarles Testimony, p. 26.

1 **Q. DO YOU HAVE ANY OTHER OPINIONS TO OFFER ON MR.**
2 **QUARLES' TESTIMONY?**

3 A. Yes, Mr. Quarles makes a statement that is entirely inconsistent with my own
4 experience at EPA during this time and my knowledge regarding the history
5 of waste management in the United States. He states, without citing any data,
6 that "disposal of municipal and industrial solid waste in engineered disposal
7 units (e.g., designed with a liner, leachate collection system, etc.) has been
8 commonplace since the mid-1970s."¹³² This was certainly not the case.

9 EPA published a national, comprehensive study on the management of
10 both municipal and industrial waste management in 1986, a decade after Mr.
11 Quarles asserts liners and leachate collection systems were commonplace.
12 That study found that only 0.8% percent of all municipal waste landfills used
13 synthetic liners and only 14.6% used a natural (e.g. clay) liner.¹³³ For
14 industrial waste landfills, only 1.3% employed synthetic liners and only
15 11.2% used a natural liner. Leachate collection systems were even more
16 uncommon with only 5.2% of municipal waste landfills and 3.2% of industrial
17 waste landfills using such systems.

18 Similarly, the same study shows that liners were not commonly used at
19 industrial surface impoundments across all industries. Only 4.7% of industrial
20 surface impoundments according to the 1986 report used synthetic liners

¹³² Quarles Testimony, p. 27.

¹³³ U.S. Environmental Protection Agency, Subtitle D Study – Phase I Report (October 1986), Table 4-10.

1 while only 17.4% had some type of natural liner.¹³⁴ Again, this is a decade
2 after Mr. Quarles asserts these methods were commonly employed.

3 **Q. LET'S MOVE TO MR. HART. DO YOU HAVE ANY OPINIONS**
4 **RELATED TO MR. HART'S TESTIMONY REGARDING DE**
5 **PROGRESS' KNOWLEDGE OF THE POTENTIAL FOR**
6 **GROUNDWATER CONTAMINATION?**

7 A. Yes, I do.

8 **Q. CAN YOU ELABORATE ON THOSE OPINIONS?**

9 Mr. Hart testified that "the utility industry, including DE Progress, knew about
10 the reasonable potential for contamination of groundwater from coal ash
11 basins as early as the 1980s."¹³⁵ Mr. Hart provides no elaboration on what he
12 means by "reasonable potential." Is reasonable potential a 1% probability of
13 an ash basin resulting in groundwater contamination or 60%? Virtually any
14 waste management unit, regardless of its design or operational practices, has
15 the "potential" to release constituents to groundwater under some
16 circumstances. Further, asserting that DE Progress knew ash ponds generally
17 had the "reasonable potential," however defined, to contaminate groundwater,
18 even if true, does not tell you anything about what DE Progress did or did not
19 know about the likelihood for any particular ash pond it operated to
20 contaminate groundwater at levels that were understood, at the time, to equate

¹³⁴ U.S. Environmental Protection Agency, Subtitle D Study – Phase I Report (October 1986), Table 4-17.

¹³⁵ Hart Testimony, p. 9.

1 to environmental harm.¹³⁶ Such an assessment is necessarily site-specific as a
2 host of factors including the permeability of soils, the vertical distance
3 between the waste and the aquifer, the amount and type of waste being
4 managed, the depth and direction of groundwater can all affect the potential of
5 an ash pond to leach to groundwater. The location of receptors can impact the
6 extent to which contamination could result in environmental harm.

7 In addition, as with Mr. Quarles, Mr. Hart supports his opinion
8 regarding the knowledge of ash basins and groundwater contamination by
9 selectively referencing several government and trade association reports. My
10 opinions of this approach as described above in my response to Mr. Quarles'
11 testimony are relevant in assessing Mr. Hart's testimony. He consistently uses
12 these reports in a similar fashion, pointing to a particular statement or finding
13 that he believes demonstrates there was an awareness of the potential for ash
14 ponds to cause groundwater contamination and often suggesting the
15 knowledge of that groundwater contamination would result in the need to
16 close the ash ponds. In doing so, he often fails to acknowledge the general
17 conclusions reached in these reports and, more importantly, he fails to put
18 them in context of the overall information and understanding at that time.

¹³⁶ Further, the word "contamination" in Mr. Hart's statement is also not precise or particularly useful. There is an important distinction between groundwater contamination and groundwater harm. Contamination is any level above background. This could include low levels of nitrates in groundwater below farm properties as a result of fertilizer use. Environmental harm is levels of contamination above some type of health-based level that results in exposures to receptors that come in contact with that groundwater, whether from drinking water use or another beneficial use.

1 **Q. CAN YOU ELABORATE ON THESE REPORTS REFERENCED BY**
 2 **MR HART?**

3 A. Yes, Mr. Hart refers to the following reports from the 1970s, 1980s, and
 4 1990s, prepared by either government agencies or trade associations. I cite
 5 these as examples of Mr. Hart's failure to utilize these reports appropriately:

6 1. December 1978 – Study of Non-Hazardous Wastes from Coal-Fired
 7 Electric Utilities¹³⁷

8 Mr. Hart relies on the report to make the point that leaching of
 9 compounds from ash and FGD scrubber sludge is an important consideration
 10 because of the potential for groundwater or surface water contamination. Mr.
 11 Hart goes on to state that the report notes that available leachate data indicated
 12 that certain compounds exceeded or were near federal drinking water
 13 standards. However, Mr. Hart fails to note that the report states that: "These
 14 water criteria were not meant for evaluation of FGC waste leachates but are
 15 used for reference in lieu of applicable concentrations standards for FGC
 16 leachates."¹³⁸ The report also states that: "The data base on trace elements in
 17 coal ash leachates is continuing to grow but, like trace element analysis of ash
 18 itself, the data remain sketchy in several respects."¹³⁹ Importantly, Mr. Hart
 19 fails to discuss the major conclusions from this report. They include that

¹³⁷ U.S. Environmental Protection, Study of Non-Hazardous Wastes From Coal-Fired Electric Utilities (December 15, 1978).

¹³⁸ U.S. Environmental Protection, Study of Non-Hazardous Wastes From Coal-Fired Electric Utilities (December 15, 1978), p. 12.

¹³⁹ U.S. Environmental Protection, Study of Non-Hazardous Wastes From Coal-Fired Electric Utilities (December 15, 1978), p. 93

existing data indicate “the majority of utility solid wastes are non-hazardous and that sufficient hydrological data from existing disposal sites are not available for adequate assessment of the degree to which existing sites qualify as sanitary landfills.” The report also strongly encourages beneficial use of coal ash. Finally, the report recommends the need for additional work including research to correlate the leachability of solid wastes with a variety of factors including coal quality and disposal methodology.

2. August 1979 – Effects of Flue Gas Cleaning Waste on Groundwater Quality and Soil Characteristics¹⁴⁰

This study evaluated three different FGC disposal sites to determine whether trace compounds were found to have migrated out of the area directly below the disposal location. Mr. Hart uses this study as support for the movement of trace elements in FGC wastes to groundwater. However, a review of Tables 13 through 17 in this report demonstrates that there was no consistency between which contaminants migrated at each of the three locations. Also, while the levels directly below the ponds demonstrated the presence of some trace elements at statistically significant levels, the levels downgradient often did not reflect increased levels and on occasion, the levels upgradient were higher than the levels directly below the disposal pond. It is not surprising to find elevated contaminants directly below the waste area. That is why North Carolina and EPA both establish compliance boundaries that exclude results directly below the waste disposal location.

¹⁴⁰ U.S. Department of Commerce, National Technical Information Service, Effects of Flue Gas Cleaning Waste on Groundwater Quality and Soil Characteristics (August 1979).

1 3. March 1980 EPA and TVA Report, Effects of Coal-Ash Leachate on
 2 Ground Water Quality¹⁴¹

3 This report focused on two ash ponds operated by the Tennessee
 4 Valley Authority. It was a preliminary research study and was not intended,
 5 nor did it conclude, that the management of coal ash in ponds presented an
 6 unreasonable environmental risk. Instead, the report reaches various
 7 conclusions about the characteristics of leachate. The only conclusion related
 8 to environmental impact was that the “flux of metals from coal-ash leachate
 9 was found negligible when compared of the mass of metals discharged by the
 10 ash pond surface overflow.”¹⁴²

11 4. 1988 CCR Report to Congress

12 Mr. Hart notes that the 1988 CCR Report to Congress discussed the
 13 use of liners, leachate collection and groundwater monitoring systems.¹⁴³ He
 14 fails to note that the report, as I previously discussed, also confirms that the
 15 use of liners, leachate collection, and groundwater monitoring were not
 16 common. In addition, as Mr. Hart does acknowledge, North Carolina, similar
 17 to many states, did not generally require owners or operators of existing
 18 surface impoundments to install liners or leachate collections systems or
 19 groundwater monitoring prior to 1988 when this EPA report was issued.
 20 Further, and most significantly, EPA concluded after its extensive review, that

¹⁴¹ U.S. Environmental Protection Agency and Tennessee Valley Authority, Effects of Coal-ash Leachate on Ground Water Quality (March 1980).

¹⁴² U.S. Environmental Protection Agency and Tennessee Valley Authority, Effects of Coal-ash Leachate on Ground Water Quality (March 1980), p. iv.

¹⁴³ Hart Testimony, p. 51.

1 this current level of state regulation was adequate and additional federal
2 regulations were not warranted. Mr. Hart ignores this important and relevant
3 conclusion.

4 Mr. Hart also misuses or overstates aspects of the report. For example,
5 he states “According to the EPA research, by 1983, approximately 80% of the
6 utility waste management facilities used some version of a treatment pond and
7 state and local regulations were making liners and groundwater monitoring at
8 requirement for these types of facilities.”¹⁴⁴ In fact, EPA in the CCR Report to
9 Congress found that only five states mandated liners at that time while six
10 others required liners on a case-by-case basis. The remaining 39 states had no
11 requirements in place for liners.¹⁴⁵ He also indicates that, according to the
12 report, South Carolina had requirements in place for leachate control. While a
13 table in the body of the report does indicate this, the detailed description of
14 South Carolina’s requirements in the appendix to the report show that South
15 Carolina had no specific requirements in place for surface impoundments at
16 that time.¹⁴⁶

17 5. November 1991 EPRI Report¹⁴⁷

18 The 1991 EPRI study, which Mr. Hart cites on p. 64 of his testimony,
19 was of a single facility, intended to determine whether there was an impact

¹⁴⁴ Hart Testimony, p. 63.

¹⁴⁵ 1988 CCR Report to Congress, p. 4-7.

¹⁴⁶ The appendix reads: “Impoundments are addressed in South Carolina’s industrial solid waste disposal regulations: “ ‘Disposal of waste sludges and slurries shall be done with special consideration of air and water pollution, and the health and safety of employees . . . [and] case-by-case provisions [are made.]’ No specific requirements are listed.” (1988 CCR Report to Congress, Appendix C).

¹⁴⁷ Electric Power Research Institute, Comanagement of Coal Combustion By-Products and Low-Volume Wastes: A Southeastern Site (November 1991).

1 from the co-management of low volume wastes with higher-volume coal
 2 combustion residuals. Mr. Hart points to the report's finding that calcium,
 3 magnesium, strontium, and sulfate were found in wells downgradient of the
 4 ash pond in higher concentrations than upgradient. Importantly, Mr. Hart fails
 5 to cite the report's conclusion that of these constituents "only SO₄ currently
 6 has published water quality secondary standards for drinking water" and that
 7 the "mean SO₄ concentrations measured downgradient of the ash pond were
 8 approximately half the water quality limits."¹⁴⁸ He also fails to note the
 9 report's conclusion that trace metals were not detected in downgradient wells
 10 and that "[r]esults from the southeastern site study confirm that the
 11 comanagement option is a technically viable environmentally acceptable
 12 practice, if appropriately carried out."¹⁴⁹

¹⁴⁸ Electric Power Research Institute, Comanagement of Coal Combustion By-Products and Low-Volume Wastes: A Southeastern Site (November 1991), p. S-2. On p. 56 of his report, Mr. Hart cites the same 1991 EPRI study to suggest that large volumes of leachate would discharge from the base of a pond located in the Piedmont Region. However, as noted above, this level of discharge did not result in water quality exceedances. On p. 59, Mr. Hart references the same study to note co-disposal of pyrite appeared to be responsible for increased concentrations of iron, nickel, and zinc in ash basin water. Again, however, Mr. Hart fails to note that this report concluded that such co-disposal was a technically viable option and environmentally acceptable practice. With regard to co-disposal of pyrite, this report states that: "Pyrite oxidation is the only low-volume waste byproduct having some effects, which were restricted to an area immediately underneath the pond. No other effects of the comanaged low-volume wastes were detected." (p. 3 of EPRI report)

I also note that on p. 27 of his report, Mr. Hart states that "EPA also expressed concern with the placement of pyrite-containing coal mill rejects in the ash basins because of the potential to generate acidic leachate which could increase the solubility of some metals and lead to a greater potential of groundwater contamination." As written, it is my opinion that this statement is misleading. EPA examined this issue in its 1999 Report to Congress and found that coal mill rejects were generally not hazardous waste. EPA continued to cover coal mill rejects under the Bevill exemption in the 2010 proposed rule when those low volume wastes were co-managed in ash ponds. EPA did change its position in the final 2015 CCR rule based on comments received but this change came late in the regulatory development process.

¹⁴⁹ Electric Power Research Institute, Comanagement of Coal Combustion By-Products and Low-Volume Wastes: A Southeastern Site (November 1991), Report Summary.

1 **Q. IN REFERENCING THESE DOCUMENTS IN THE WAY HE DOES,**
2 **DO YOU BELIEVE MR. HART IS IMPLYING AN UNDERSTANDING**
3 **OF THE RISK ASSOCIATED WITH ASH PONDS THAT DID NOT**
4 **EXIST AND, IF SO, HOW WOULD YOU CHARACTERIZE THE**
5 **UNDERSTANDING OF RISK AT THE TIME?**

6 **A.** Yes. I do believe the implication in Mr. Hart's testimony and his use of these
7 documents is that there was general understanding of the impact of CCR
8 management that is different from what, in fact, existed at the time. Again, my
9 opinions regarding the state of knowledge in my response to Mr. Quarles's
10 testimony is relevant here. In addition, it is important to understand that
11 concern about the impact of industrial waste management on groundwater
12 emerged over time as did the knowledge of what specific industrial activities
13 i.e., (e.g., ponds, landfills, product and waste piles on the ground) involving
14 what chemicals in what hydrogeologic conditions would result in
15 environmental harm to groundwater.

16 The evolution of concern regarding the potential for ash ponds to
17 impact groundwater, therefore, must be viewed in the context of this general
18 evolution of knowledge and understanding regarding groundwater
19 environmental harm. Within that context, it becomes clearer why, despite the
20 existence of some literature that may point to a "potential" for land disposal of
21 waste to result in environmental harm, there was not a general awareness that
22 most unlined ash ponds would result in environmental harm to groundwater.
23 This is why both federal and state government authorities continued to allow

1 the continued operation of most unlined surface impoundments until the
2 implementation of the federal CCR rule or state laws such as CAMA.

3 There was a significant lack of information about industrial waste
4 management and the subsurface environment well into the 1980s. In 1981, the
5 federal General Accounting Office summarized this lack of information on
6 waste disposal sites and environmental harm as follows:

7 Little conclusive information is available concerning how
8 chemical compounds leave disposal sites and what happens to
9 them as they migrate through the environment to reach
10 human populations. The Director of EPA's Environmental
11 Services Research Laboratory in Research Triangle Park and
12 several other laboratory officials stated that it is difficult to
13 predict how fast pollutants may travel; if their chemical
14 structures will be altered into more- or less-hazardous forms;
15 whether they will pose a threat to humans or the environment;
16 and how long the threat will last.¹⁵⁰

17 In addition, prior to 1981, environmental regulators focused primarily
18 on highly soluble compounds such as phenols, chlorides, brines, bacteria,
19 nitrates, phosphates, and sulfates and not on relatively insoluble metal
20 compounds like many of those commonly found in coal ash such as selenium,
21 manganese, many boron compounds, arsenic, cadmium, and trivalent
22 chromium.¹⁵¹

¹⁵⁰ U.S. General Accounting Office, Hazardous Waste Sites Pose Investigation, Evaluation, Scientific, and Legal Problems (April 24, 1981), p. 22. The report cited the large number of chemicals, each with different migratory characteristics, as well as the complexities of chemical interactions, the wide variations in disposal sites and environmental conditions, and the "largely unknown physical, chemical, and biological transformations that occur as pollutants change and are changed by natural processes as they move in the environment."

¹⁵¹ As more information became known about the range of individual metal compounds in coal ash, the extent of solubility associated with these metal compounds evolved.

1 Over time, this view of the earth's general ability to absorb and
2 essentially render harmless most industrial wastes significantly evolved.
3 However, this change occurred slowly as the complexity of the issue was
4 recognized and more and more public and private resources were dedicated to
5 studying the subsurface environment and the range of factors that affected
6 protective land-based disposal.

7 In addition, beginning around 1980, EPA began collecting information
8 on instances of environmental damage from various types of industrial waste
9 management, including those that involved groundwater contamination.¹⁵² It
10 issued one of the first reports summarizing damage information in February
11 1980.¹⁵³ This report included descriptions of approximately 250 sites where
12 damages have actually occurred "or threaten to do so." Of these, none
13 involved coal ash ponds. Two did involve coal ash, but one was the illegal
14 dumping of fly ash into a marsh resulting in contamination of a wetlands and
15 the other involved the piling of fly ash next to a road leading to a landfill.
16 Consequently, the information collected in this report would not have
17 indicated to either environmental or public health officials or utility owners,
18 that the operation of coal ash ponds was leading to environmental harm.

19 EPA then conducted a more comprehensive effort to collect damage
20 case information at locations where CCR was managed as part of the 1988
21 CCR Report to Congress. It found a relatively small number of damage cases

¹⁵² Damage cases also included instances of surface water damage, land or soil damage, air releases of concern, explosive concerns, and others.

¹⁵³ U.S. Environmental Protection Agency, Damages and Threats Caused by Hazardous Material Sites (February 1980).

1 and even a smaller number of damage cases that involve contamination of
 2 groundwater from coal ash ponds. To the extent the damage cases indicated an
 3 exceedance of a drinking water standard, EPA noted that “the total number of
 4 exceedances is quite small compared to the total number of monitoring wells
 5 and samples gathered.”¹⁵⁴

6 As I previously noted, EPA concluded in the 1988 CCR Report to
 7 Congress both that it was not always possible to connect the presence of CCR
 8 to these exceedances and that the actual potential for exposure to human and
 9 ecological populations was likely to be limited because ground water in the
 10 vicinity of utility waste disposal sites is not typically used for drinking water
 11 and the contaminants tend to be diluted in nearby surface water bodies.¹⁵⁵
 12 This led to EPA’s conclusion in the report that “current waste management
 13 practices appear to be adequate for protecting human health and the
 14 environment” and its 1993 decision not to regulate CCR management under
 15 the federal hazardous waste program.¹⁵⁶

16 **Q. DO YOU HAVE ANY OPINIONS ON MR. HART’S TESTIMONY**
 17 **REGARDING THE ADEQUACY OF THE GROUNDWATER**
 18 **MONITORING SYSTEMS DE PROGRESS EMPLOYED AT ITS**
 19 **FACILITIES?**

20 A. Yes. In sections V through XII of his report, Mr. Hart reviews the specific
 21 groundwater monitoring DE Progress conducted at its sites and critiques many

¹⁵⁴ 1988 CCR Report to Congress, p. 5-67.

¹⁵⁵ 1988 CCR Report to Congress, p. ES-5.

¹⁵⁶ 1988 CCR Report to Congress, p. 7-11; 58 Federal Register 42466 (August 9, 1993).

1 aspects of the monitoring program. These criticisms include the placement of
2 groundwater monitoring wells, the approach taken to determine background
3 concentrations, the timing and number of monitoring wells installed, and other
4 aspects of their monitoring program. Based on my decades of experience with
5 the initial development of federal groundwater monitoring requirements and
6 the application of those requirements to large numbers of hazardous and solid
7 waste sites over the last three decades, I am offering a rebuttal opinion
8 intended to place Mr. Hart's site-specific groundwater monitoring opinions
9 into an important, broader context. When considered in this appropriate
10 context, it is my opinion that Mr. Hart's critiques reflect less about
11 shortcomings in DE Progress' performance and more about the extremely
12 challenging task of groundwater monitoring itself and the development of
13 appropriate corrective action responses based on groundwater monitoring
14 results.

15 EPA first issued regulations requiring groundwater monitoring for
16 most hazardous waste facilities engaging in land treatment and land disposal
17 in the 1980 to 1982 time period. The regulations contained virtually no
18 specificity as to what was required, and EPA generally looked for facilities to
19 install a single upgradient well and two to three downgradient wells at these
20 land-based hazardous waste management units. The first detailed guidance
21 document that EPA issued to help states and regulated entities was not

1 available until 1985 in draft and 1986 in final.¹⁵⁷ Although this guidance
2 advanced the understanding of how to approach groundwater monitoring,
3 numerous site-specific questions were raised at virtually each of the 1,500
4 land-based hazardous waste facilities where groundwater monitoring was
5 required by regulation. These issues included the appropriate placement of
6 monitoring wells, as well as the proper well construction materials, frequency
7 of monitoring, appropriate screening parameters and analytical methods, and
8 appropriate expansion of the well system and monitoring compounds if
9 detections were identified. EPA continued to address these issues on a site-
10 specific basis and through regulations.

11 The challenges with implementing tailored site-specific groundwater
12 monitoring systems at these hazardous waste management facilities remained
13 significant for EPA and states until the mid-1990s. In fact, the slow pace of
14 getting these groundwater monitoring systems implemented was the subject of
15 Congressional hearings throughout the 1980s. At the request of Congress, the
16 U.S. General Accounting Office (GAO) undertook a significant assessment of
17 groundwater monitoring at a representative subset of the national universe of
18 hazardous waste facilities to prepare for these hearings. Their work
19 demonstrated the difficulty of developing effective groundwater monitoring
20 systems without detailed regulatory guidance from EPA and without

¹⁵⁷ U.S. Environmental Protection Agency, RCRA Groundwater Monitoring Technical Enforcement Guidance Document (September 1986).

1 significant site-specific analysis. This typically involved regulated entities
2 working together with regulators.¹⁵⁸

3 Groundwater monitoring at municipal solid waste facilities lagged a
4 decade behind the progress for hazardous waste facilities.¹⁵⁹ Industrial solid
5 waste landfills and impoundments were equally slow. EPA first issued detailed
6 guidance, including groundwater monitoring guidance, for industrial solid
7 waste facilities in 1999.¹⁶⁰ These general guidance documents were useful but
8 did not substitute for the involvement of regulators working with regulated
9 entities to finalize site-specific, tailored groundwater monitoring systems or
10 improve initial systems that had been installed. EPA performed a detailed
11 report on industrial surface impoundments in 2001 and found that 67% of all
12 impoundments still did not have groundwater monitoring wells. And a large
13 percentage of impoundments with groundwater monitoring were not industrial

¹⁵⁸ The General Accounting Office completed a report in February 1988 entitled Groundwater Conditions at Many Land Disposal Facilities Remain Uncertain. A detailed look at 50 hazardous waste sites found only 20 percent of them had adequate groundwater monitoring systems years after such systems were required. GAO also testified at 1989 Congressional hearings, stating: “EPA has not established sufficient technical standards and requirements for facility owners and operators to follow in monitoring groundwater. Major weaknesses in standard for subsurface site characterization, well location and construction, and groundwater sampling practices, among others, have prolonged and harmed efforts to determine groundwater conditions.” (Testimony by Hembra, Director, Environmental Protection Issues, Resources, Community, and Economic Development Division, GAO to the U.S. House of Representatives (April 27, 1989)).

¹⁵⁹ EPA issued a technical guidance manual that included a section on groundwater monitoring systems at municipal solid waste landfills in 1993. The manual was further updated in 1998. (U.S. Environmental Protection Agency, Solid Waste Disposal Facility Criteria: Technical Manual (April 13, 1998), Chapter 5).

¹⁶⁰ U.S. Environmental Protection Agency, Guide for Industrial Waste Management (May 1999) (draft version). This document addresses groundwater monitoring design factors for industrial solid waste management facilities. EPA did issue a much earlier manual that provided very general background information on groundwater monitoring at solid waste landfill sites, providing a discussion of the fundamental principles involved in groundwater pollution and monitoring. The primary audience was state regulators and the manual was aimed at helping these regulators identify landfill sites that should receive higher priority for groundwater monitoring. The manual continually stressed the site-specific nature of any groundwater monitoring system. (U.S. Environmental Protection Agency, Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities (December 1980))

1 facilities like DE Progress but were non-hazardous waste units located at
2 RCRA permitted hazardous waste facilities.¹⁶¹

3 Based on my experience as an EPA regulator and a consultant,
4 developing robust groundwater monitoring systems is an iterative process.
5 Data collected from early monitoring well installations are used to improve
6 the basic system. Wells that may seem like upgradient wells when first
7 installed may turn out not to be upgradient once actual field data are collected.
8 Similarly, field data may indicate that downgradient wells are actually cross-
9 gradient and not downgradient. Some locations are far more complex to assess
10 than others. The existence of most ash ponds relatively near rivers or lakes
11 further complicates the question of how and where to perform groundwater
12 monitoring.¹⁶²

13 Similar to the complexity with installing a groundwater monitoring
14 system, evaluating the data that is collected is equally challenging. Often
15 different downgradient wells provide inconsistent results and even the same
16 well can provide inconsistent results from sampling event to sampling event.
17 It can take many rounds of sampling along with adjustment to the monitoring
18 well system before one can have confidence in the results. This can slow the
19 pace at which appropriate corrective actions can be developed. I have seen
20 these challenges play out at many sites over my career. That is why it is so

¹⁶¹ U.S. Environmental Protection Agency, Industrial Surface Impoundments in the United States (March 2001), p. 2-26.

¹⁶² Given that a key purpose of groundwater monitoring is to ensure that any release of contaminants from waste units will not have any reasonable potential to affect drinking water sources, the existence of nearby water bodies can impact the choice of groundwater well locations.

1 important for regulated entities and regulators to work cooperatively on
2 designing these monitoring well systems and interpreting their results. When
3 Mr. Hart critiques specific aspects of the monitoring performed by DE
4 Progress, they should be viewed with the understanding that groundwater
5 monitoring is complex and challenging and typically requires working
6 cooperatively and iteratively with regulatory authorities.

7 **Q. DO YOU HAVE ANY OPINIONS ON MR. HART'S TESTIMONY**
8 **REGARDING THE ADEQUACY OF DE PROGRESS' ACTIONS**
9 **FOLLOWING THE SUBMISSION OF GROUNDWATER**
10 **MONITORING DATA TO DEQ?**

11 A. Yes. Mr. Hart asserts that after installing groundwater monitoring wells at its
12 ash ponds, DE Progress submitted groundwater monitoring data to DEQ
13 "without evaluation or responsive action" while the Company "should have
14 worked with the regulatory agency to further assess conditions and, as needed,
15 develop corrective action programs."¹⁶³ Mr. Hart strongly implies that DE
16 Progress somehow acted imprudently by merely submitting the monitoring
17 data to DEQ. This is inconsistent with my experience as a government
18 regulator. The prompt and complete submission of monitoring data is
19 indicative of a prudent company. The timely submission of data allows the
20 regulatory authority, in this case DEQ, to review the data and make any
21 additional requests for additional information or investigation as necessary.
22 Any further action a prudent company would take in response to the

¹⁶³ Hart Testimony, p. 160.

1 monitoring data would inevitably involve consultation and cooperation with
2 regulatory authorities in an iterative process. In my experience, it is entirely
3 appropriate for a company to submit data and wait until the regulatory agency
4 has had the time to review it to begin such an interaction, and commonly an
5 iterative process, to determine how to proceed.

6 I note also that Mr. Hart asserts that DE Progress' actions after
7 identifying groundwater contamination were inconsistent with the USWAG
8 action plan.¹⁶⁴ That plan, in fact, supports my view that consultation and
9 cooperation with regulatory authorities is a key element of the investigation
10 process. The plan specifies that if groundwater exceedances are detected and
11 no other source is identified, owners and operators of ash ponds are "to
12 consult with the appropriate agency to determine the type of assessment
13 monitoring to conduct at the CCP Unit." ¹⁶⁵ Submitting monitoring data to
14 DEQ was in fact the most direct and transparent way for DE Progress to begin
15 to consult with the appropriate agency. Similarly, the USWAG plan specifies
16 that if it is determined that levels detected in groundwater are a statistically
17 significant increase over background levels, the owners or operator should
18 "consult with the appropriate governmental agency and begin to develop a
19 risk-based management plan to address contamination." Again, the USWAG
20 plan recognized that the participation of regulatory authorities is an essential
21 aspect of the process.

¹⁶⁴ Hart Testimony, p. 10.

¹⁶⁵ Utility Solid Waste Activities Group, Utility Industry Action Plan for the Management of Coal Combustion Products (October 2006), p. 8.

1 **Q. DO YOU HAVE OPINIONS ON MR. HART'S VIEW OF THE PACE**
 2 **OF DE PROGRESS' RESPONSE TO THE IDENTIFICATION OF**
 3 **GROUNDWATER CONTAMINATION?**

4 A. Yes, I do. Mr. Hart states that: "Other industries in North Carolina with
 5 similar types of permitted disposal facilities were actively addressing
 6 groundwater impacts with DEQ and implementing corrective action to address
 7 the sources of groundwater contamination in the 1970s to 1990s."¹⁶⁶ To
 8 support his position, he provides detailed information on a single North
 9 Carolina facility.¹⁶⁷ Without debating the comparability of the single site
 10 identified by Mr. Hart to the DE Progress sites, I can say based on my decades
 11 of experience with remedial projects and programs as well as the available
 12 data, Mr. Hart is misinformed on the general pace of groundwater corrective
 13 action in North Carolina and nationally.

14 If one looks at the set of RCRA hazardous waste corrective action
 15 facilities in North Carolina using EPA's online database, there were 90
 16 facilities identified that were subject to site-wide RCRA corrective action.¹⁶⁸
 17 Because each of these facilities had applied for a permit to manage hazardous
 18 waste, each facility was subject to the requirement to identify and address site-

¹⁶⁶ Hart Testimony, p.14.

¹⁶⁷ Hart Testimony, p. 92.

¹⁶⁸ <https://ofmpub.epa.gov/apex/cimc/f?p=100:15:::NO:RIR,CIR>: The site was accessed March 9, 2020. EPA issued a guidance memorandum dated February 5, 1999 (Elizabeth Cotsworth to RCRA Senior Managers and EPA Regions), emphasizing the high priority of making progress on the several thousand RCRA hazardous waste corrective action sites nationwide. The memorandum specified and defined the first set of nationwide RCRA corrective action milestones. As of 1999, EPA had asked the EPA regions and states to focus on ensuring migration of contaminated groundwater was under control and ensuring that current human exposures were under control. Later, EPA established goals for getting all corrective sites to a place where a remedy was selected and eventually, where corrective action, as needed, had been completed.

1 wide releases as of 1985. EPA's database provides information on when each
2 facility had met certain milestones in the cleanup process. My analysis
3 (Williams Exhibit 2) shows that in North Carolina, the median date for when a
4 remedy was selected was September 2008, approximately 23 years *after* the
5 date these facilities were subject to the RCRA hazardous waste corrective
6 action requirement. Additionally, 24 facilities do not have any date entered for
7 selection of a remedy, suggesting remedy assessment is still ongoing today at
8 those hazardous waste facilities. With regard to completing remedy
9 implementation, only 24 of 90 facilities have completed remediation and
10 achieved performance goals as of March 2020, 25 years from when this
11 corrective action obligation was first imposed. This is not surprising.¹⁶⁹

12 Completing a detailed site-wide assessment of releases for
13 groundwater and other media, evaluating the risks associated with those
14 releases, and taking necessary actions to remedy risks is an iterative and slow
15 process. While identifying groundwater contamination is an important first
16 step, the time it takes to remedy the situation is highly dependent on many
17 factors including the complexity of the site-specific assessment, the extent of
18 risk, and the nature of viable remedial options. In 1999, EPA determined that
19 with regard to groundwater contamination, the most important initial step was
20 to ensure migration had stabilized and that monitoring would be conducted to
21 confirm that the area of contaminated groundwater from the facility was no

¹⁶⁹ The pace of corrective action progress for hazardous waste facilities in South Carolina is equally slow. This is also shown on Williams Exhibit 2.

1 longer expanding.¹⁷⁰ Actual evaluation of groundwater data to determine a
 2 remedy as well as achievement of full remedy implementation was understood
 3 to be something that could take decades to accomplish.

4 **Q. DO YOU HAVE OPINIONS REGARDING MR. HART'S POSITION**
 5 **ON REGULATORY CERTAINTY UNDER THE 2L PROGRAM?**

6 A. Yes, Mr. Hart agrees with my opinion that there was uncertainty about the
 7 management of coal ash prior to CAMA and the finalization of the federal
 8 CCR rule but states that there was “no ambiguity about the requirements of
 9 North Carolina’s groundwater corrective rules (Title 15A NCAC Subchapter
 10 2L, as [sic] referred to herein as the 2L Rules).”¹⁷¹ While certainly the 2L
 11 corrective action rules establish a framework for responding to detected
 12 contamination, there is considerable uncertainty in the actually process that
 13 might occur under that framework.

14 The detection of contamination about the 2L standards initiates a
 15 process that is anything but certain as it involves several iterative steps of
 16 additional testing and characterization, consultation with regulatory
 17 authorities, and, if corrective action is necessary, the evaluation of a range of
 18 potential response options. Following detection, there is the initial uncertainty
 19 of whether those levels represent an exceedance over background levels and
 20 additional action may or may not be necessary to resolve that uncertainty.

21 There is then uncertainty about the nature and the extent of additional site

¹⁷⁰ U.S. Environmental Protection Agency, Interim Guidance for RCRA Corrective Action Environmental Indicators (February 5, 1999), p. 9 of PDF.

¹⁷¹ Hart Testimony, p. 12.

1 assessment that is necessary as well as the schedule for such an assessment.
2 The corrective action regulations state that “[r]eports of site assessments shall
3 be submitted to the Department as soon as practicable or in accordance with a
4 schedule established by the Secretary.” (15a NCAC 02L.0106(g)). That
5 schedule may depend on many factors and could vary significantly depending
6 on site-specific circumstances or the priorities of the regulatory authorities.

7 Similarly, if a corrective action plan is deemed necessary, there is
8 considerable uncertainty on what that plan may or may not require. The
9 regulations allow DEQ to consider a range of factors when evaluating a
10 corrective action plan, including “the extent of any violations, the extent of
11 any threat to human health or safety, the extent of damage or potential adverse
12 impact to the environment, technology available to accomplish restoration, the
13 potential for degradation of the contaminants in the environment, the time and
14 costs estimated to achieve groundwater quality restoration, and the public and
15 economic benefits to be derived from groundwater quality restoration.” (15a
16 NCAC 02L.0106(i)). Each of these factors, by their very nature, involves a
17 level of uncertainty and their application to any specific site could lead to a
18 range of different outcomes. Therefore, I do not agree with Mr. Hart that the
19 2L corrective action requirements do not have ambiguity. The level of
20 uncertainty in the 2L corrective action process is consistent with the level of
21 uncertainty in all federal and state hazardous substance response programs and
22 explains the reason why it typically takes many years to make final remedy

1 determinations and often decades longer to complete remedy
2 implementation.¹⁷²

3 **Q. DO YOU HAVE ANY OPINIONS ABOUT MR. HART’S ESTIMATION**
4 **OF THE ACTUAL COSTS DEP WOULD HAVE INCURRED IF IT**
5 **HAD TAKEN THE EARLIER ACTIONS HE DESCRIBES IN HIS**
6 **REPORT?**

7 A. Yes. I find the underlying bases for his assumption that DEP’s delay in taking
8 certain actions “increased the cost today” to be unsupported.¹⁷³ Similarly, his
9 attempt to estimate costs relies on faulty assumptions and is entirely
10 speculative.

11 **Q. WHAT ARE THE UNDERLYING BASES FOR MR. HART’S**
12 **ANALYSIS AND WHY DO YOU FIND THEM PROBLEMATIC AND**
13 **SPECULATIVE?**

14 A. Mr. Hart lists several reasons why he believes costs would have been less.
15 First, he states that "DEP's actions and failure to take actions before the Dan
16 River spill prompted the adoption of environmental requirements that imposed
17 accelerated schedules to address coal ash basin problems, particularly at the
18 Asheville and Sutton facilities, and costs for accelerated actions are almost

¹⁷² DEQ’s issuance of two policy memoranda discussing the application of 2L to Duke Energy in the 2009 to 2011 time period further demonstrates the uncertainty that existed with the application of these regulations (i.e., December 18, 2009 letters from DEQ to Duke Energy discussing 2L requirements at specific DE Progress facilities and the June 17, 2011 DEQ Memorandum entitled: “Policy for Compliance Evaluation for Facilities with No Prior Groundwater Monitoring”). These two documents are included in Mr. Hart’s exhibits (Hart Exhibit #11 and Exhibit #12). And, as Mr. Hart noted, the uncertainty associated with the implementation of 2L regulations to ash ponds was further clarified and modified with the passage of CAMA.

¹⁷³ Hart Testimony, p. 165.

1 always greater than costs for non-accelerated timeframes."¹⁷⁴ It is entirely
2 speculative that any action DEP did or did not take resulted in requirements
3 that imposed an accelerated schedule. Further, Mr. Hart offers no evidence
4 that undertaking actions on an accelerated schedule "almost always" costs
5 more. In fact, in my experience tighter timeframes for projects sometimes lead
6 to efficiencies, including expedited regulatory review times, that reduce
7 project costs.

8 Second, he asserts that "DEP's admission that it was criminally
9 negligent in how it managed some sites likely prompted a lack of confidence
10 by regulators and public that less costly actions would be effective and
11 prompted requirements that DEP take more extensive and high-cost
12 approaches, such as the high-cost beneficiation requirement." This too is
13 entirely speculative. Mr. Hart provides no examples of the types of "less
14 costly actions" that he believes regulators and the public would have found
15 effective but for DEP's actions. It also implies that regulators were
16 unnecessarily imposing higher cost options. Based on my extensive
17 government experience, regulators make decisions based on what they believe
18 to be protective based on a weight of evidence analysis using available
19 information. Information changes over time. In this case, the decisions
20 regulators made about the manner in which DE Progress' ash ponds should be
21 closed were based on an assessment of what they believed would be
22 protective at the time of closure. If regulators "lacked confidence that less

¹⁷⁴ Hart Testimony, p. 165.

1 costly actions would be effective," it was because they compared the less
2 costly actions against more costly actions and determined that the more costly
3 actions provided additional, necessary protection. Regulators do not make
4 such decisions to be punitive. Importantly, these same regulators may have
5 made very different decisions 10 or 15 years ago based on what would have
6 been a different set of available information.

7 Third, he states that most of the expenditures DE Progress seeks to
8 recover were incurred at retired coal plants. He also notes that these
9 expenditures included the costs to close ash basins that have "not been in
10 substantial use for decades." These statements are not relevant in supporting
11 his assertion that DE Progress' costs would have been less if the company had
12 taken earlier action.

13 Fourth, he states that "by engaging in reasonable monitoring and taking
14 adequate responsive action, some of the costs would have been included in the
15 cost of service for customers while the coal plants and ash ponds were in use."
16 He provides no definition or timeframe for "engaging in reasonable
17 monitoring." What exact date would the installation of monitoring wells have
18 constituted "reasonable monitoring?" How many wells would have constituted
19 reasonable monitoring? Similarly, he provides no definition of "adequate
20 responsive action." Further, costs being incurred earlier, as he suggests should
21 have occurred, are not relevant to whether costs would have been less, which
22 is the thrust of his argument.

1 Fifth, he notes that costs are higher today due to inflation. While I am
2 not an expert in finance, the impact of inflation seems irrelevant in assessing
3 whether the costs incurred are more or less. Indeed \$1,000 buys less today
4 than it did twenty years ago. But the cost to the rate payer remains the same as
5 both are equally affected by inflation.

6 Sixth, he disqualifies the costs associated with the CAMA requirement
7 to provide alternative water to nearby residents by saying that cost was solely
8 due to DE Progress' failure to address groundwater contamination much
9 earlier. In my experience, this is entirely speculative. From my years working
10 with Congress as it developed federal environmental legislation, there are
11 many examples where legislators take proactive future steps based on current
12 information. Those decisions are not usually based on a punitive rationale. It
13 is my view that it would be a serious mistake to assume that this result would
14 have changed if the groundwater assessment process at DE Progress had
15 occurred more quickly. Full investigation and remediation of groundwater at
16 industrial properties can commonly take a very long time to reach completion.

17 **Q. WHY DID YOU FIND HIS ATTEMPT TO ESTIMATE COSTS TO**
18 **RELY ON FAULTY ASSUMPTIONS AND BE SPECULATIVE?**

19 A. Because there is no way to predict what would have or could have been done
20 at an earlier date and how the cost of those activities would compare to the
21 actions the Company has undertaken more recently. Mr. Hart, in fact, admits
22 this when he states "It is difficult at this point in time to estimate what costs
23 would have been incurred 10 or more years ago if DEP had responded more

1 promptly to the evidence of groundwater impacts. For example, conversion to
2 dry ash handling would have required investment in retrofitting the plant and
3 may have increased costs to transport ash to an off-site or on-site landfill.
4 Therefore, I cannot provide line-by-line estimates of earlier costs."¹⁷⁵

5 I entirely agree with this statement. It is difficult to make such estimates
6 and, as Mr. Hart presents with his example and I have expanded on with
7 additional examples in my report, one cannot even predict whether the costs
8 would have been less or more. It is difficult because guessing what might or
9 might not have been done decades ago is entirely speculative. One not only
10 needs to make a fundamental assumption about what initial step DE Progress
11 would have taken at each facility at an arbitrary timeframe between the late
12 1980s and 2010 but also make assumptions about actions subsequent to the
13 initial action. This includes actions taken by DE Progress, actions taken by the
14 Commission, and actions taken by DEQ. The number of options that would
15 need to be analyzed using some type of expected value analysis would be
16 extremely large.

17 Mr. Hart does not attempt such an analysis and instead presents a
18 simplified calculation that, without justification, removes two categories of
19 costs entirely and adjusts the remaining costs for inflation. In "Step A" of his
20 analysis, he removes the costs of a permanent water supply connection. As I
21 noted above, it is speculative and not supported by evidence or experience that
22 an earlier action by DE Progress would have led to a different remedial

¹⁷⁵ Hart Testimony, p. 167.

1 outcome, including the requirement to provide alternative water supply.
2 Therefore, it is entirely arbitrary to remove this cost.

3 In “Step B” of Mr. Hart’s analysis he removes entirely any costs
4 associated with “basins that should have been taken out of service long ago at
5 the Asheville, Cape Fear, HF Lee, Roxboro, and Sutton facilities.”¹⁷⁶ The
6 distinction Mr. Hart makes between inactive basins and more recently active
7 basins is without merit. As with the active basins, DEP was under no
8 regulatory obligation to formally close its inactive basins prior to the final
9 CCR rule and CAMA. These basins had been subject to regulation by DEQ
10 through the NPDES permitting process and therefore DEQ was certainly
11 aware when they were taken out of service and did not impose additional
12 closure requirements at that time or any time up until the passage of CAMA
13 and the CCR rule. At the time, ceasing the use of a pond and allowing it to
14 decant naturally was considered an acceptable closure in North Carolina.¹⁷⁷
15 Therefore, removing the closure costs associated with the complying with
16 CAMA and CCR today is entirely arbitrary. Importantly, if DE Progress had
17 voluntarily taken action earlier to formally close these inactive ash ponds, it is
18 very unlikely that that closure would have included the excavation of the ash
19 and much more likely that the closure would involve the removal of liquid and
20 some revegetation. Therefore, DE Progress’ overall costs might very well

¹⁷⁶ Hart Testimony, p. 167.

¹⁷⁷ In his testimony, Mr. Lucas noted that the 1956, 1963, and 1970 ash basins at Cape Fear contained little or no water and had become largely forested (p. 38). He noted a similar situation with Inactive Ash Basins 1, 2, and 3 at the H.F. Lee facility (p. 38) and the ash basin at Robinson (p. 39).

1 have been more since it would have still been expending the costs it is now to
2 remove the ash in addition to any earlier closure costs.

3 In “Step C” Mr. Hart assumes that the remaining activities that are the
4 subject of this rate request (i.e., all activities except alternative water supply
5 and those associated with older ponds) if hypothetically conducted at an
6 earlier time (e.g., ten or fifteen or more than twenty years earlier) would be
7 precisely the same as those DE Progress actually performed (or will perform).
8 He then discounts these costs to various past dates to account for inflation and
9 calculates the difference between the discounted costs and actual costs.

10 As I have noted, adjusting for inflation is not relevant in evaluating
11 whether costs expended at an earlier date are in fact more or less than costs
12 expended today. Further, by making this assumption, Mr. Hart has not solved
13 his underlying problem that predicting what might have happened earlier is
14 difficult and entirely uncertain. First, Mr. Hart relies on three different past
15 dates to discount the costs: 1992 – which is when he claims DE Progress was
16 aware of issues with groundwater contamination at some of its basins; 1996 –
17 which is when DE Progress informed insurers about groundwater “issues at its
18 basins;” and 2009 – which is when Mr. Hart claims DE Progress knew it had
19 “groundwater concerns at all of its facilities.” These dates are both arbitrary
20 and not tied to a date when a reasonable and prudent company would have
21 taken actions different than those taken by DE Progress.

22 Given how Mr. Hart uses the 1992 date in his cost analysis, Mr. Hart
23 seems to be implying that the detection of any groundwater contamination as

1 of that date at a subset of DE Progress ash ponds should have led the closure
2 of all DE Progress' ash ponds by 1992. This is entirely inconsistent with the
3 general knowledge at this time and with the normal process that would occur
4 when groundwater contamination is detected. By selecting a 1992 closure
5 date, Mr. Hart concludes that without any further assessment of site-specific
6 groundwater conditions or remedial options, DEQ would have concluded that
7 full closure of all DE Progress ash ponds was the appropriate remedy. Use of
8 a 1992 date is not defensible. His 1996 date, tied to DE Progress' notification
9 to its insurance carriers, is equally problematic. I have been involved in
10 numerous environmental insurance recovery matters. Based on my
11 experience, depending upon the requirements of the policies, the date of initial
12 notification to the insurers for groundwater contamination is often very early,
13 long before there is a full understanding of the need to undertake any
14 corrective action much less the scope of that corrective action. The fact that
15 DE Progress and its carriers executed Standstill Agreements that remained in
16 effect until 2011 further suggests that the information available in 1996 was
17 insufficient to determine a remedial outcome or an insurance settlement.
18 Certainly, there was no evidence that DE Progress reasonably believed, or that
19 DEQ had determined, there was a need to close all of the DE Progress ash
20 ponds as of 1996. Mr. Hart used 2009 as the latest possible date by which he
21 analyzes the amount of costs that should be removed from the DE Progress'
22 claim. His analysis assumes that DE Progress knew by this date that it would
23 be required to close all of its ash ponds. However, in 2009, EPA was well into

1 the regulatory development process for the CCR rule and a reasonable and
2 prudent company would wait for that process to conclude before closing ash
3 ponds. Therefore, it is my opinion that none of these dates are valid
4 timeframes for Mr. Hart's cost analysis.

5 Additionally, it is virtually certain that DE Progress would not have
6 closed its ponds by excavating them and switching to dry bottom and fly ash
7 handling in 1992, 1996, or 2009. Of considerable importance, he fails to
8 recognize that the costs could very well have been more if DE Progress had
9 initiated some type of closure action earlier, action that would have been
10 based on far less information, including less available information
11 demonstrating the need for such action.

12 **Q. DO YOU HAVE ANY SPECIFIC OPINIONS TO OFFER RELATED**
13 **TO MR. LUCAS' TESTIMONY?**

14 A. Yes, I do.

15 **Q. CAN YOU ELABORATE ON THOSE OPINIONS?**

16 A. Yes. Mr. Lucas offers the position that "DEP has accumulated a record of
17 significant environmental violations caused by leaking coal ash basins, which
18 have resulted in unlawful releases of regulated contaminants to groundwater
19 and surface water."¹⁷⁸ In particular, he points to seeps from ash basins as
20 violations of DE Progress' NPDES permits and to groundwater exceedances
21 "in violation of the state's 2L rules."¹⁷⁹ Based on my experience, I am

¹⁷⁸ Testimony of Jay Lucas, Public Staff – North Carolina Utilities Commission (April 13, 2020), p. 7; hereafter "Lucas Testimony."

¹⁷⁹ Lucas Testimony, p. 7.

1 offering important perspective on how groundwater standards and remediation
2 laws like North Carolina's 2L standards have been viewed by experienced
3 regulators and environmental professionals and the important differences
4 between such laws and laws that address ongoing operational activities.

5 On p. 8, Mr. Lucas states: "The Company should not be able to claim
6 that, in order to generate electricity, it had to create groundwater
7 contamination." This statement crystalizes the important difference between
8 (1) design and operating regulations and permits, intended to prevent
9 contamination, and (2) general requirements that prohibit such contamination
10 and mandate a response should it occur. These later requirements are
11 independent of whether an entity complied with all design and operational
12 requirements. When promulgated and when incorporated into permits, these
13 design and operating standards are deemed protective by regulatory officials,
14 as well as the regulated entity, based on the available knowledge. That is, it is
15 understood, based on the knowledge at that time, that compliance with these
16 design and operating requirements will be protective of human health and the
17 environment. When groundwater contamination occurs despite compliance
18 with these design and operating standards, it requires 20/20 hindsight to assert
19 that the knowledge upon which these design and operating requirements was
20 based was, in fact, incomplete. It does not, in my opinion and from my
21 experience, reflect imprudence on the part of the regulated entity as long as
22 that entity proceeds to address the groundwater contamination as needed. This
23 difference supports my view that these two non-compliance situations—non-

1 compliance with design and operating requirements and non-compliance with
2 a general performance standard defining the conditions for contamination and
3 remediation—must be distinguished.¹⁸⁰

4 **Q. CAN YOU PROVIDE ADDITIONAL BACKGROUND ON THIS**
5 **DISTINCTION?**

6 A. Environmental laws and regulations can be divided into two types: (1)
7 compliance obligations addressing facility/waste unit design and operational
8 performance requirements and (2) remedial requirements based on
9 exceedances of protective environmental media standards.

10 1. Compliance laws and regulations seek to prevent facility operational and
11 waste management activities from resulting in harm to the environment.
12 They include laws and regulations that regulate specific performance
13 aspects of waste and chemical management, air emissions, and water
14 discharges. They include many of the provisions of RCRA governing the
15 storage, handling, and disposal of wastes as well as the specific
16 effluent/emission limits included in permit requirements under the Clean
17 Water Act, Clean Air Act, and their state equivalents. They can include
18 various types of performance monitoring requirements and information
19 collection and reporting.

¹⁸⁰ While Mr. Lucas states in his report that the behavior of DE Progress was not imprudent, the fact that it was non-compliant with the 2L groundwater standards leads him to conclude that costs to address it should not be fully recoverable. My opinion on the distinction between non-compliance with a general groundwater performance standard and non-compliance with design and operational standards captured in permits and regulations goes directly to this point. I discuss this more fully in the following sections of my rebuttal report.

1 2. Remedial or response laws and regulations seek to address
2 environmental harm that is resulting from past or ongoing activities.
3 Such laws may require investigation to determine if harm exists, or is
4 likely to exist in the future, as well as remedial action to remedy the
5 harm. At the federal level, examples of remedial laws include CERCLA
6 or Superfund and the corrective action provision in RCRA and its
7 implementing regulations. Other examples include the Clean Water Act
8 water quality criteria as well as the Clean Air Act ambient air standards.
9 While these media-specific environmental quality guidelines or
10 standards are used as one basis to develop the limits in operational
11 discharge permits, they are also used to identify situations where
12 environmental response actions may be appropriate. In North Carolina,
13 the Groundwater Classification and Standards (NC Administrative Code
14 15A NCAC 02L.0100 et. seq.) sometimes referred to as the 2L standards
15 are another example of water quality remedial requirements. The 2L
16 regulations classify groundwater in the state and establish groundwater
17 quality standards based on those classifications (see Section .0200). The
18 regulations also require persons whose activities have resulted in
19 exceedances of the applicable groundwater standards to investigate and
20 undertake corrective actions where necessary. (15 NCAC 02L.0106).

21 **Q. WHY IS THIS DISTINCTION IMPORTANT?**

22 A. It is important because the class of remedial requirements, including North
23 Carolina's 2L requirements, recognize that environmental contamination,

1 including contamination that constitutes environmental harm, can result when
2 an entity is in full compliance with all operational performance requirements.
3 That is, a company may operate a facility in compliance with all waste and
4 chemical management design and operating laws and regulations and still
5 have releases to the environment that require either investigation or
6 remediation under remedial laws.

7 The practical reasons for this distinction are obvious. Operational
8 performance requirements including specific permit conditions, while
9 designed and intended to prevent environmental harm, are not fail-proof.
10 These requirements may not adequately address all activities, all site-specific
11 locations, all waste streams, or all chemicals with the potential to result in
12 environmental harm. Our understanding and knowledge regarding how to
13 achieve prospective protection is constantly evolving. That has certainly been
14 the situation with coal ash management and the reason for EPA's decision to
15 address this issue post-2000 after initially determining such action was
16 unnecessary. Likewise, our definition of protection is constantly evolving,
17 with groundwater and water quality standards continuing to address more and
18 more chemicals and more stringent concentration levels.

19 Also, it is also often difficult, if not impossible, to determine when
20 environmental harm being found today occurred. Yet such timing knowledge
21 is necessary to understand the operational performance requirements that were
22 in place at the time and whether, or not, an entity was in compliance with
23 these operational requirements. In many instances, the contamination being

1 addressed occurred years or decades earlier. Assessing today whether an entity
2 operated in compliance at the time of a release to the subsurface decades
3 earlier is fraught with problems.

4 This is why remedial laws are typically designed to compel
5 investigation and remediation without requiring a determination of
6 compliance or negligence. Congress explicitly recognized this in establishing
7 “strict” liability under CERCLA. That is, liability under CERCLA does not
8 distinguish between parties who intentionally, knowingly, or negligently
9 caused contamination and those who did not. Nor does the statute distinguish
10 between parties whose past disposal was in violation of laws and regulations
11 and those who were in full compliance with all applicable standards at the
12 time of the release. EPA, in implementing CERCLA, has reiterated this point
13 on numerous occasions:

14 Liability under CERCLA is strict, joint and several. Strict
15 liability is liability without regard to fault; it holds a
16 responsible party liable for any harm caused, without regard
17 to whether the party exercised due care or acted with
18 negligence.¹⁸¹

19 Similarly,
20 . . . strict liability is the assessment of legal responsibility
21 without regard to fault or negligence. To hold a party strictly
22 liable, the government must prove only that the PRP
23 [Potentially Responsible Party] meets the statutory definition
24 of liability, regardless of the party’s intent, knowledge, or
25 purpose. The government does not have to prove that the PRP
26 acted in a negligent manner; the government needs only

¹⁸¹ U.S. Environmental Protection Agency, Superfund Enforcement Strategy and Implementation Plan (September 26, 1989), OSWER Directive 9800.0.

1 prove that the PRP is in one of the four statutory classes of
2 liable parties. . .¹⁸²

3 In fact, EPA recognized that if a party is required to investigate or
4 clean up under CERCLA, it might result in unintended and unwarranted
5 perceptions that a party was somehow at fault. But the intent of the law is to
6 compel cleanup, not to punish:

7 Citizens sometimes want PRPs to be punished for the
8 Superfund sites they have created. However, parties may be
9 liable under CERCLA without having violated any regulatory
10 statutes. Thus, the primary purpose of the liability scheme is
11 to compel cleanup.¹⁸³

12 CERCLA and most state remedial laws I am familiar with have a
13 similar framework that does not seek to punish an entity for the presence of a
14 release, but rather to compel responsible parties to investigate and, if
15 necessary, remediate. Again, this is a recognition that releases may and do
16 occur when companies are in full compliance with all prospective laws and
17 regulations and it is also a recognition that releases may have occurred years
18 or decades earlier, well before the existence of requirements that reflect
19 today's knowledge.

20 **Q. CAN YOU APPLY YOUR PERSPECTIVE TO THE NC 2L**
21 **REQUIREMENTS?**

22 A. I am not offering a legal opinion on the application of North Carolina's 2L
23 requirements. I am, however, offering my view that the practical application

¹⁸² U.S. Environmental Protection Agency, RCRA, Superfund & EPCRA Hotline Training Module: Superfund Liability, Enforcement, and Settlements (June 1998), p. 8.

¹⁸³ U.S. Environmental Protection Agency, Superfund Enforcement Strategy and Implementation Plan (September 26, 1989), OSWER Directive 9800.0.

1 of the 2L requirements is similar to other remedial laws and regulations that
2 identify what constitutes a protective standard in one or more environmental
3 media. These media standards typically change over time as additional risk-
4 based information is collected on chemical constituents. Upon discovery of a
5 release resulting in an exceedance of the 2L standards, parties with
6 responsibility for the release are compelled to investigate and, if necessary,
7 remediate the release. In most states, the requirement to remediate is based on
8 a risk analysis, not simply an exceedance of a fixed number. They are not
9 typically punished or penalized for the exceedance itself. In fact, the practical
10 exercise of doing so would be very problematic. Mr. Lucas cites to “7,411
11 groundwater exceedances confirmed by DEP’s own groundwater monitoring
12 data, in violation of the state’s 2L rules.”¹⁸⁴ Without confirming whether each
13 of his alleged exceedances are accurate, it is my understanding that he arrives
14 at this number by counting each sample of each substance that exceeded a 2L
15 standard. However, the number of sample exceedances is not related to the
16 size of the contaminant plume or whether it has changed in mass or extent.
17 This number is entirely dependent on how frequently the Company conducted
18 groundwater sampling. That is, if the Company sampled daily the number of
19 exceedances would be significantly higher than if it sampled weekly. Such an
20 approach would create disincentives for entities to sample frequently or
21 comprehensively across a wide range of contaminants. This is an important
22 reason why such exceedances are not typically treated as violations with

¹⁸⁴ Lucas Testimony, p. 7. Mr. Lucas also cites to 632 MCL exceedances in South Carolina.

1 associated penalties, but instead are used to trigger the required investigation
2 and potential remediation. Penalties and violations are assessed if a party does
3 not comply with the requirement to investigate or remediate as required by the
4 regulatory agency.

5 While I understand why such fines and penalties would not be
6 included as recoverable costs, the inclusion of costs to fully investigate
7 groundwater, determine whether or not corrective action is needed, and
8 implement any required action should all reasonably be considered
9 recoverable costs. These costs reflect evolving knowledge on what is
10 understood today to be needed to fully protect the environment. This
11 knowledge simply did not exist with any certainty prior to 2000 and has
12 evolved substantially since that time. The 2L regulations, permits, CAMA,
13 and the CCR rule are the mechanisms that are used to require actions
14 consistent with this evolving knowledge. Therefore, it is my opinion that it is
15 unnecessary to distinguish between costs attributed to the 2L regulations,
16 permits, CAMA, or the CCR rule as Mr. Lucas proposes.

17 **Q. DO YOU HAVE ANY OTHER OPINIONS ON MR. LUCAS'**
18 **TESTIMONY?**

19 A. Yes. Mr. Lucas reaches the same general conclusion as reached by Mr.
20 Quarles and Mr. Hart, citing to several documents as evidence that "by the
21 early 1980s, the electric generating industry knew or should have known that
22 the wet storage of CCR in unlined surface impoundments posed a serious risk

1 to the quality of surrounding groundwater and surface water.”¹⁸⁵ These
2 included a 1979 report by Arthur D. Little, Inc. and EPA’s Industrial Research
3 Laboratory, a 1981 EPRI Manual, a 1982 EPRI Manual, and the 1988 CCR
4 Report to Congress. I have already discussed these documents in my response
5 to Mr. Quarles and Mr. Hart and those comments equally apply to Mr. Lucas’
6 use of these documents to support his position regarding available knowledge
7 on ash ponds and groundwater in the early 1980s.

8 Additionally, in addressing the DE Progress 1979 study by Mr. Floyd
9 in connection with construction of the ash ponds at the Mayo facility, Mr.
10 Lucas also takes the position that: “It was also imprudent, at least by the end
11 of 1979, to the extent the Company relied on an assumption that there would
12 be no contamination, rather than actually testing for contamination.”¹⁸⁶ As I
13 have discussed previously, groundwater monitoring was not required in this
14 time period and was quite uncommon. The Floyd study appears thorough and
15 was performed precisely to evaluate whether construction of the Mayo ash
16 pond would be protective of groundwater. Had DEQ believed that
17 groundwater monitoring was needed at this specific location before the date
18 DE Progress voluntarily installed such monitoring in 2008, DEQ had ample
19 opportunity to require it in the site permits as had occurred at other DE
20 Progress locations.

¹⁸⁵ Lucas Testimony, p. 43.

¹⁸⁶ Lucas Testimony, p. 49.

1 **Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL**
2 **TESTIMONY?**

3 **A. Yes.**

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1219

In the Matter of:)	
)	
Application of Duke Energy Progress, LLC	)	DUKE ENERGY PROGRESS,
For Adjustment of Rates and Charges Applicable	)	LLC’S CORRECTIONS TO THE
to Electric Service in North Carolina	)	REBUTTAL TESTIMONY OF
)	MARCIA E. WILLIAMS
)	
)	
)	

CORRECTIONS TO THE REBUTTAL TESTIMONY OF MARCIA E. WILLIAMS

Duke Energy Progress, LLC provides the following Corrections to the Rebuttal Testimony of Marcia E. Williams:

1. Page 99, Line 9 Change the phrase “of the mass” to “to the mass”
2. Page 102, Line 13 Delete “i.e.,”
3. Page 114, Line 12 Change “actually” to “actual”
4. Page 114, Line 14 Change “about” to “above”
5. Page 66, Lines 13-15 Change "In contrast, DE Progress installed a limited number of early groundwater monitoring wells at three of its facilities prior to 1980.⁹¹" to "In contrast, DE Progress installed a limited number of early groundwater wells prior to 1980.⁹¹"
6. Page 66, Footnote 91 Delete in its entirety and replace with "See corrected data provided in Duke Energy Progress Supplemental Response to Public Staff Request 101-1, dated September 30, 2020."
7. Page 67, Footnote 92 Delete last sentence “Thus, by 1995, groundwater monitoring had occurred at five of the eight DE Progress facilities.”

1 MR. MARZO: I'd also ask,
2 Commissioner Clodfelter, that Ms. Williams'
3 summary, which was provided to all the parties and
4 to the Commission, be entered into the record as if
5 given orally today.

6 COMMISSIONER CLODFELTER: Without
7 objection, it will be so ordered.

8 (Whereupon, the prefiled testimony
9 summary of Marcia Williams was copied
10 into the record as if given orally from
11 the stand.)
12
13
14
15
16
17
18
19
20
21
22
23
24

Duke Energy Progress, LLC
Summary of Rebuttal Testimony of Marcia Williams
Docket No. E-2, Sub 1219

My testimony brings my 50-year career in environmental protection and regulation to bear on crucial questions regarding the Company's recovery in this case of coal ash compliance costs. Having worked at EPA from its 1970 inception through February 1988, I have provided the Commission with a unique historical perspective regarding EPA's intensive investigation of coal combustion residuals throughout the 1980s as well as subsequent years and decades. Indeed, it was my office at EPA, the Office of Solid Waste, that produced the 1988 EPA Report to Congress that many intervenors in this case have used (I would say mis-used) in their attempts to portray the Company as being unresponsive to environmental concerns. I have come to the opposite conclusion, based upon my review of their testimony and the historical documents upon which they rely, as well as my experience with and general knowledge of environmental protection and regulation acquired over the course of my entire career.

The opinions I provide in my testimony are as follows: First, it is difficult to predict the exact scope of future regulatory requirements until a final rule has been issued, and even once issued, a Company's compliance costs can remain uncertain. Second, until the passage of CAMA and promulgation of the CCR Rule, the Company faced significant uncertainty regarding the regulatory requirements for managing CCR; even then, uncertainty remained as to the exact timeframe, methods, and costs applicable to site-specific closure of ash ponds until clarity was obtained from the implementing regulator (in North Carolina, the DEQ). Third, in light of these uncertainties, the Company acted prudently in waiting until after CAMA and the CCR Rule became law to take specific actions to upgrade or close ash ponds, while it worked cooperatively with DEQ to address any site-specific environmental issues. Fourth, prior to CAMA/CCR Rule, an accurate estimate of the costs associated with ash pond closure (even assuming that closure would have been required, an unknown outcome at that time) would have been extremely difficult

Duke Energy Progress, LLC
Summary of Rebuttal Testimony of Marcia Williams
Docket No. E-2, Sub 1219

to estimate with a high likelihood for significant over- or under-estimation. Fully known and measurable estimates required completion of recently finalized site-specific closure agreements.

My testimony also critiques intervenor testimony from Messrs. Hart, Quarles and Lucas, all of whom assert that the Company's ash pond practices were inconsistent with what was understood to be necessary to protect groundwater, and therefore imprudent. All three point to a handful of documents to support their view that there was widespread understanding, as early as the late 1970s or early 1980s, that the operation of DEP's ash ponds was not protective of groundwater. They also conclude that had DEP taken different actions many decades ago, its coal ash pond closure costs, including groundwater cleanup costs, would be lower today. However, the intervenors do not agree on what the company should have done, when any action should have been done, and how much the action would have cost,

I disagree with the intervenors' conclusions for a number of reasons. First, an understanding of the risks being addressed today from the operation of ash ponds did not evolve until well after the late 1970s and 1980s. The intervenors' assertion that these risks were understood earlier is directly contradicted by the weight of evidence, including EPA's findings, and is not supported by the documents they cite. Hindsight is always 20/20, but it is improper to use today's knowledge to interpret documents written decades ago. Second, as EPA initiated a regulatory process in the 2000s to establish national standards for CCR, the outcome of that process was highly uncertain and a utility taking action prior to that process concluding risked being found to be imprudent if those actions ended up being inconsistent with the final regulations, potentially leading to the incurrence of unnecessary or higher costs. At the time, knowledge as to whether early actions would have been more or less costly would have been speculative. Third, during EPA's expansive evaluation of ash ponds and their potential impacts on groundwater and surface

Duke Energy Progress, LLC
Summary of Rebuttal Testimony of Marcia Williams
Docket No. E-2, Sub 1219

water, the Company undertook specific early steps to assess its ash ponds impact on groundwater, monitor releases to groundwater and surface water consistent with its permits, and alert regulatory authorities of any impacts. Intervenors completely ignore the role of DEQ in overseeing the Company's historic management of CCR, and by doing so they present a distorted picture that fails to recognize the important relationship between a regulated entity and its regulator. That DEQ did not require DEP to modify the design of its ash ponds by requiring liners, did not require the ponds to close, or did not mandate groundwater monitoring earlier than they mandated, is a strong indication that the Company's operations were, based on knowledge at the time, considered to be reasonable and protective by the Agency charged with protecting the North Carolina environment. Importantly, DEQ issued and renewed permits for continued operation of the ash ponds throughout the period in question. Yet, the role of DEQ and its decisions do not seem to factor into the opinions reached by the intervenor witnesses.

In sum it was reasonable and prudent for DEP to wait until final rules and laws were in place before initiating major modifications or closure of ash ponds while working with DEQ on any site-specific environmental issues. Further, the Company's actions with respect to groundwater were taken in conjunction with DEQ and followed DEQ's direction, which is entirely consistent with the manner in which a regulated entity should operate in a groundwater monitoring, assessment, and remediation process. Groundwater monitoring is a complex tool whose use has evolved significantly since the 1980s. Similarly, the ability to accurately assess the subsurface and evaluate risks from the presence of low levels of contaminants has also seen dramatic improvements. As a result, the time needed to reach appropriate decisions on groundwater remedies and implement them has typically taken decades at sites in North Carolina and nationally.

This concludes my testimony summary.

1 MR. MARZO: Commissioner Clodfelter, per
2 the stipulation entered into between Public Staff,
3 the Attorney General, and Sierra Club on
4 September 28, 2020, I ask that the live rebuttal
5 testimony of Jim Wells and Marcia Williams from
6 Docket E-7, Sub 1214, located at the following
7 volumes, be entered into the record. Those volumes
8 are Volume 27, page 189, line 1 through page 314,
9 line 5; transcript Volume 28, page 11, line 9
10 through page 138, line 7; and transcript Volume 29,
11 page 15, line 5 through page 79, line 10 be entered
12 into the record in this case.

13 COMMISSIONER CLODFELTER: All right.
14 You've heard the motion. Is there any objection to
15 the motion?

16 (No response.)

17 COMMISSIONER CLODFELTER: Hearing no
18 objection, motion is allowed.

19 (Whereupon, the testimony from Docket
20 Number E-7, Sub 1214, transcript Volume
21 27, page 189, line 1 through page 314,
22 line 5; transcript Volume 28, page 11,
23 line 9 through page 138, line 7; and
24 transcript Volume 29, page 15, line 5

through page 79, line 10 were copied
into the record as if given orally from
the stand.)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Page 189

1 MR. MARZO: With that, Chair Mitchell,
2 the witnesses are available for cross examination.

3 CHAIR MITCHELL: All right. Thank you,
4 Mr. Marzo. Public Staff, you may proceed.

5 MS. LUHR: Thank you. This is
6 Nadia Luhr with the Public Staff. I will begin
7 with some questions for Ms. Williams.

8 CROSS EXAMINATION BY MS. LUHR:

9 Q. Good morning, Ms. Williams.

10 A. (Marcia E. Williams) Good morning.

11 Q. I'd like to start out very quickly on page 29
12 of your testimony.

13 CHAIR MITCHELL: Ms. Luhr, we're getting
14 a little feedback on the line. So everyone confirm
15 that they are on mute when not speaking. We'll see
16 if this resolves as we move forward.

17 All right. You may proceed, Ms. Luhr.

18 MS. LUHR: Thank you.

19 Q. Ms. Williams, on page 29 of your testimony,
20 I'm looking at lines 10 through 12, you state that:

21 "In the early 1980s, North Carolina adopted
22 regulations for classifying different waters of the
23 state and establishing groundwater standards for
24 different classifications."

1 And here you're referring to the 2L rules; is
2 that correct?

3 A. Yes, I am. And I know they were initially
4 passed in 1979, but some significant changes were made
5 in the early '80s, including some of the information on
6 compliance boundaries.

7 Q. Okay. So you realize that they were adopted
8 in 1979, and so that's when the prohibition on
9 exceedances began?

10 A. I do understand they were initially passed in
11 1979.

12 Q. Okay. Thank you. And on pages 93 to 97 of
13 your testimony, you discuss the 2L rule as a remedial
14 requirement. Now, Ms. Williams, is the 2L rule simply
15 a remedial requirement, or is it also a requirement to
16 prevent groundwater contamination?

17 A. So I would call it -- I would call it an
18 environment performance standard. And as an
19 environmental performance standard, it -- and I'm
20 speaking from my experience not only in this matter but
21 certainly my federal experience. Environmental
22 performance standards have generally been used to
23 ensure that, whether it's groundwater or whether it's
24 surface water or sediments, they've been developed over

1 time, they've been expanded dramatically over time,
2 both in terms of what constituents get covered, but
3 also in terms of the levels that are deemed protected.
4 Because as more and more information is developed on
5 the fate, and transport, and the toxicity of different
6 compounds, the environmental performance standards
7 change. Typically more stringently, occasionally less
8 stringent.

9 And so those standards are the best
10 indication of what is protective in the environment.
11 But the requirements that help ensure -- that are
12 prospective and proactive -- that ensure that the
13 environment's protected, are design standards,
14 construction standards, operational standards. So
15 those are the standards that get put into regulations,
16 those are the standards that get put in permits as to
17 how facilities are required to operate.

18 And what happens, obviously, is you're
19 hopeful -- both the government is hopeful when they
20 issue permits and the entities are hopeful when they
21 build and design their plants, that they're going to
22 meet those environmental performance standards, which,
23 as I said, are a changing set of standards often
24 implemented many years after the original facility was

1 built, designed, and permitted.

2 And so what the federal government considers
3 is that those standards, if they are exceeded at an
4 appropriate boundary and with appropriate -- if there's
5 excessive risk, then what the federal government
6 assumes and acts on is that you need to address that
7 contamination. But it's also a check to tell you that
8 the design and operational standards that the facility
9 was permitted to operate under are not as adequate as
10 what had been believed or understood at the time the
11 permits were issued.

12 So I call that a remedial standard. That's,
13 I think, the most general way to describe it. It's
14 certainly a regulation, it's a requirement, you have to
15 meet it, but it's an after-the-fact assessment. You
16 can't really design for an environmental performance
17 standard, particularly if it's not even in place at the
18 time that you're permitted to construct and operate the
19 facility.

20 Q. Understood. So once the regulations, the 2L
21 rule -- once the 2L rule was adopted in 1979 and these
22 groundwater standards were in place, would you agree
23 that the Company, at that point, had a responsibility
24 to assess whether or not it was meeting those

1 groundwater standards and to take action based upon
2 that knowledge?

3 A. No, I wouldn't really agree with it as you
4 stated. I think it was a joint responsibility. And,
5 in fact, it was a responsibility of the regulatory
6 agency. If they believed that the design and
7 operational requirements of facilities that existed
8 were inadequate to meet those standards, then the
9 permits really should have included additional
10 requirements.

11 So, for example, if there was a need or
12 belief that the specific facilities would likely, you
13 know, or highly likely or reasonably likely to result
14 in groundwater contamination exceeding the standards,
15 the general -- in my experience, the general way that
16 would have been addressed is there would have either
17 been a requirement put into a permit to monitor
18 groundwater, or there would have been a requirement to
19 modify some aspect of design or operation. That could
20 be identified by the Company, that could be identified
21 by the regulators, but regulators normally don't issue
22 permits if they believe there's some unprotective
23 situation associated with the permit they're getting
24 ready to issue.

1 Q. So it sounds like you're saying that Duke's
2 coal ash basins and its obligation to comply with
3 regulations was -- was a responsibility of DEQ rather
4 than Duke Energy Carolinas; is that what you're saying?

5 A. I'm saying that when Duke -- when a
6 regulatory agency issues a permit, it looks at all the
7 information that's available. And it can issue that
8 permit if it believes that permit is protective.
9 Regulatory agencies are not typically in a position
10 where they -- and I'm going to speak for federal. You
11 cannot issue a federal permit if you have information
12 to suggest that that permit will not protect health in
13 the environment.

14 So it's a joint -- it's a joint
15 responsibility, but it is my experience, working in
16 many states and federally, that the existence of a
17 performance standard like the North Carolina 2L
18 standards, normally, if groundwater monitoring was an
19 expected requirement, it would be written either into
20 the regulations or more likely written into each of the
21 individual permits.

22 And so that was not the case with 2L. It
23 certainly was not the case with the federal subtitle D
24 regulations criteria that did apply to the Duke Energy

1 facilities.

2 Q. So I -- I can point to some of your testimony
3 which is along these lines, and I have a few additional
4 questions. On page 69, I think it would be on line 19,
5 you say that the lack of regulatory action on the part
6 of DEQ is, quote, a strong indication that DE
7 Carolinas' operations were considered to be reasonable
8 and protective by the agency charged with protecting
9 the North Carolina environment.

10 And I think that's what that's what you've
11 been saying just now.

12 A. Let me -- if I could just supplement for a
13 minute. In this particular time frame, in the time
14 frame of 1979 to 1981, the federal government was
15 giving large amounts of money to every state, okay, to
16 implement the subtitle D criteria. This is a set of
17 guidance/criteria -- they're sometimes called criteria,
18 they're sometimes called regulations -- that EPA put
19 out in 1979 to define what was a protective solid waste
20 facility. And one of those criteria had do with
21 groundwater.

22 And EPA was giving significant grant money
23 out in this time frame to the states, and asked the
24 states, please identify solid waste facilities that did

Page 196

1 not meet these criteria. And states did all different
2 types of things in response to that. But all states
3 were required to put together what was called an open
4 dump inventory that listed all their solid waste
5 facilities that they believe did not meet the criteria.
6 And Duke's facilities were not on North Carolina's open
7 dump list. In fact, coal ash surface impoundments and
8 landfills were generally not on any state's open dump
9 list in the window of time between 1979 and 1985, which
10 is when the inventory stopped being put together.

11 Q. Understood. So going back to your language
12 on page 69, is it -- is it your position that the
13 absence of regulatory action on the part of DEQ is an
14 endorsement of the Company's -- of the Company's
15 practices?

16 A. I think -- I think that what it is, is an
17 indication of what the knowledge base was at the time.
18 And we've heard a lot of discussion here today about
19 whether people are using today's knowledge to interpret
20 what was going on back in many decades ago. You know,
21 there's not a lot of advantages to being an old person,
22 but the one advantage I can tell you is I lived through
23 this. And so I can tell you that the level of
24 knowledge and the level of thinking on groundwater, and

Page 197

1 the potential risks from groundwater contamination, and
2 which types of facilities were understood to be the
3 highest likelihood of causing issues in this exact time
4 frame is extremely different than what everybody knows
5 today. And that's a good thing, because we expect
6 knowledge to improve, and it has improved on all kinds
7 of topics.

8 So what I'm trying to share with you is what
9 the knowledge was at that time. I'm trying to explain
10 it so that you and others hopefully will recognize that
11 the knowledge at that time was not sufficient to say
12 those coal ash basins were understood that they were
13 going to result in contamination of groundwater above
14 2L standards or above health protective levels.

15 And the reason that that matters, okay, is
16 that you have to realize that, in this time frame,
17 North Carolina and every state was dealing with
18 hundreds to thousands of facilities that they were
19 trying to identify which were the ones which were most
20 important to address, to deal with the potential -- and
21 I underline the word potential -- the potential for
22 groundwater contamination. And both Congress and EPA
23 both believed that the most important thing was to
24 identify those that were -- that would be designated as

1 hazardous waste facilities. And the second thing would
2 be to identify those that were identified as open dumps
3 and get them upgraded.

4 And those were the priorities back then. So
5 I'm not being critical of North Carolina. I'm trying
6 to share with you what the focus was and what the level
7 of information was and how people were looking at
8 generalized requirements in that time frame. And if
9 they expected them to apply to a particular facility,
10 they normally put them into a permit in some kind of
11 fashion as a requirement.

12 Q. Understood. And we'll discuss historical
13 knowledge in a little bit. But first, you know, I want
14 to go back to the fact that we're looking at
15 North Carolina. And we're not looking at federal
16 regulations right now, we're talking about the 2L
17 rules, and the fact that those did prohibit groundwater
18 exceedances beginning in 1979, correct?

19 A. They identified in 19 -- I think I would say
20 what they did is they identified the levels of
21 contamination that would be acceptable in different
22 classifications of groundwater in the state of
23 North Carolina. And they're very similar to just like
24 saying the federal government had primary drinking

1 water standards that were effective anywhere that you
2 were dealing with drinking water. And other states had
3 similar kinds of standards at that time.

4 Q. And you stated, I believe, that coal ash
5 impoundments may not have been a priority given other
6 issues at the time. Regardless of whether or not they
7 may have been a priority, they still had to comply with
8 the law; isn't that right?

9 A. I think I've already said they had to comply
10 with -- certainly, they had to comply with regulations
11 and permits that were specific to their facilities.
12 And clearly, if they violated those standards, they
13 would have had to address -- working with the
14 regulator, they would have had to address what needed
15 to be done if they exceeded the standards. As I say,
16 in 1979 I don't believe there were any compliance
17 boundaries, but they would have had to address it. But
18 addressing an exceedance is different than saying they
19 were required to monitor the groundwater.

20 MS. LUHR: At this time, Chair Mitchell,
21 I would ask that Public Staff Cross Exhibit 65 be
22 identified as Public Staff Wells/Williams Rebuttal
23 Cross Examination Exhibit Number 1.

24 CHAIR MITCHELL: All right. Ms. Luhr, I

Page 200

1 just want to confirm that we're all looking at the
2 some document. Is this a letter from NC DENR dated
3 August 28, 2014?

4 MS. LUHR: That's correct.

5 CHAIR MITCHELL: Okay. The document
6 will be marked as Public Staff Wells/Williams
7 Rebuttal Cross Examination Exhibit Number 1.

8 MS. LUHR: Thank you.

9 (Public Staff Wells/Williams Rebuttal
10 Cross Examination Exhibit Number 1 was
11 marked for identification.)

12 Q. And, Ms. Williams, if you can refer to this
13 document, and it's addressed from Donald (sound
14 failure) -- with DEQ at the time, and if you look --

15 (Reporter interruption due to sound
16 distortion.)

17 CHAIR MITCHELL: Yes. Ms. Williams, I
18 believe we're getting a bit of an echo from your
19 line, so when you complete an answer, would you
20 mute? I know that's difficult to remember, but
21 just try to keep your line muted when you're not
22 speaking. Thank you.

23 Q. So, Ms. Williams, if you see that the letter
24 was addressed from Donald van der Vaart with DEQ at the

Page 201

1 time, if you look at the very last page, you'll see
2 that he was at the time deputy secretary of DEQ; do you
3 see that?

4 A. Give me a second, I'm just scrolling to the
5 end.

6 (Witness peruses document.)

7 I have looked at this, and that is my memory,
8 yes.

9 Q. Okay. Thank you. And if you would turn to
10 the very first page of the letter and read for me
11 beginning with the sentence that begins "within 90 days
12 of coming into office."

13 A. "Within 90 days of coming into office under
14 the leadership of Secretary John E. Skvarla," I'm not
15 sure if I have that right, "and through the vigorous
16 efforts of DENR engineers and scientists, this
17 administration has undertaken enforcement action to
18 address the long-ignored environmental problems
19 associated with coal ash ponds in the state of
20 North Carolina."

21 Do you want me to keep going?

22 Q. Yes, please, one more sentence.

23 A. "These problems, ranging from unauthorized
24 discharges to groundwater contamination, have all --

1 have been well known and well documented for decades,
2 yet virtually no initiative was undertaken by any
3 nongovernmental organization or governmental agency to
4 address these problems until quite recently. "

5 Q. Thank you. And so, you know, this letter is
6 dated 2014. At that point, the state's environmental
7 agency acknowledged that not only were the problems
8 associated with the Company's coal ash ponds well known
9 for decades, but that they had been ignored; isn't that
10 right?

11 A. Well, I mean, I think this letter says what
12 this letter says. It clearly was issued at a change of
13 administration. And in my experience, having been
14 through many of those at the federal level, you get all
15 kinds of things change -- written at changes of
16 political administration. So I'm not going to comment
17 on that. But I would point out that 2014 is a very
18 different time frame than 1981, which is what you and I
19 were having a discussion about, and what was known and
20 thought about in 1981.

21 Q. And let's move on and talk about some of this
22 historical knowledge that you've mentioned. Let's
23 begin with the EPRI manuals. And we can turn to those
24 if we need to. We may not need to. But my first

1 question:

2 Would you agree that the EPRI manuals
3 discussed by Mr. Junis in his testimony represent the
4 state of industry knowledge at the time they were
5 published?

6 A. I would not characterize them that way. In
7 fact, I spent a fair amount of time looking, well, at
8 both of the manuals, but I looked at the 1981 manual,
9 which was supposedly projecting what the requirements
10 were going to be for coal ash ponds. And that manual
11 was premised on utilizing a proposed rule that EPA had
12 actually issued based on statutory authority that was
13 pre the Resource Conservation and Recovery Act, which
14 came out in 1976.

15 Those rules were designed for landfills, they
16 were not designed for surface impoundments or ash
17 ponds. They were never finalized. And, in fact, when
18 EPA went back and, under the Resource Conservation and
19 Recovery Act, developed its -- the solid waste
20 regulations that I did talk about, the subtitle D
21 criteria, they looked completely different.

22 So I think that that manual was an attempt to
23 share information with the industry about where things
24 could be going, but I do not think it was an accurate

1 representation of everything that was known in that
2 time frame. In fact, I think it actually did not do a
3 good job of summarizing the full amount of information
4 that was existing at the time with regard to what was
5 known about groundwater contamination and the potential
6 for various kinds of units to result in groundwater
7 contamination, which I would be happy to talk about in
8 more detail.

9 Q. Well, so first of all, I mean, the EPRI
10 manuals were published as manuals, correct, in the
11 sense that industry was intended to use them as
12 guidance; is that right?

13 A. I'm not -- I mean, I'm not -- I can't -- I'm
14 not going to speak for EPRI, but I had worked with EPRI
15 both when I was in EPA, and I have utilized EPRI
16 material since leaving EPA. And trade associations and
17 research groups like EPRI typically provide
18 information -- obtain information from their members
19 and share information with their members.

20 So I think the guidance manual has enough
21 information in it, both the '81 and even more so the
22 '82 manual that was designed not for new facilities but
23 for existing facilities, has a lot of information in it
24 that indicates that this is a time of significant flux.

1 And EPRI is just trying to share the information as to
2 what could potentially be happening. This is not a
3 regulation. It is not a guidance that says -- and, in
4 fact, if you read particularly the '82 manual, that is
5 the manual that addresses existing facilities, it does
6 not say every existing facility needs to do A, B, C, D,
7 E. It says here's a bunch of information that may be
8 relevant to your existing facilities, and as we
9 understand better where EPA is going to go, as it
10 continues to evaluate and collect information on coal
11 ash landfill and ponds, you may want to upgrade certain
12 things. But we don't know yet what that's going to be.

13 So I think that that manual is really quite
14 clear as it's applied to existing facilities. But I
15 would also point out that that manual does make the
16 statement -- or the manuals make a statement that
17 groundwater monitoring is required. It was not
18 required by EPA's federal regulations, and it was not
19 required in any of the permits.

20 And in my experience -- and I'd be happy to
21 discuss the statistics, I guess, I would tell you that
22 I believe are relevant in evaluating Duke's performance
23 in this precise time frame against other ash ponds in
24 this time frame. Because, in this time frame, a very

1 small number of ash ponds or ash landfills had liners,
2 and a very small number, less than 10 percent, had
3 groundwater monitoring. And that did not change
4 dramatically. It did not change dramatically for ponds
5 all the way through until you get post 2010.

6 In fact, Duke -- Duke was way ahead of the
7 industry in terms of the fact that it had groundwater
8 monitoring in all of its ash ponds by 2010. And when
9 you contrast that with the industry, the industry, as
10 of 2010, I believe, had groundwater monitoring in
11 42 percent of its ponds.

12 So you have to go back and look at both the
13 knowledge, which is very different than what I've heard
14 summarized here over the last week, and you have to go
15 back and look at the specifics of the individual
16 facilities in light of a broader context.

17 Q. Thank you. And going back -- going back to
18 my first question, and, you know, it sounds like from
19 the explanation you just gave, I mean, the EPRI
20 manuals, when they were published, represented
21 knowledge the industry had at the time; would you
22 disagree with that?

23 A. Well, I would. Because I think if you look
24 at the 1981 EPRI manual, it says we're basing this on a

Page 207

1 proposed rule that EPA wrote quite a long time ago,
2 whereas EPA, in fact, as of the date of that EPRI
3 manual, had finalized its subtitle D requirements. So,
4 I mean, I don't think it's adequately characterized.

5 And I would put into -- you know, into
6 context, another thing. EPA started looking at coal
7 ash ponds in the late 1970s and did a lot of work on
8 coal ash ponds. EPA issued its 1988 report to Congress
9 during my tenure. I managed that operation and
10 production of that report. And that report looked at,
11 I think -- I'm going to give an approximate number, but
12 there were at least 75 reference documents utilized by
13 EPA, and -- I should say cited by EPA in the
14 development of that report.

15 The two -- there are a bunch of EPRI reports
16 that are utilized by EPA, and a lot of information that
17 EPRI collected that was utilized by EPA in the
18 development of the 1988 report to Congress. But those
19 two EPRI manuals were not utilized. And they were not
20 utilized because I think, at the time, EPA felt the
21 same way about them as what I'm trying to share with
22 you today. They were an attempt -- and a good attempt;
23 I'm not being critical of EPRI -- to try and share
24 information with its membership as to what might be

1 happening. But it didn't represent either industry
2 standards or what ultimately was deemed necessary to
3 happen to protect groundwater at that time based on
4 information at that time.

5 Q. And I'd like to go back to something you
6 said. You said that the EPRI manual stated that
7 groundwater monitoring was a requirement. And I just
8 wanted to confirm that you didn't mean a legal or
9 regulatory requirement, you meant that the EPRI manual
10 stated that -- that facilities -- well, I can quote,
11 that groundwater monitoring was necessary to provide
12 convincing proof of a safe disposal practice; is that
13 correct?

14 A. I don't have it in front of me, but it sounds
15 similar to what the EPRI -- so subject to check, I will
16 accept that. But what I want to make sure I explain
17 here is that that was not the viewpoint of the Federal
18 Environmental Protection Agency as to the way to
19 address which facilities had the potential to adversely
20 impact groundwater.

21 EPA had put out various guidance documents,
22 they had shared information with the states on how you
23 might go about looking at site specific, both ponds and
24 landfills. Because I need to emphasize to folks, in

1 this time frame, EPA was equally worried about
2 landfills as they were about ponds. And there were
3 equally many more, actually, examples of groundwater
4 contamination events that were known at that time from
5 landfills than from ponds. And so EPA looked at the
6 kind of factors that were relevant to consider. And
7 it's a large range of factors. And EPA provided this
8 guidance to the states on how you might look at
9 individual sites to identify those that were most
10 important.

11 But they did not advise putting in
12 groundwater monitoring wells at every facility. And
13 part of that was because the state of groundwater
14 monitoring was in its infancy. And I say regulatory
15 groundwater monitoring. The kind of groundwater
16 monitoring that would be useful to a regulator to come
17 to a conclusion as to how to apply that information in
18 the regulation of a particular facility. So
19 groundwater monitoring today is a very different animal
20 than what existed and was capable of back then.

21 And I'd be happy to walk through that history
22 but -- if that's useful to you or the members of the
23 Commission as to the evolution of groundwater
24 monitoring and many of the issues the agencies,

1 including my agency at the time, the federal EPA, were
2 trying to address with regard to groundwater
3 monitoring.

4 Q. That's all right, Ms. Williams. I have a few
5 more questions I'd like to get to. So you're -- you
6 stated, essentially, that, you know, groundwater
7 monitoring wasn't necessarily required by EPA at the
8 time; is that -- is that generally what you were
9 saying?

10 A. Groundwater monitoring was required by EPA
11 for what EPA considered the highest -- the
12 high-priority facilities. Which, at that time, were
13 those facilities that EPA defined as hazardous waste
14 land-based facilities. So hazardous waste landfills,
15 hazardous waste surface impoundments, hazardous waste
16 land treatment facilities. Groundwater monitoring was
17 required at that set of facilities starting between
18 1980 and 1982. There were variances available, and
19 the -- what EPA found in putting a huge amount of
20 effort at that point is that the ability to get
21 groundwater monitoring into those roughly 1,500
22 facilities was extremely challenging.

23 So it was required for some facilities. It
24 was not required for solid waste facilities, including

1 coal ash ponds and landfills.

2 Q. Okay. And you -- just very, very briefly, I
3 want to confirm that the 1981 manual does provide
4 guidance with respect to establishing a groundwater
5 monitoring system, correct? They provide
6 considerations for determining the location and depth
7 of wells, how to determine the direction of groundwater
8 flow, well location, monitoring analysis parameters. I
9 mean, they lay out guidance for facilities to follow;
10 isn't that right?

11 A. Again, you say they're laying out guidance
12 for facilities to follow. It was guidance, that's
13 number one. Number two, the 1981 EPRI manual was
14 targeted toward new facilities. It was not targeted
15 towards Duke's facilities that were existing facilities
16 and. And number three, EPA recognized that the
17 guidance that was available, including guidance like
18 the type that EPRI put out and others tried to put out.
19 When they tried to apply that kind of guidance for how
20 to do a groundwater monitoring system to real
21 facilities -- and I use as real facilities the
22 hazardous waste facilities that everybody agreed were
23 extremely high priority to get groundwater monitoring
24 in at -- what EPA realized is that guidance was -- and

Page 212

1 I'm just going to use this word, it was naive. It was
2 not capable of easily being translated to how you put a
3 groundwater system in to these complex situations.

4 So once EPA realized that -- because EPA got
5 hundreds of questions from people. Well, what do you
6 mean by this, that, and the other thing. Things that
7 the EPRI manual thought it had answered, okay? But it
8 didn't answer it. So when you went into the field and
9 you tried to do this, it didn't turn out to be as
10 straightforward as you seem to suggest the EPRI manual
11 suggested it was.

12 And so EPA went out to 60 of those
13 high-priority facilities with a team of, like, 15
14 people on a specialized task force and worked to figure
15 out what could be learned about how you do groundwater
16 monitoring at complex -- at these facilities. And the
17 answer EPA came up with was published for the first
18 time in 1986 in a guidance manual on how to put
19 groundwater wells in to either a surface impoundment or
20 landfill facility that would give meaningful results
21 for decision-makers. And that guidance manual was
22 250 pages long.

23 And my agency got brought up in front of
24 Congress a couple of years later and asked

Page 213

1 specifically, why isn't everybody -- you've now put out
2 the guidance, why isn't everybody already doing
3 groundwater monitoring perfectly, and they were asking
4 about hazardous waste facilities. And the answer that
5 came back is that the government accountability office
6 had looked at this and they said they were still
7 missing things from EPA's 250-page manual. And EPA had
8 to update that manual, which it finally did by 1992.
9 And by the mid-'90s, I was -- over 80 percent of
10 hazardous waste facilities had been able to put in
11 really decent groundwater monitoring systems.

12 But that's the evolution of this. And so to
13 go back, and when I hear Mr. Junis say, well, Duke
14 should have put in a comprehensive groundwater
15 monitoring system in 1981, that just isn't the way
16 anything was functioning back then. And when I hear
17 Mr. Quarles say, you were supposed to put your wells in
18 1984 in the perch zone, you weren't supposed to put
19 those wells in the uppermost aquifer. EPA had dealt
20 with that issue for five years, okay, saying some perch
21 zone -- but they tried to define a perch zone that
22 would be part of the aquifer that would be considered
23 for groundwater monitoring, and they couldn't do it.

24 They started out trying to do that in 1978,

Page 214

1 and by 19 -- by 1986 when they did this comprehensive
2 guidance manual, they say some perch zones can be part
3 of the uppermost aquifer, but only if they generate
4 sufficient water. And you need to work with your
5 agency on that issue.

6 So you have to understand that the
7 environmental field was different back then. And it's
8 wonderful that we're in a different place today, but it
9 isn't where we were then.

10 Q. Thank you. Let's -- let's move on to a
11 slightly different topic. I'm looking at page 61 of
12 your testimony, lines 1 through 5. And here you state
13 that the 1984 study conducted for Duke Energy Carolinas
14 concluded that, quote, none of Duke's ash classified as
15 RCRA hazardous waste.

16 And, Ms. Williams, did Duke Energy Carolinas
17 believe at the time that coal ash had to be classified
18 as hazardous waste in order to contaminate groundwater?

19 CHAIR MITCHELL: Ms. Williams, I'm going
20 to interrupt you.

21 Ms. Luhr, would you please restate the
22 page that you're referring to? I missed it, I
23 apologize.

24 MS. LUHR: Sure. Page 61, lines 1

1 through 5.

2 CHAIR MITCHELL: All right. Thank you.

3 Ms. Williams, you may proceed.

4 THE WITNESS: Thank you, Commissioner.

5 Look, I -- Jim Wells can speak for Duke. I can't
6 speak for Duke in terms of what Duke thought, but I
7 can say that absolutely not. You did not need to
8 be a hazardous waste to have a potential impact on
9 groundwater. But the reason I'm emphasizing
10 hazardous waste and all the effort that was put
11 into it is EPA spent, at Congress' direction, a lot
12 of time identifying what constituted a hazardous
13 waste because, if you were going to start to fix
14 problems that might be out there, the understanding
15 was that those facilities classified as a hazardous
16 waste had the highest likelihood of causing
17 problems to groundwater.

18 So, of course, hazardous constituents
19 that are not in -- that are not classified as
20 hazardous waste, or I should say waste streams that
21 contain hazardous constituents can cause
22 groundwater contamination. But we're dealing with
23 probabilities and potential. And that's why EPA
24 provided guidance that dealt with concentrations,

1 distance to drinking water wells, distance to
2 groundwater, permeability of soils, and all kinds
3 of other factors that would be considered in
4 deciding what -- what nonhazardous waste facilities
5 were high priority for installation of groundwater
6 monitoring.

7 Q. And later on that same page, page 61, I'm
8 looking at lines 5 through 8, you're still discussing
9 the 1984 study, and you state that it concluded that:

10 "Given the nature of Piedmont soils
11 underlying the ash basins and its high ion exchange
12 capacity, Duke's disposal of wet coal ash would have no
13 significant impact on groundwater or surface water that
14 received that groundwater."

15 And, Ms. Williams, this study, it only
16 included groundwater monitoring data from one of Duke
17 Energy Carolinas' sites, Allen; isn't that right?

18 A. That's correct. It had actually, you know, a
19 significant number of wells that had been put in over
20 time at the Allen facility. And then it did leachate
21 analysis at other facilities so that Duke could
22 understand the variability of leachate. And it -- I
23 think Ms. Bednarci k discussed this.

24 I mean, the individuals involved in that

1 study; and again, in the A. D. Little study, which was
2 also when EPRI was involved in that as well; and in the
3 1987 River Bend study, looked specifically at the
4 differences, for example, in soils at River Bend versus
5 soils at Allen. But the knowledge at that time was
6 that the Piedmont soils were providing significant
7 attenuation capability for coal ash pond -- coal ash
8 leachate.

9 So again, I'm urging you to look back at what
10 the knowledge was then, and I think these were -- both
11 of those studies these were very thorough studies.

12 Q. And you say in your testimony, you stated, I
13 believe, today several times that the impacts of coal
14 ash disposal at a specific site are site specific;
15 isn't that right?

16 A. Yes, they are site specific, but that doesn't
17 mean that you can't take information. And, in fact,
18 that's exactly what people were doing, was taking
19 information about one site and then looking to see if
20 other sites were similar. That's exactly what was
21 going on. So the Piedmont soils were considered to be
22 similar.

23 And I think, if you look at the 1987 River
24 Bend study, which Mr. Wells, I'm sure, could give you

1 more detail on, but if you look at that study, you'll
2 see they looked at -- for potential differences between
3 the soils, but they're Piedmont soils, and they fit
4 within a certain class of materials. That's why Duke
5 did leachate studies, to see if the ash at the
6 different facilities might look different.

7 So yes, you do site specific, and then you
8 look at a set of factors. But many of the factors that
9 you look at are similar between the set of DEC
10 facilities that were all located in similar geology.

11 Q. And we'll discuss the leachate tests in just
12 a moment. But first, I mean, the factors you list
13 yourself in your testimony include the vertical
14 distance between the waste and the aquifer, the amount
15 and type of waste being managed, and the depth and
16 direction of groundwater.

17 So those go beyond just the type of Piedmont
18 soil, which itself, you know, soil does differ from
19 site to site; isn't that right?

20 A. Yes. I gave a very small set of factors.
21 There are many other factors besides the ones that I
22 put in here and the ones that you just read. And
23 again, knowledge of that changed over time. So what we
24 have to do today to model or monitor -- particularly to

1 model the fate and transport of these contaminants in
2 groundwater is very much more sophisticated than what
3 was capable of being done in the early 1980s.

4 So yes, you looked at those factors. But the
5 reason the EPA was able to provide generalized guidance
6 to do site specific is they wanted to be able to
7 distinguish a site that was in an environment like
8 Piedmont with perhaps surface water relatively close to
9 the ash ponds from a situation where you're in
10 California and you have perhaps extremely sandy in some
11 places with very deep groundwater.

12 And so the concept was you would identify
13 patterns among categories of types of sites, and that's
14 one of the reasons -- I believe I was asked in an
15 information request, well, how in the world can you
16 possibly know what's going on if you don't put
17 groundwater wells in. And the answer is not only did
18 you have certain other types of information that could
19 indicate that there could be an issue, such as let's
20 say you could have problems with fish in a river, or in
21 a pond, or in a stream, because, in fact, you are
22 having some kind of excess amount of contaminants
23 leaching there.

24 So that's an indication that you can detect

1 without monitoring. But not only that, you take
2 information of the type that EPA recommended that all
3 the states used to look at their individual facilities,
4 and you figure out, based on where you have seen
5 issues, what other types of sites may require putting
6 in groundwater monitoring, and that's how we did it
7 back then.

8 Q. So, you know, I'm glad you mentioned that,
9 you know you -- when the Company tested Allen, it did
10 find exceedances; did it not?

11 A. The conclusion that I recall from -- I
12 don't -- again, I would defer to Mr. Wells on this.
13 But the conclusion of that study was that there were
14 not exceedances downgradient that were above the 2L --
15 2L standards. Arsenic was one they looked at very
16 carefully because arsenic was a compound that EPA was
17 most concerned about at this time frame as a risk
18 driver. And they did say that it was not yet -- that
19 the ash pond had not yet reached a steady state with
20 the groundwater. And so, over time, there could be
21 some additional contamination. But they projected that
22 to be, I think, either below or right about at the
23 secondary standard in the future, not now.

24 So I do believe they had some high readings

1 on some of the background wells for manganese, but,
2 again, I may not be remembering precisely, and I would
3 urge to ask Mr. Wells on that.

4 A. (James Wells) And I'd be happy to answer
5 questions on that as well. And that is my
6 understanding. I mean, there was no downgradient -- I
7 think we'll have to have some discussion about what you
8 mean by exceedance. But in any event, you have an
9 established compliance boundary around the basin.
10 There's nothing exceeds a 2L standard outside of
11 compliance boundary that's built into that report.

12 There are some values that exceed what were
13 the background -- what were the published standards for
14 various contaminants, including manganese and iron,
15 which have a naturally occurring contribution. At the
16 time there was no establishment of a background level.
17 But in any event, what the report was really concluding
18 is that there was no downgradient migration of those
19 contaminants above the drinking water level standard,
20 with a real focus on the primary MCLs, and even more
21 specific to arsenic. And trying to determination
22 whether it was a migration that ultimately could hit a
23 receptor or present a risk to the public health or to
24 the environment.

1 And it concluded, as Ms. Williams already
2 indicated, it did conclude that the prediction with
3 respect to the potential to exceed an arsenic standard,
4 which was, again, a primary focus at that time, it
5 would be 50 years and up to 100 years before an arsenic
6 standard would be exceeded if the plant retired as it
7 was anticipating in the future.

8 And that was even after acknowledging the
9 concept that there was still an equilibrium left to be
10 reached. So it acknowledged that it had potential for
11 additional time before a full equilibrium is reached,
12 and even in light of that, given the attenuation
13 studies they did, and the time travel, and
14 understanding the science as a whole, that was the
15 prediction they landed on. That you were at 50 to
16 100 years before you'd see an arsenic limit exceedance
17 at the Lake Wylie level.

18 A. (Marcia E. Williams) And I will just
19 supplement. I think you can look at EPA's 1988 report
20 to Congress which summarized both the report and the
21 results at the Allen plant and did not find groundwater
22 issues problematic to EPA in the review of the results
23 of that study or the Allen plant.

24 Q. And, Mr. Wells, since we're talking about

1 Allen now, I had a few more questions I can go ahead
2 and ask you. You had mentioned that manganese and iron
3 are naturally occurring.

4 And are you aware that the Arthur D. Little
5 1985 study stated that, regarding tracer constituents,
6 elevations of concentrations versus background
7 concentrations were evident at some of the downgradient
8 wells?

9 A. (Xames Wells) I would -- I mean, I'd
10 certainly prefer to see the page and see what it says
11 and --

12 Q. I can refer you to it if you'd like.

13 A. That would be good. I am familiar with the
14 document, and I'm familiar with the statement you're
15 referring to.

16 Q. Okay. So I'm looking --

17 A. But I would like to look at the page, if
18 you -- I mean, I would prefer that, so we could look at
19 it.

20 Q. Sure. So we're looking at Joint Exhibit 10.
21 And I don't know if you have the paper copy or the PDF,
22 but if you're on paper, it's page 5-21.

23 A. I'm sorry, can you repeat the page?

24 Q. 5-21.

1 A. (Witness peruses document.)

2 Okay. I'm there.

3 Q. Okay. And let's see, this is the last -- if
4 you look at the last bullet on the page and that first
5 dash, it states that:

6 "Elevations of concentrations versus
7 background concentrations were evident at some of the
8 downgradient wells."

9 A. Okay.

10 Q. So that would indicate that, although
11 manganese and iron are constituents that occur
12 naturally, that there were elevated levels of some of
13 these tracer constituents in downgradient wells; isn't
14 that right?

15 A. Well, I mean, recognize that could mean a lot
16 of things. When you're dealing something like iron and
17 manganese, the variation of what's natural is very
18 significant, and it can be very significant. And, I
19 mean, again, I would also recognize a big part, if
20 you're going -- we're talking about 1980, in this case
21 '81, '82 time frame, and what the focus here is on is
22 the concept of whether or not it's presenting a risk to
23 the public health.

24 So there was a primary focus on the primary

1 MCLs. And the iron and manganese, while I indicate
2 they're background -- you know, they're background
3 concentrations that vary both upgradient and
4 downgradient and whether or not you're within or out,
5 the best statistical variation. That's some additional
6 analysis that would be applicable. But also the fact
7 that those -- both iron and manganese were second --
8 are secondary standards and were secondary standards at
9 the time and not being regulated based on public health
10 at that point. It was the esthetic and other type
11 concerns associated with secondary.

12 Q. And, you know, despite -- despite these
13 exceedances, the Company discontinued the use of those
14 wells in 1982; isn't that right?

15 A. I don't know when those wells would have been
16 discontinued. What you see here is, you know, probably
17 just a couple things. That when you refer to
18 exceedances here, remember there's a compliance
19 boundary around this, you know. So what this report is
20 recognizing is that there is an impact to groundwater
21 within the vicinity of the basin, and there's many
22 wells, as you can see, inside the basin and right at
23 the boundary of the basin. And it's indicating there's
24 an impact at or near the basin. I think that's what

1 the conclusion is.

2 But it's not indicating that it's CM
3 migration. And there's nothing in this report that
4 indicates there's an exceedance or a violation of the
5 2L standard in the sense of outside the compliance
6 boundary that is above an established background level,
7 established pursuant process set forth in 2L.

8 So what I'm indicating is here, this report
9 on its -- concludes that there's no significant impact
10 to groundwater. And it's based on the data that is set
11 forth within it. And the fact that this report, as
12 well as the other reports that follow, and the data
13 that is used within it to support those conclusions,
14 all of those are indicating. And it's indicated in the
15 final conclusions and in their final recommendation
16 that there is no significant impact to the groundwater.

17 And to the extent it's predicting whether
18 there will be -- now, granted, it's focusing a great
19 deal on arsenic, because that's what that primary MCL
20 concept was what was so important at the time. To the
21 extent they're predicting it, they're predicting you
22 will not see an issue for 50 to 100 years, long after
23 retirement.

24 A. (Marcia E. Williams) I would point out

1 that --

2 A. (James Wells) Excuse me?

3 A. (Marcia E. Williams) I was just going to
4 point out that, actually, EPA attributed the good
5 control of arsenic to the high presence of iron and
6 manganese as background contaminants in the soils. So
7 I thought that was relevant, and I apologize, Jim, for
8 disrupting.

9 A. (James Wells) No. And, I mean -- and I
10 would also add, I mean, if you look at -- the report
11 also provides the background levels of iron and
12 manganese in soil as well as the levels of iron and
13 manganese in the ash. So all of that. I mean, again,
14 I know we're doing a significant hindsight review here
15 of what would have been the experts at the time that
16 were doing this work, and were evaluating a data point,
17 and seeking to draw a broad conclusion suggesting, you
18 know, the work was flawed.

19 So, in truth, even today, any monitoring
20 network is looked at holistically. Not -- any single
21 well is a data point that informs what's going on
22 conceptually site-wide. And that's how it's reviewed.
23 And as you pull these wells, you take multiple samples,
24 and there are many things that affect that sample, all

1 have to be considered as part of the holistic analysis.

2 For instance, you may get a high
3 concentration of something in a well. Then you look at
4 other factors, there may be a high turbidity that you
5 find with the well. Or you may see something that's
6 wrong -- a pH that suggests something is off. That
7 tells you the high concentration you think you're
8 seeing isn't a function of a groundwater contamination.
9 For instance, a pH indication may tell you that you've
10 got groundwater contamination of wells. So you need to
11 consider that when you evaluate what that data's
12 telling you.

13 If you've got high turbidity, you may be
14 detecting, through your sampling technique, you can be
15 contaminating that sample with sediment. And that can
16 give you some numbers that will drive it off.

17 But my point is this: There are -- you put a
18 network in for a reason. You evaluate all the well
19 data; you take multiple samples, over multiple seasons,
20 and over multiple years to create that picture. And
21 then you take the appropriate action based on what you
22 find. And it does -- it is iterative, and you continue
23 to analyze with time to drive the appropriate decisions
24 based on what you're seeing.

Page 229

1 Now, having said that, the one thing I would
2 tell you is, if -- throughout that iterative process,
3 if you're beginning to see something that suggests a
4 risk to the public health, then you move on that
5 quickly. You move and take action. And that's what
6 the Company has done throughout these years. However,
7 if you are in that realm of things that aren't
8 presenting a risk to the public health -- we have an
9 impact of the basin, we have an impact within the
10 vicinity of this basin, there's no question. But is it
11 migrating? Is it impacting receptors, being neighbors'
12 wells? Is it impacting a downstream surface water body
13 in a way that's impacting water quality or the fishery
14 in a negative way? If you're seeing any of that, you
15 take action and you take it quick. As quick as you can
16 to mitigate. All these things move relatively --
17 it's -- groundwater moves slow is a concept that's used
18 in the industry. It's just because it takes -- it is
19 very complex.

20 But in any event, if you see a risk, you take
21 action. What you're seeing with these sites, I mean,
22 the common theme you will see -- and I'm sure we'll
23 walk through all the data, but you'll see from the '70s
24 through the present time, that what we're seeing is

1 typically iron, manganese, pH, and that there are
2 background concentrations of these type things that
3 vary significantly. And there's published data that
4 you can refer to that will show that that is.

5 Are we seeing a risk? No. If we did, we
6 would take action. But we're taking -- we are taking
7 appropriate action to continue to understand whether or
8 not it's presenting a risk, one; and 2, working with
9 the regulator to understand what, if any, more action
10 we need to be taking in response. And now I will tell
11 you, I know the response that I think I'm hearing
12 throughout this -- what I've been hearing for the last
13 couple of weeks is the suggestion that there's been
14 this violation of the groundwater standard since 1978,
15 or whenever we first put our first well in. And again,
16 there's the -- there's a -- we're not in violation of
17 the standard until we begin to see an impact outside
18 the compliance boundary.

19 So that's a big part of what the analysis has
20 been over the last 10 years, is to understand that
21 level of impact. And then if you are outside the
22 compliance boundary, what's the regulatory response?
23 Always recognizing risk would drive everything.

24 Q. And the compliance boundary was not

1 established in 1979, correct? Those were established
2 several years later?

3 A. In '84. So remember, 2L -- first groundwater
4 standards established in 2L, 1971. There was a handful
5 of contaminants that are identified there for us. And,
6 of course, more have been added over the years. I
7 think it started with a double digit-type number and
8 ended up with a triple digit where we are today. So
9 they've evolved, the concentrations evolved over time,
10 as you would expect, and the perimeter of compliance
11 was established in the -- I think it was in either '83,
12 '84 revision. So this is when the Allen groundwater is
13 being evaluated. So it established then explicitly
14 that there was this accountability to the compliance
15 boundary.

16 And that was further refined with further
17 developments of 2L, and then further interpretations of
18 2L that have occurred over time as far as how that
19 compliance boundary applied.

20 Q. And so we've -- we've -- you know, I asked
21 you whether the Company discontinued the use of its
22 wells in 1982, I think you said subject to check.

23 A. No. I said I don't know absolutely as to
24 '82. I know post-Allen studies, the internal '84

Page 232

1 study, which I think has been in the record, and after
2 the A. D. Little study, which of course was done by
3 EPA's contractor who installed additional wells. After
4 that, and based on the findings of those, there was a
5 strong basis, particularly back in those years, if you
6 were sitting in that seat and you're reviewing this
7 conclusion that there is no risk, that we do not
8 anticipate arsenic movement for 50 to 100 years, which
9 is a big focus what they were evaluating.

10 That supported what they were seeing with
11 respect to removal of the groundwater monitoring wells.
12 It's not uncommon in the environmental realm even today
13 that you may start monitoring to determine if you have
14 issues, and if you're not seeing them, which is where
15 they were at that time, they determined they weren't
16 seeing issues. That was supported not just with a Duke
17 study, it was supported by the A. D. Little study. And
18 it was ultimately relatively known by the '88 report to
19 Congress.

20 So it wasn't Duke being -- relying on
21 something and a question of whether they should or
22 should have known. What they should have known,
23 A. D. Little and that entire staff should have known,
24 the EPA '88 report to Congress, all those folks should

1 have known -- the River Bend study which, you know, we
2 refer to Harry LeGrand who I've heard referred to as,
3 in essence, the father Duke of hydrogeology in the
4 Carolinas, authored the '87 report, and we're
5 suggesting that even he was incompetent.

6 I mean, it goes -- so the concept here is
7 these reports on the whole indicate, based on the
8 attenuation study, based on groundwater monitoring that
9 was done by both Duke and A. D. Little, that there was
10 not a significant impact to the groundwater. And that,
11 in the future, it was not anticipated that there would
12 be, based on what they were looking at and how they
13 were prioritizing at the time. Again, 40 years ago.

14 But that conclusion by Duke is supported by
15 that, and I find that to be very reasonable. And for
16 what it's worth, even today that's the type data that
17 we see, that attenuation. That concept of attenuation
18 is there. That we -- our plume today is just -- it
19 sits there. As it moves, it attenuates, it's not a
20 growing plume, it's not -- that plume is sitting
21 beneath the basin and is extended outside the
22 compliance boundary in certain areas, and it's -- but
23 it's sitting, and it's stable, and our multiple models
24 say it will continue to do so for hundreds of years, as

1 we see it, if we take no further action.

2 But that's consistent with what was being
3 discussed in those documents. So even 40 years later,
4 much more sophisticated work, much more sophisticated
5 modeling, still largely consistent with what they had
6 found back then.

7 And the other point I want to make, because
8 this has been lost, all of this was voluntary. You
9 know, if you look at the '78 study, there are data --
10 there are things out there suggesting there's a
11 potential for groundwater impact. So what does Duke
12 do. They've got six, seven sites, they take what they
13 believe to be a representative of site, and they
14 initiate, voluntarily, all this. So the reason we can
15 cherry-pick a well here or two and do a 20/20 hindsight
16 is because Duke did that voluntary study. It wasn't a
17 DEQ directive, it wasn't an EPA directive. They did
18 it.

19 The reason you can question all their data is
20 because they did such a good job documenting what they
21 did, and where they put the wells, the depth they put
22 them. They didn't -- went below the perch water. If
23 you read it, it says below the perch water. The first
24 reference to the perched water sample indicates it went

1 below the perched water because that was the first
2 place they could get adequate sample volume.

3 So we now have a witness cherry-picking and
4 saying they went below the perched water. I'm not
5 sure, I won't opine as to whether they did that
6 intentionally.

7 MS. LUHR: Chair Mitchell, I'm sorry, I
8 think he's gone beyond the question that I asked.

9 MR. MARZO: Chair, I'd ask that -- I'd
10 ask that the witness be allowed to complete his
11 answer.

12 CHAIR MITCHELL: All right. Mr. Wells,
13 we'll let you -- I'm going to overrule the
14 objection. Let's proceed with your answer. And
15 please just do your best to stay on track and
16 respond to the question that you're asked just in
17 the interest of moving the hearing along
18 efficiently. Thank you, sir.

19 THE WITNESS: Very well. I will. I was
20 emphasizing that this was voluntary. This was Duke
21 that volunteered to do the wells. There was also a
22 voluntary effort to share with A. D. Little in a
23 sense that A. D. Little did -- out of the 500, 600,
24 I don't know how many ash ponds ultimately were

1 determined, A. D. Little -- Duke was one of six
2 sites out of all of those that did that level of a
3 study that ultimately culminated in hundreds and
4 hundreds of pages report that included Duke.

5 So Duke's doing this voluntarily, and
6 doing this to assist with the development of the
7 understanding of groundwater impacts. And the key
8 conclusion, not just from Duke's internal voluntary
9 work with A. D. Little work, was the same. And
10 that is the impacts were localized, they weren't
11 seeing a risk, they weren't seeing a significant
12 impact. All of that supported Duke's determination
13 as to what, if any, additional groundwater
14 monitoring needed to do in that area going forward.
15 There were no recommendations in any of those
16 reports suggesting further groundwater monitoring,
17 including the A. D. Little report.

18 Q. Thank you. And do the soils surrounding coal
19 ash impoundments have an infinite attenuation capacity?

20 A. I would refer you to the reports, and the
21 studies, and the ongoing documents that have been filed
22 with the state with respect to that very issue. I will
23 say the '80s studies talked about it, they considered
24 it, and still concluded that migration, they were 50 to

Page 237

1 100 years before you'd see anything with respect to
2 arsenic at the Lake Wylie level.

3 So there are -- the localized soils had some
4 attenuative capacity. And by the way, I did want to
5 clear the one point that I heard, I think one of the
6 witnesses referred to. There was this bad assumption
7 that any -- I think it was another reference to the
8 level of expertise within the folks in the '80s who
9 had -- referencing the -- there was an assumption of
10 some sort that it was clay, it was all clay, or that it
11 was high -- predominantly clay. The attenuation
12 studies that were done and that were ultimately relied
13 on, and it's evidenced by the A. D. Little report as
14 well as the '84 report, indicates that those
15 attenuation studies didn't assume a percentage of clay.
16 They actually pulled a sample at the basin at that well
17 and used -- did an analysis of what the percent clay,
18 percent sand, percent sandy clay, percent sandy level,
19 all the various geology-type terms. They laid out what
20 that percentages are as to clay. They declared -- I
21 think it was 27 -- 20 percent clay and 1 sand. They
22 did actual attenuative studies then on that actual
23 material.

24 So there wasn't an assumption of it's clay,

1 and therefore it will attenuate. It was actual
2 material at the site with an attenuative study that
3 resulted in a conclusion that these soils, based on the
4 analysis we did of these soils, had attenuative
5 capacity. And then they drew -- and then they
6 developed conclusions based on that. So it wasn't an
7 assumption of clay, it was an actual data.

8 Q. All right. I'm going to move back to my
9 questions for Ms. Williams. Just give me one moment.
10 Okay.

11 Ms. Williams, you had mentioned -- when you
12 were discussing the Allen study, you had mentioned that
13 leachate studies were conducted using leachate from
14 each of Duke Energy Carolinas' coal ash impoundments or
15 facilities.

16 Is it your opinion that leachate testing is
17 as effective for assessing the risk of groundwater
18 contamination as groundwater monitoring?

19 A. (Marcia E. Williams) Well, they're not --
20 they're not the exact same thing, but I guess each has
21 its own purpose. The purpose of leachate testing is to
22 understand how -- how likely it is that the
23 contaminants in the waste will leave the waste under
24 whatever the scenario is of the leachate test. And in

1 the early test EPA was using both an acidic-type leach
2 test as well as a more neutral pH leach test when they
3 were evaluating coal ash, but the EPA test method at
4 the time uses a more acidic leach test, which will
5 leach a number of the metals out more aggressively.

6 So you get one piece of information from a
7 leach test. You get another set of information by
8 looking at the kinds of factors that will explain how
9 that material moves. So Mr. Wells was talking about,
10 you know, information about the soils. You mentioned
11 the question of ion exchange capability. So there's
12 other factors, okay? And if you want to get a picture
13 of, again, whether or not a particular site would be
14 likely to cause groundwater contamination, you need to
15 look at that whole set of things.

16 But the starting point is typically a leach
17 test because the higher the results are in the leach
18 test, the more problematic it is potentially likely to
19 be that you could have a problem in the subsurface. So
20 you really need -- you really need both.

21 As for the second part of that question,
22 which is, is it better than groundwater monitoring, I
23 think the answer to that is it's really just different.
24 But groundwater monitoring, as I tried to explain in a

1 previous answer, and I won't repeat, was at a very
2 early stage of sophistication. And what you have to
3 realize you're trying to do in groundwater monitoring
4 is you have a body of water that does not look like a
5 bath tub, it is not flat. You have a highly variable
6 groundwater aquifer, or an aquifers underneath the
7 surface, and you're trying to punch some holes in, and
8 then you're trying to figure out from that whether
9 you've got the likelihood of a problem.

10 And as I say, today we're just so much better
11 at that. But at the beginning, EPA's advice was, for
12 the hazardous waste facilities, put one upgradient well
13 in and put three downgradient wells, or two
14 downgradient wells. And if you didn't get those wells
15 in the right place, which, of course, was very
16 difficult to do on the first try, you weren't going to
17 learn anything useful.

18 And, in fact, I will tell you -- and again,
19 I'm going to go back to hazardous waste, because that's
20 where we put a lot of time into monitoring surface
21 impoundments at hazardous waste facilities -- what you
22 would find is you would be in detection monitoring.
23 You'd be looking at a smaller set of indicator
24 parameters around the surface impoundment, and suddenly

Page 241

1 you would find a hit. And so we would then have to
2 say, okay, now you go into assessment monitoring,
3 meaning many more compounds. And what we found is that
4 sites were going back and forth constantly between
5 detection monitoring, a small number of indicator
6 parameters, and assessment monitoring, because of
7 nothing but the variability of the sampling.

8 And so we have accommodated many of those
9 things in the way we do groundwater monitoring and the
10 way we do sampling and analysis today. But back in the
11 early '80s, even in the time of the A. D. Little study,
12 we were dealing with all that.

13 Q. Okay. And, you know, with respect to
14 leachate testing -- and I can refer you to the page if
15 necessary, or I can just read out the quote, but this
16 is from the 1981 EPRI manual. And EPRI, in that
17 manual, stated, with respect to leachate tests that,
18 quote:

19 The variation and test results among the
20 laboratories performing this same extraction procedure
21 on the same waste sample can be great.

22 And this was in 1981. Are you aware of that?

23 A. I mean, depending on where you want to go
24 with this, I would like to take a look at the rest of

1 the context of the quote. But I can tell you that EPA
2 did a tremendous amount of testing between 1978 and
3 when it finalized its particular leach test it was
4 using in 1980. So we understood what the variability
5 of the test was. And yes, you can always get
6 variability in a test. And it depends not only on the
7 variability in the actual leach -- the leaching
8 situation, which is highly specified in this test, but
9 it can also depend on the sample and the variability of
10 the underlying sample that you're taking.

11 So even if you take a sample and you do a
12 split sample, and you send half of it to one lab and
13 half of it to another lab, those may not be fully equal
14 samples.

15 So yes, we understand that. But I would tell
16 you that the variability in a leach test is far less
17 than the variability in groundwater monitoring results.

18 Q. And I believe this will be my last question
19 for you on Allen. But given, you know, even -- and
20 both you and Mr. Wells have discussed those results and
21 what you believe them to mean.

22 But given even the potential for
23 contamination, wouldn't it have been prudent for the
24 Company to continue testing just to ensure that it was

1 handling its coal ash safely?

2 A. (James Wells) Well, I mean, to begin with,
3 again, look at the recommendations of the findings and
4 they're trying to determine whether they should
5 continue doing it. I would imagine they may be asking
6 should we continue to do additional groundwater
7 monitoring. They are doing monitoring. You know,
8 they're doing -- what have they learned? They've
9 learned the groundwater is flowing away from the
10 receptor. They've learned that we're not finding
11 migration beyond the boundary, beyond the basin. And
12 they've learned that there's no potential risk to the
13 surface waters. So that's what this comprehensive
14 report is telling us.

15 Now -- so what does Duke do with that? Well,
16 they do additional monitoring, they are -- I have an
17 ongoing monitoring program of the surface waters. The
18 groundwater flow is not changing. So the conclusions
19 with respect to the groundwater is solid, and the
20 surface water monitoring is continuing to confirm that.
21 So they have a check in place for any potential
22 impacts.

23 And when I talk about surface water
24 monitoring, I'm talking about any of the receiving --

Page 244

1 the receiving water bodies that would be impacted if
2 something was starting to show. And it's not looking
3 for something after the fact. There were also fishery
4 studies in place. So it's not just sampling to see if
5 water quality suddenly starts to peak up, which didn't
6 happen and hasn't happened. But also looking at the
7 fishery, looking at the reproduction capacity of the
8 fishery. Looking for any indication that there's
9 potential risk to this fishery. All that's going on,
10 and those studies would be early indicators of
11 something that might be amiss. And none of that is
12 happening.

13 So there is some ongoing monitoring, and then
14 a whole lot that's at force, additional groundwater
15 monitoring at that time. And remember, what they've
16 done to this point is entirely voluntary, from '78 up
17 to this point where we're making a decision. So they
18 have a great data that supports that there's no need
19 for further groundwater monitoring at this time.

20 Q. Okay. Let's go ahead and move on.

21 Ms. Williams, I'm looking at page 56 of your testimony,
22 and I'm on line 19 going through page 57. And I'll
23 just read this out loud. You state:

24 "Consequently, in the absence of

1 site-specific information to the contrary, it is my
2 opinion that it would be reasonable and prudent in this
3 pre-2000 period for an owner of an existing ash pond
4 without liners or without an ongoing groundwater
5 monitoring system to continue to operate the ash
6 ponds. "

7 And, Ms. Williams, how -- how would the
8 Company have discovered site-specific environmental
9 issues, such as groundwater contamination, without
10 groundwater monitoring at each site?

11 A. (Marcia E. Williams) Well, I think that I
12 tried to explain that earlier. The way in which a
13 company might identify it are some of the issues that
14 Mr. Wells just talked about. You might see increases
15 in surface water; you might see impacts on --
16 potentially on fish health in surface water if
17 groundwater were reaching surface water and adversely
18 impacting it; you might see vegetation impacts; you
19 might find that you have a nearby or even an on-site
20 well that is there for, let's say, drinking water that
21 ends up with some taste and odor problems. So I'm
22 trying to put you back in that window and tell you how
23 were people identifying them. They were getting
24 identified.

Page 246

1 The second thing that happened is that, if
2 there was any pattern of what was getting identified,
3 then, typically, the regulatory agencies would say, you
4 know, we see multiple sets of issues when we see these
5 kind of situations. And they'll say therefore, we
6 might want a groundwater monitor put in -- monitoring
7 well put in.

8 But you have to understand that, in the
9 window of time -- and I'll just give you some 1986
10 numbers, because these are numbers out of one of the
11 reference documents that I cite. In 1986, the EPA did
12 a very large study of every type of solid waste
13 facility across the country, and they looked at how
14 many of those had groundwater monitoring systems. And
15 what they found at that time was 9 percent of surface
16 impoundments -- industrial surface impoundments all
17 across the country had a groundwater monitoring system.
18 And 17 percent of industrial landfills all across the
19 country -- not municipal, industrial -- had a
20 groundwater monitoring system.

21 So they were not common. And the reason they
22 weren't common wasn't because if they worked as well as
23 they worked today, it might not have been useful, but
24 they didn't work as well as they work today. And so

Page 247

1 there wasn't a tremendous effort to get people to go
2 punch holes in the ground everywhere to get information
3 that at the time was still not entirely helpful to
4 regulatory decision-making.

5 And I would say, in fact, in the early years,
6 we even had examples where people were putting
7 groundwater monitoring wells in too close to the waste.
8 And, in fact, we ended up causing groundwater
9 contamination through the installation of groundwater
10 wells.

11 So all I'm saying is you have to look at the
12 value of what you are going to get. And for many of
13 the reasons that I think Mr. Wells and I have tried to
14 share with you, it's not clear, in that early time
15 frame, that punching tons of additional wells would
16 have provided the kind of information that you're
17 hoping that Duke could have gotten from that.

18 Q. And to go back to the beginning part of your
19 answer, you brought up a couple of ways, other than
20 groundwater monitoring, to detect groundwater
21 contamination. And I would like to refer you to Public
22 Staff Cross Exhibit 64.

23 CHAIR MITCHELL: Ms. Luhr, before we
24 begin with your examination on this document, we're

Page 248

1 going to take our morning break for the court
2 reporter. We will go off the record. We will be
3 back on at 11:45. Please turn off your cameras and
4 your microphones.

5 (At this time, a recess was taken from
6 11:31 a.m. to 11:46 a.m.)

7 CHAIR MITCHELL: All right. Let's go
8 back on the record, please. Ms. Luhr, would you
9 please identify the document one more time just so
10 we're all on the same page?

11 MS. LUHR: Yes. So I have Public Staff
12 Cross Exhibit 64, and it is a Duke Energy Carolinas
13 response to a Public Staff Data Request Number 177.

14 CHAIR MITCHELL: All right. Let's go
15 ahead and mark the document.

16 Q. And, Ms. Williams, before we took a break --

17 CHAIR MITCHELL: Ms. Luhr, let's mark
18 this document for purposes of the record.

19 MS. LUHR: Oh, I apologize. We would
20 ask that Public Staff Cross Exhibit 64 be
21 identified as Public Staff Wells/Williams Rebuttal
22 Cross Examination Exhibit 2.

23 CHAIR MITCHELL: All right. The
24 document will be marked Public Staff Wells/Williams

1 Cross Examination Exhibit Number 2.

2 (Public Staff Wells/Williams Rebuttal
3 Cross Examination Exhibit 2 marked for
4 identification.)

5 MS. LUHR: Thank you.

6 Q. And, Ms. Williams, I had asked you how the
7 Company would have discovered site-specific
8 environmental issues without conducting groundwater
9 monitoring at each site, and you listed a few methods
10 in your response. And I also wanted to direct you to
11 this exhibit, which was a data request response
12 received from Duke Energy Carolinas with respect to
13 this very question.

14 And we don't -- we don't need to read through
15 the whole thing, but it does discuss two methods which
16 you summarize in your response. The first is
17 identification of environmental issues, such as fish
18 kills or dead vegetation. And the second method is
19 essentially having those environmental issues
20 identified by regulatory officials based on detecting
21 contamination.

22 Is that an accurate summary of this document?

23 A. No, I don't think it's completely accurate.

24 I mean, I tried to answer the question of before we had

1 widespread monitoring, how was it that people
2 identified issues with environmental contamination.
3 And I think the method one where I gave a bunch of
4 examples, including, you know, dead vegetation and
5 identifying contamination in some -- you know, in a
6 nearby well, or odor, for example, in a well that a
7 farmer might be using for irrigation. I mean, those
8 were all methods.

9 And I will tell you that, in 1980 when EPA
10 finalized its hazardous waste regulations, we had about
11 300 damage cases that we had identified. And I don't
12 think a single one -- I mean, maybe there was one, but
13 by and large, those 300 damage cases were identified
14 using methods -- examples of the types of methods that
15 I list in my first example, which is there are ways to
16 understand that something is causing a problem.

17 Under method two what I said is, over time,
18 patterns and practices that lead to certain kinds of
19 problems become more apparent. And when that happens,
20 my experience is that regulators, whether you're
21 talking at the state or federal level, will often issue
22 guidance, and -- general guidance to regulated parties
23 and to other regulators, and issue guidance for their
24 permit riders that say, if you're dealing with a

Page 251

1 facility that fits in these kinds of situations, we
2 recommend that you do require groundwater monitoring.

3 So those were the two ways that it was being
4 done site specifically before groundwater monitoring
5 became more common. And as I said, it was not more
6 common in the 1980s at solid waste or industrial waste
7 facilities.

8 Q. And these methods that you list and that
9 you've discussed, these identify contamination only
10 after it's had an impact on surrounding areas; isn't
11 that right?

12 A. The first method is result -- the first
13 generalized method, which is you have some indication
14 of an issue, may or -- yes. I mean, it's after you've
15 detected something. It may or may not be anything that
16 equated to a human harm or environmental harm, but
17 you've detected something. So -- and the second method
18 is not that. It's using a set of information that
19 you've gotten and you've integrated. And then you
20 utilize that information to say, if I have other
21 situations that are like this, I want to go ahead and
22 require something different right now. And it could be
23 groundwater monitoring, and it could be a different
24 type of soil monitoring. I mean, it would depend on

1 the circumstance, but in other words, proactively
2 something else is done based on the analysis of the
3 kinds of damage cases that have been identified.

4 And one of the reasons, by the way, on coal
5 ash basins, you know, EPA looked very hard for damage
6 cases, and they started looking for damage cases in the
7 same window of time that they were looking for general
8 damage cases for hazardous waste. But even at the time
9 that they published the 1988 report to Congress, there
10 were very few damage cases with regard to groundwater
11 contamination at coal ash landfills or surface
12 impoundments.

13 And as I mentioned to you, there were not
14 lots of groundwater monitoring wells then. It was
15 roughly, you know, less than 10 percent. But EPA used
16 about 100 facilities and had its contractors for the
17 1988 report, look at that data and understand what that
18 data was telling about groundwater contamination. And
19 what that data was saying about groundwater
20 contamination was that less than 5 percent of the
21 samples that had been taken at coal ash surface
22 impoundments and landfills were exceeding a primary
23 drinking water sample. And it went on to say that,
24 even when it did exceed it, it might not have

Page 253

1 consistently exceeded it, or it didn't -- and it didn't
2 exceed it by very much.

3 So that was the conclusion of taking a look,
4 as of 1988, of the set of data that existed from at
5 least around 100 facilities.

6 Q. And in order to identify which cases were
7 considered damage cases, the EPA did need groundwater
8 monitoring data; isn't that right?

9 A. That is not correct, no.

10 Q. No --

11 A. EPA defined damage cases broadly to be any
12 plausible risk-based problem. So surface water was a
13 significant issue; direct contact was an issue;
14 destruction or problems in a wetlands was an issue. So
15 no, it was not limited to groundwater, but certainly
16 groundwater was one of the factors.

17 Q. Okay. Thanks for that clarification. And
18 we'll discuss groundwater damage cases as found by the
19 EPA later on in the 2000s in a little bit, but I have
20 some other questions for you before we get there.
21 Let's see.

22 So very briefly, on page 57 of your
23 testimony, you state that:

24 "If the EPA had the risk and other data

1 necessary to proceed with defensible regulations for
2 CCR management, its rulemaking would have been
3 completed far more quickly than what occurred."

4 And, Ms. Williams, is it --

5 A. Can you just give me the line number as to
6 where you are?

7 Q. Yes. One moment. I am on line 7.

8 A. Okay. Thank you.

9 Q. Uh-huh. Okay. Now, Ms. Williams --

10 MR. MARZO: Chair Mitchell, I'm sorry, I
11 was going to say I think we lost the video.

12 CHAIR MITCHELL: Ms. Williams, we are
13 unable to see your video. Would you just
14 double-check your connection, please? There are
15 you. Okay.

16 THE WITNESS: Thank you. Sorry, I don't
17 know what happened.

18 Q. Ms. Williams, is it fair to say that
19 sometimes the rulemaking process is not 100 percent
20 science based but instead gets delayed by political and
21 legal pressures?

22 A. I think I went through a fair amount of
23 discussion in my -- in my filed testimony that did talk
24 about all the things that can affect regulation. And

Page 255

1 so yes, I certainly would not eliminate the items that
2 you suggested, and I think I identified many more items
3 that can affect regulation.

4 But I do think, in this particular
5 rulemaking, if you read carefully all of the documents
6 that EPA has issued, starting from its 1993 regulatory
7 determination that was based on the 1988 report and
8 follow it through with the documents that were issued
9 in 1999, 2000, 2007, 2010, I think what you will see in
10 there is that, regardless of all the other issues,
11 there was a tremendous challenge in trying to reach
12 accurate information on what the actual probability of
13 risks were from different operating scenarios. And
14 that included the ability to do accurate risk
15 assessment on ash ponds, specifically because their
16 nearness to surface water bodies made it much more
17 challenging to develop accurate risk assessment
18 predictions for these.

19 So, you know, I think there were many
20 reasons. And the point of my comment was just to say
21 all rules, if you look at the average EPA rule, you
22 will find that it typically will take easily 6 to
23 10 years to get a rule finalized if there are lots of
24 interested parties. This rule took 35 years. That is

1 highly unusual at EPA. And the reason I believe -- and
2 this is an opinion -- that it took so long is because
3 the data were not definitive as to what the right thing
4 to do was as EPA was moving through this process. And
5 they certainly got a lot more information in the
6 post-2010 time frame. And it moved pretty quickly
7 between 2010 and 2015.

8 Q. But the continued study of the issue for all
9 that time, that was an indication of the concern and
10 the potential for impacts from the coal ash
11 impoundments; was it not?

12 A. It showed that there was continued -- well,
13 again, you have two periods of time. You have a period
14 of time that I think starts in the late 1970s, and is
15 pretty much closed out in 1988 with the report to
16 Congress, that EPA concluded that the risks -- the
17 potential for risks was adequately being managed at the
18 state level having looked at state approaches and
19 having looked at data from coal ash management units.
20 And then what EPA did is they went back after that and
21 they had to do additional study both for two factors.
22 They had two scenarios.

23 They had to do -- Congress required EPA to
24 look at coal residuals -- coal combustion residuals at

Page 257

1 non-utility waste sites. And EPA needed to do specific
2 work on the low-volume waste streams that were being
3 co-managed in most cases with the four major coal ash
4 waste streams. And so EPA started again to look at the
5 issue in 19 -- in 2000 based on its results of looking
6 at these other things that hadn't been included in the
7 1988 report to Congress.

8 And at that time EPA said we're no longer
9 certain that the current regulatory framework will be
10 protected, we need to look at it again. And that
11 process started again in 2000, and it took EPA until
12 2010 to put a proposed rule. And the difference
13 between the proposed rule and final rule was fairly
14 significant in terms of the changes that occurred
15 between those two rules. So that's a brief summary of
16 the timeline.

17 Q. And part of the reason that timeline took so
18 long was because the EPA did not have -- it took a
19 while for them to have the sufficient amount of
20 groundwater monitoring data they needed; isn't that
21 right?

22 A. I would not agree with that as you've stated
23 it. All additional information is always helpful in a
24 rulemaking. But EPA had a significant amount of

1 groundwater information at the time it did its '88
2 report. It had looked at, again, whether the
3 authorities were there for site-specific determinations
4 to be made. And it wasn't actually until -- I'm trying
5 to think of the exact date, but it wasn't until the
6 '90s when EPA had developed the kinds of fate and
7 transport modeling that could use information to begin
8 to better project facilities that might, in fact, have
9 issues based on monitoring data that they did have.

10 So it wasn't -- EPA was not delayed
11 specifically because of the lack of groundwater
12 monitoring data. And I can tell you this. EPA had
13 felt that -- that during my tenure -- I'll speak for
14 during my tenure. If EPA had felt that the reason it
15 couldn't do a rulemaking was because it didn't have
16 adequate groundwater monitoring data, it would have
17 made a request to the states. And it would have said,
18 we would like you to please proceed to collect --
19 require this data to be collected. So I don't think
20 that's a fair assessment.

21 I think what is a fair assessment is that the
22 data they had, and the risk assessments they were able
23 to do, and the damage cases that they were looking at
24 was not supportive. And for two years of my EPA career

1 in the 1980s, I was heading up an office that was
2 required to review the quality of the information that
3 EPA had in order to issue its rules and to assure both
4 the EPA and the office of management and budget that we
5 had adequate data support for a rulemaking. That's a
6 requirement that the federal government needs to meet
7 before it can issue a rule. We weren't there at that
8 time.

9 Q. So I'd like to ask you several questions that
10 deal with your testimony regarding damage cases.

11 MS. LUHR: And, Chair Mitchell, I'd like
12 to go ahead and mark two exhibits. And the first
13 is -- let's see, Public Staff Cross Exhibit 66, and
14 this is the 2007 notice of data availability. And,
15 Chair Mitchell, we would ask that this document be
16 identified as Public Staff Wells/Williams Cross
17 Examination Exhibit 3.

18 CHAIR MITCHELL: All right. The
19 document will be marked Public Staff Wells/Williams
20 Cross Examination Exhibit Number 3.

21 (Public Staff Wells/Williams Cross
22 Examination Exhibit 3 was marked for
23 identification.)

24 MS. LUHR: Thank you. And we would also

Page 260

1 ask that Public Staff Cross Exhibit 67, which is
2 titled "Coal Combustion Waste Damage Case
3 Assessments," be identified as Public Staff
4 Wells/Williams Cross Examination Exhibit 4.

5 CHAIR MITCHELL: All right. The
6 document will be marked Public Staff Wells/Williams
7 Cross Examination Exhibit Number 4. Actually, I'm
8 going to correct that. It will be -- it will be
9 marked as Wells/Williams Rebuttal Cross Examination
10 Exhibit Number 4.

11 MS. LUHR: Apologies. Yes. Thank you.
12 (Public Staff Wells/Williams Rebuttal
13 Cross Examination Exhibit 4 was marked
14 for identification.)

15 CHAIR MITCHELL: And just for purposes
16 of the record, we will mark what had been marked as
17 Public Staff Wells/Williams Cross Examination
18 Exhibit Number 3 as Public Staff Wells/Williams
19 Rebuttal Cross Examination Exhibit Number 3.

20 MS. LUHR: Thank you. I believe the
21 other two were marked correctly.

22 (Public Staff Wells/Williams Cross
23 Examination Exhibit Number 3 was
24 remarked as Public Staff Wells/Williams

1 Rebuttal Cross Examination Exhibit
2 Number 3.)

3 CHAIR MITCHELL: All right. You may
4 proceed, Ms. Luhr.

5 Q. Okay. Ms. Williams, do you have these two
6 document in front of you?

7 A. I have the first -- the notice in front of
8 me, and I will try and bring up -- do you want them
9 both up at the same time?

10 Q. Yeah. If you could go ahead and get them
11 both open, just --

12 A. Okay. Can you just give me, I'm sorry, the
13 exhibit number for the second one, was it 60?

14 Q. 67.

15 A. 67.

16 (Witness peruses document.)

17 I have them open.

18 Q. Thank you. If you could turn to page 58 of
19 your testimony.

20 A. (Witness peruses document.)

21 I'm there.

22 Q. Okay. And I'm going to ask you to read a few
23 lines, and then I'll ask you some questions about what
24 you're about to read. But if you could read lines 6

Page 262

1 through 13 of your testimony, which is the second half
2 of that first paragraph, starting with "EPA's 2007
3 notice of data availability."

4 A. "EPA's 2007 notice of data availability noted
5 24 damage cases and 43 potential damage cases. With
6 regard to groundwater, 17 of the damage cases were to
7 groundwater, 5 or 6 of those were determined to be from
8 unlined ash ponds. That is against the universe of" --
9 and this says over 600 ash ponds. One of my
10 corrections was to say approximately 600 ash ponds --
11 "a large majority of which were over 25 years old. And
12 as of 2004, EPA estimated that 62 percent of ash ponds
13 were unlined. Against this number of unlined ash
14 ponds, the number of confirmed pond damage cases to
15 groundwater from these units was quite small."

16 Q. Thank you. So I'd like to address several
17 parts of what you just read. And the first is your
18 testimony that five or six of the damage cases were
19 determined to be from unlined ash ponds. Now, I'm
20 looking at the 2007 notice of data availability, which
21 was Public Staff Cross Exhibit 66, the first document.
22 And I can refer you to page 49718 and give you a second
23 to get there.

24 A. (Witness peruses document.)

1 Okay.

2 Q. Okay. So here, in the very right-hand column
3 at the bottom, I'll read:

4 "The overwhelming majority of the damage
5 cases reflect management in unlined units. That is all
6 but one of the 24 proven damage cases involved unlined
7 CCW management units, including 6 cases involving
8 disposal of CCW in unlined sand and gravel pits."

9 Now -- so according to this document, 23 of
10 the 24 proven damage cases involved unlined units
11 whether they were impoundments or some other type of
12 disposal unit; is that right?

13 A. Yes, that's correct. Some of them were -- I
14 mean, they included not only impoundments, they
15 included unlined landfills. They included a number of
16 sand and gravel pits. I can't remember, but there were
17 quite a few.

18 (Reporter interruption due to sound
19 failure.)

20 THE WITNESS: I just -- I just wanted to
21 say that they did include unlined surface
22 impoundments, but they also included unlined
23 landfills, unlined sand and gravel pits, and even
24 some situations where ash had been beneficially

1 reused that had resulted in groundwater
2 contamination.

3 Q. Thank you. And in your next line, you had
4 stated that 24 damage cases and the 43 potential damage
5 cases were out of a universe of over 600 ash ponds.
6 But I wanted to clarify that.

7 Is it correct that about 300 of those of
8 approximate 600 units were coal ash impoundments, while
9 the other 300 were landfills? And I can refer you to
10 the document if that would be helpful.

11 A. I think that it was actually ash ponds. But
12 if you want to refer me to something, I'm happy to look
13 at it. There are different sets of numbers and
14 different documents, and so perhaps I wasn't there.
15 But no, I'm pretty sure it was ash ponds. And it
16 should have said approximately 600. My memory is it
17 was 590-something.

18 Q. Yes, there's definitely a lot to unpack in
19 these documents. But I can refer you to the same
20 document, the 2007 notice of data availability, and
21 still page 49718. And let me get there myself. Okay.

22 So I'm in the far right column in the middle
23 paragraph. And this, of course, is referring to the
24 2000 regulatory determination, but EPA was looking at

Page 265

1 this same set of -- basic set of units when it did its
2 2007 assessments. So it says here:

3 "For the May 2000 regulatory determination,
4 the agency determined there were approximately 300 CCW
5 landfills and 300 CCW surface impoundments used by 440
6 coal-fired utilities"; is that right?

7 A. That is what this document says, but I don't
8 actually believe that that's the correct number. And
9 it would take me a little bit of time to go back and
10 find whether it was from the 1988 report to Congress.
11 I think the final rule actually talks about 753 ash
12 basins, I believe, and I think the number is
13 590-something in this general time frame. So that's my
14 memory, and I could -- I'd be happy to go back and
15 verify it during a lunch break.

16 Q. That would be helpful, but again, this is the
17 2007 notice of data availability that does discuss the
18 damage cases; isn't that right?

19 A. This document says what this document says,
20 but that's one of the important factors why it's useful
21 to look at the full set of documents. In any rate, I'm
22 not sure it would change the point I'm making here
23 either way.

24 Q. Okay. And we'll get to the rest. Let's see.

Page 266

1 And you did acknowledge in your testimony as well, and
2 I just wanted to confirm this, that out of this
3 universe of 600 units, whatever they may be, some were
4 lined and some were unlined; isn't that right?

5 A. Are you talking about the total universe --
6 you're talking about the entire universe?

7 Q. Yes.

8 A. Yes, but for ash ponds, quite a small -- a
9 very small percentage -- a very small percentage were
10 lined, of ash basins.

11 Q. Okay. So you say in your testimony, as of
12 2004, EPA estimated that 62 percent of ash ponds were
13 unlined.

14 So 38 percent would have been lined, correct?

15 A. There's different numbers in different
16 studies. So if I gave a citation, then for that study,
17 that's correct. But again, the '88 report to Congress,
18 at the time that EPA looked at the liner status,
19 87 percent of the existing ponds that were -- where
20 liner status was known, 87 percent of those ponds were
21 unlined.

22 And even if you go, you know, to the most
23 recent data that EPA had, in the April 2015 final rule,
24 63 percent of existing units were unlined. So even

Page 267

1 over time as pond -- as existing units retired, there
2 was still a very large number of existing ponds that
3 were unlined.

4 Q. Understood. But in 2007, which is the date
5 of this damage case assessment you discuss in your
6 testimony, the number would be around 38 percent,
7 correct, that were lined?

8 A. In the June 2010 proposed rule, EPA's numbers
9 were that 74 percent of existing units were unlined,
10 and 40 percent of new units that were being constructed
11 in the -- starting I think in the '90s, but I may be
12 incorrect on the precise date -- that 40 percent of the
13 new units were still being constructed online.

14 Q. That's understood. And again, I just want to
15 focus on the damage case assessment, and we can move on
16 to the next question.

17 So in conducting its damage case assessment,
18 did the EPA review groundwater data for all 600 units?

19 A. No, they did not, because there was not
20 groundwater data for all 600 units.

21 Q. In fact, isn't it true that the EPA only
22 gathered or received information on 135 cases?

23 A. EPA receives damage cases from all kinds of
24 different sources, and as I tried to explain earlier,

1 those damage cases could be based on groundwater
2 monitoring wells if those wells existed; they could be
3 based on other information, including the kinds that I
4 had explained earlier. So EPA tries to gather, as
5 broadly as it can, examples of damage cases. Then it
6 sorts through those damage cases in order to understand
7 how many of those can be confirmed as damage cases
8 versus ones that it either wouldn't consider because
9 the data are not supportive, or where EPA has
10 insufficient information to know for certain. In which
11 case, they often consider that an alleged damage case.
12 So that's how EPA goes about the process.

13 Q. Right. And of the 135 potential damage cases
14 that the EPA gathered or received information on, it
15 only evaluated 85 of those cases; isn't that right?
16 And I can refer you to the specific language if that
17 would be helpful.

18 A. Sorry, I just had a brief connection problem.
19 Okay. Yes. Could you give me the page number where
20 you are in the damage cases?

21 Q. Sure. So this is actually in the second
22 document, which was Public Staff Cross Exhibit 67, the
23 2007 CCW damage case assessments. And I am on page 7
24 of this document.

Page 269

1 A. (Witness peruses document.)

2 Okay. I'm there.

3 Q. Okay. Let me make sure I'm on the right
4 page. Okay. And I should clarify, it's page 7 of the
5 document and page 12 of the PDF. So in the
6 second-to-last -- or I'm sorry. In the second full
7 paragraph, it reads:

8 "In summary, EPA gathered or received
9 information on 135 possible damage cases and has
10 evaluated 85 of those cases"; do you see that?

11 A. Yes, I see that. And it goes on to explain
12 why it didn't evaluate the rest of them, which is that
13 44 of them weren't evaluated because there was little
14 or no supporting information. And six of them
15 weren't -- weren't evaluated because they were
16 mine-filled damage cases, and that was outside of the
17 scope of what EPA was considering in this rule.

18 Q. That's right. And so out of the 85 cases the
19 EPA actually reviewed, 24 were proven damage cases and
20 43 were potential damage cases, correct?

21 A. That's what it says.

22 Q. Okay. So that's approximately 79 percent of
23 the cases the EPA reviewed. That's pretty significant;
24 is it not?

Page 270

1 A. No, I wouldn't consider it significant,
2 because you're missing the point of what EPA was trying
3 to do. EPA was trying to go out, and they were trying
4 specifically to identify damage cases. And so they
5 were looking at every possible way or -- and taking all
6 the data they could. Some of those damage cases, there
7 was just insufficient information to evaluate. But
8 when you look at what they -- when you look at the
9 conclusions that EPA made, the proper way to analyze it
10 is to look at how many damage cases they found and
11 compare it to the universe, not compare it to other
12 damage cases. It's not an appropriate comparison.

13 Q. All right. Well, let's look at one more
14 document, and this is the preamble to the CCR rule,
15 which is Public Staff Cross Exhibit 68.

16 MS. LUHR: And, Chair Mitchell, we would
17 ask that Public Staff Cross Exhibit 68 be
18 identified as Public Staff Wells/Williams Rebuttal
19 Examination Exhibit 5.

20 CHAIR MITCHELL: All right. The
21 document will be marked as Public Staff
22 Wells/Williams Rebuttal Cross Examination Exhibit
23 Number 5.

24 (Public Staff Wells/Williams Rebuttal

Page 271

1 Cross Examination Exhibit Number 5 was
2 marked for identification.)

3 Q. And, Ms. Williams, if you would turn to page
4 21455 of this document.

5 A. (Witness peruses document.)

6 Q. And just let me know when you're there.

7 A. Okay. I'm there.

8 Q. Okay. So this is the preamble to the CCR
9 rule, and I'll just read -- I'll go ahead and read this
10 paragraph out. And this is in the middle column, and,
11 let's see, beginning with "even assuming." So:

12 "Even assuming that only proven damage cases
13 were relevant" --

14 A. Hold on. Just give me a second to find where
15 you are.

16 Q. Absolutely.

17 A. (Witness peruses document.)

18 Q. It's about 10 lines from the bottom.

19 A. (Witness peruses document.)

20 Sorry, I'm having a little trouble finding
21 it. So it's page 21445?

22 Q. Oh, 21455. I apologize if I misspoke.

23 A. No, I might have misheard you, but thank you,
24 I have it now.

1 Q. All right. So that middle paragraph close to
2 the bottom, about eight or nine lines from the bottom,
3 it says:

4 "Even assuming that only proven damage cases
5 were relevant, to date, EPA has confirmed a total of 40
6 proven damage cases, which is hardly sparse. And when
7 potential damage cases are considered, the totals rise
8 to 157. This is the largest number of damage cases in
9 the history of the RCRA program. Further, these
10 numbers likely underestimate the true number of cases
11 in which CCR units are contaminating groundwater. In
12 reality, the damage case record represents only a
13 subset of those CCR waste units that have effective
14 groundwater monitoring."

15 So, Ms. Williams, based on the EPA's
16 statement here, would you agree that the EPA believes
17 the number of damage cases, as of 2015, and the
18 relevance of that is significant?

19 A. I agree absolutely that EPA felt, by the time
20 it got to 2015, it could support the basis of this rule
21 based on a set of things, which included the damage
22 cases, but also included its risk assessment of work
23 that it had continued to refine starting in pre-2007,
24 which needed -- it was refined quite significantly in

1 that time period. So yes, by the time it got to this
2 stage, I'm not disagreeing with that at all.

3 But I am saying that this does not represent
4 what was known in 1985. And I think if you try and
5 apply this knowledge back to what was known in the
6 1980s, that's probably the best example I could think
7 of of using today's information to interpret, with that
8 knowledge, how you should think about something that
9 was happening decades earlier, because this information
10 wasn't available decades earlier.

11 Q. Well, again, Ms. Williams, we're discussing
12 your testimony on the 2007 damage case assessment; is
13 that correct?

14 A. The 2007 damage case assessment did not have
15 this number of damage cases, as we just discussed.
16 You're talking about the 2015 final rule damage case
17 analysis.

18 Q. That's right. And the EPA believes that the
19 significance of damage cases is a relevant factor in
20 considering what the history of coal ash impoundments
21 has been, correct?

22 A. With all due respect, I think that's a
23 question that's -- you're reaching a conclusion that I
24 think is improper. What EPA has always said is damage

Page 274

1 case are relevant, and EPA looked at them. And they
2 looked at them in the context of coal ash and -- when
3 it did its 1988 report. They looked at them when it
4 did its 2000 and 2007 documents, and it continued to
5 try and collect this information and looked at them
6 again to support the final rule.

7 And so you're reading to me something from a
8 final rule when EPA had done far more work and received
9 far more information and cases to analyze. And telling
10 me that my statement, which is based on what they had
11 in 2007, which was not 40 potential -- 40 proven damage
12 case and 157 damage cases, to try and get me to tell
13 you that damage cases are important. I didn't tell you
14 they were not important. They are important. But you
15 have to look at the information that EPA had at
16 different points in time.

17 So you're really misusing what EPA is putting
18 here to try and argue that something I wrote is
19 incorrect, and I didn't write what you're suggesting.

20 Q. Let's move on. More generally, are you --
21 and again, we can look at the language if you'd like.
22 Are you aware that the preamble to the CCR rule which
23 we were just looking at also indicated that once more
24 groundwater monitoring is put in place for coal ash

Page 275

1 impoundments, quote, new damage cases quickly emerge?

2 A. I don't know that you quoted it precisely
3 right, but I know that is the -- that has been the
4 experience, and that has been EPA's view. Again, I
5 don't -- I think what you seem to be asking me is, just
6 because it turned out to be a problem, everything I'm
7 saying and everything I'm trying to explain to you
8 about what was known in the past must mean that if you
9 just looked hard enough, you knew it was a problem back
10 then. And what I'm trying to say to you is, we know a
11 lot today that we didn't know back then, but it doesn't
12 change what we knew in 1981, and what we knew in 1985,
13 and what we knew in 1995, and what Duke knew in 2010
14 when it put groundwater wells in every one of its DEC
15 impoundments before it was ever required by anybody to
16 do that.

17 Q. I just have a few more questions for you
18 before moving on to Mr. Wells.

19 MS. LUHR: Chair Mitchell, would you
20 like me to proceed, or is this a good time for a
21 lunch break?

22 CHAIR MITCHELL: No. We're going to
23 continue on. Please continue on. I think we're
24 going to wait on a lunch break until about 1:15.

1 MS. LUHR: Okay. Great.

2 Q. All right. Ms. Williams, on page 97 of your
3 testimony, you discuss the groundwater exceedances
4 presented in Mr. Junis' testimony. And I'll give you a
5 second to get there.

6 A. (Witness peruses document.)

7 I'm on that page. If you want to give me
8 line numbers, I'll look at those.

9 Q. Okay. On lines 9 to 11 you state that:

10 "Without confirming whether each of his
11 alleged exceedances are accurate, he arrives at this
12 number by counting each sample of each substance that
13 exceeded a standard."

14 Now, Ms. Williams, the data that Mr. Junis
15 cites in his testimony, that came directly from the
16 Company; did it not?

17 A. Yes. To my understanding that Duke provided
18 data, but that's not really the point I'm making. What
19 my point is not -- my point is that I did not go back
20 and check every sampling determination to determine if
21 it was an exceedance at a compliance boundary, past a
22 compliance boundary, or whether it was an exceedance
23 within a compliance boundary. That's all that sentence
24 means. So the point of what I'm explaining here is

Page 277

1 that I don't think it's appropriate to count up the
2 number of samples that exceed -- even if you want to
3 say it exceeds a standard at the compliance boundary,
4 just counting the number of samples is a very
5 misleading thing to do.

6 You can -- if I take 20 more samples, if I
7 put in 20 more wells, well, then, I'm going to have
8 tons more exceedances. And I believe Mr. Mehta was
9 asking Mr. Junis about this, and I think it is a very
10 serious flaw in this analysis. And I would just say
11 that Mr. Junis tried to explain that it wasn't a flaw
12 because groundwater is constantly moving, and
13 therefore, every new -- every exceedance is a new
14 example of where the groundwater has moved and
15 contaminated a different -- additional clean
16 groundwater.

17 But that actually isn't how groundwater
18 behaves. And groundwater plumes typically or often --
19 let me put it that way -- often will stabilize, and
20 they stabilize for all kinds of reasons. And so
21 just -- unless you know whether you're taking from
22 within the stabilized plume or not, you have no idea
23 whether these are new exceedances or new violations.
24 You're just counting, and that's not a meaningful thing

1 to do.

2 Q. And just to go back to something you said at
3 the very beginning of your answer. You said that you
4 would have to go back and look at whether each sample
5 was at or beyond the compliance boundary.

6 Are you aware that the data given to
7 Mr. Junis by the Company actually made that
8 determination itself and added up each of those
9 exceedances at or beyond the compliance boundary over
10 backgrounds in the response to the Public Staff?

11 A. I mean, I probably looked at it at the time.
12 As I'm sitting here today, I don't have that
13 recollection. I'm certainly prepared to accept it. It
14 really is not relevant to the point I'm trying to make,
15 which is it's not the right way to analyze whether
16 there's -- whether there's any movement of a plume of
17 groundwater contamination that exists in the field.

18 Q. And for the sake of efficiency, I think we
19 can -- I think Mr. Junis has testified to that, and I
20 believe some Duke witnesses have as well, so we can
21 move on from that. Okay. And I just have one last
22 line of questions and then I'll move on to Mr. Wells.

23 And, Ms. Williams, this relates to something
24 we were discussing earlier that I'd like to go back to

Page 279

1 very briefly. You had mentioned in your -- when we
2 were talking about leachate -- leachate testing in one
3 of your responses to me -- and please let me know if
4 I'm mischaracterizing anything you said -- but you had
5 noted that there was some variants between the EPA and
6 ASTM leachate methodologies. And one of the excerpts I
7 read to you from the 1981 EPRI manual had also noted
8 that there was some variance even within one method in
9 the same laboratory.

10 And as you said, leachate tests, they're just
11 projections, right? You -- I guess one of my questions
12 is, isn't groundwater monitoring the way to verify
13 those projections?

14 A. I thought I already answered that question
15 last time. I'm happy to try and repeat my answer, but
16 it sounds like the same question to me.

17 Q. Well, I guess to be specific, Ms. Williams, I
18 don't think I asked you this same question, which is,
19 is groundwater monitoring a way or the way to verify
20 the projections that you would get from leachate
21 testing?

22 A. It's apples and oranges. It doesn't have
23 anything to do with it. The leachate -- and I thought
24 this was what I had tried to explain before. The

1 leachate sampling is intended to determine, under a
2 certain type of field condition, whether or not
3 hazardous constituents will leach out of the waste.
4 Okay? That's what its intention is. And, obviously,
5 EPA, when it decides which test method it's going to
6 use, specifies a particular test method, because it
7 believes that test method is -- simulates a field
8 situation that is relevant for that waste.

9 So the leach tests that were used back in the
10 '80s for EPA, the EPA leach tests, were simulating the
11 same kind of scenario that was simulated for hazardous
12 waste, which was management co-disposed with municipal
13 waste. Which is not an accurate scenario necessarily
14 for coal ash, okay, unless you're disposing of it in a
15 municipal landfill. But it's an aggressive leach test.

16 The ASTM method was a different method. It
17 simulated a different scenario in the field. And the
18 scenario that EPA is using today in the final CCR rule
19 is also a different type of leach test that came out of
20 doing a lot of extra work.

21 So that's the background on leach tests. You
22 do not confirm a leach test result with groundwater
23 sampling. With groundwater sampling, you are
24 determining not only the extent to which the waste will

Page 281

1 leach, you're determining the extent to which the soil
2 will attenuate and modify the contaminants in the
3 leachate as it moves both through the -- what's called
4 the unsaturated zone, the part of the ground below the
5 unit without groundwater, and as it moves in the
6 groundwater. So groundwater monitoring is detecting
7 something different than just leachate.

8 And as I explained or tried to explain
9 earlier, groundwater monitoring is highly variable
10 because the groundwater is highly variable. Even --
11 you know, can vary from one well to the next well; it
12 can vary from one time that you monitor it to the next
13 time that you monitor it. So you have a lot of
14 variability in groundwater. And then you're, of
15 course, having to compare downgradient groundwater
16 quality with upgradient groundwater quality in order to
17 understand whether the unit is, in fact, what's
18 affecting the groundwater.

19 So both have variability. Of the two, the
20 leachate tests have less variability than the
21 groundwater sampling does, but they're not really a
22 substitute for each other.

23 Q. And you also discussed your testimony, you
24 testified that with respect to groundwater monitoring

Page 282

1 in this -- in this early 1980s period, you characterize
2 groundwater monitoring as -- you know, you said they
3 didn't really have -- it wasn't advanced enough. They
4 didn't have the requisite knowledge needed at that
5 point in time.

6 Is that an accurate restatement of what you
7 said?

8 A. I'm not sure who "they" is in your question.
9 I tried to explain to you --

10 Q. Industry.

11 A. I tried to provide a picture for you of all
12 of the things that were still open issues at that time
13 with regard to groundwater monitoring, and why it took
14 so much time for EPA to be able to put together its
15 first really comprehensive monitoring guidance, okay?
16 And why you have to interpret results in that time
17 frame in the context of many unanswered questions and
18 many things that were being done differently.

19 For example, this question of whether you do
20 or don't filter samples when you're doing a metals
21 assessment. And so today there's definitive guidance
22 on that, but in the 1980s there was not, and people
23 were doing it all different ways. And EPA's regional
24 experts were recommending different ways. And so I'm

1 just trying to paint this picture for you as to what
2 was understood and all the open questions that existed
3 in that time frame. And so I think that's the
4 background in which you have to think about it.

5 And the other thing I tried to lay out was,
6 because of this, it was not a highly used technique for
7 these types of units in that window of time. Not just
8 Duke. Duke was ahead of most of the other companies in
9 putting in groundwater monitoring. It was not
10 particularly used at most ash facilities at this time
11 frame. So that's what I was trying to share.

12 Q. I understand. And with respect to the Allen
13 study, the groundwater monitoring that took place at
14 the Allen study took place in the late 1970s and early
15 1980s. And it -- as I believe was in your testimony
16 and testimony of several other parties, you know, that
17 was the basis of the Allen study in 1985, that was the
18 basis of the River Bend study; they used the
19 groundwater monitoring data from Allen. As you noted,
20 the 1988 EPA conclusion cited to the Allen study. And
21 it seems, you know, Duke Energy Carolinas didn't re- --
22 didn't begin monitoring again at Allen until 2004.

23 So, you know, it seems that the Company
24 relied on this early groundwater monitoring data to

Page 284

1 indicate that there was no potential for contamination
2 at this site for over two decades. So I'm -- my
3 question to you is, you know, if it's your contention
4 that groundwater monitoring was not as sophisticated
5 enough yet, why did the Company rely on it for so long?

6 A. Well, I'm not sure if I completely understand
7 what you're asking me. But I think the study -- the
8 study that was done at Allen was about as complete a
9 study that was being done at any kind of facility in
10 that window of time. And the conclusions from that
11 study were deemed important to EPA when it wrote its
12 1988 report. And it wasn't just the Allen results, it
13 was the results from the other five study -- five
14 facilities that were studied in depth. And it was also
15 EPA's data collection from all -- I won't say all, from
16 roughly 100 other plants where there was at least some
17 amount, probably nothing like the Allen plant, of
18 groundwater data that existed.

19 And so that informed a set of decisions in
20 the 1988 time frame. It's -- you know, Duke put
21 additional groundwater wells in at some of its plants,
22 particularly, I think, two of them that had moved to
23 some fly ash drive handling in '80 -- in the late '80s.
24 And so Duke was collecting additional information at

1 those plants. So -- and Duke, as I say, voluntarily in
2 2004 started up groundwater monitoring at Allen, and
3 started up groundwater monitoring, as Mr. Wells has
4 said, voluntarily between 2006 and 2008 at all the rest
5 of the ponds.

6 So, I mean, I think Duke was reading what was
7 going on in this record and realizing that it made
8 sense before either North Carolina or before EPA
9 determined that groundwater monitoring was a necessity.
10 EPA didn't require it until 2015. In fact, they didn't
11 require it until sometime after the final rule. But I
12 think if you wanted to read the tea leaves of EPA's
13 proposed rule in 2010, you could say EPA has finally
14 reached a point, after studying this for a period of
15 time -- long period of time, that we really do think we
16 need to require groundwater monitoring. But, of
17 course, it wasn't required at that point. But Duke had
18 already put those wells in at all of its DEC
19 facilities.

20 So I think Duke was in advance of what you
21 were seeing, both in the Southeast and other entities
22 operating unlined ponds in the Southeast and
23 nationally. And one of the reasons, again, that cite
24 to some of these other broader documents, like the 2001

Page 286

1 survey that EPA did specifically to look at industrial
2 impoundments that managed hazardous constituents that
3 were covered in many of EPA's hazardous waste sites,
4 EPA looked at those facilities to understand what was
5 going on with groundwater.

6 And it found two things in that study. First
7 of all, it found that 59 percent of those industrial
8 surface impoundments were unlined. It found that only
9 33 percent of them had groundwater monitoring
10 nationwide. And it found, when it looked at the data
11 at that time -- and to my knowledge this is still the
12 case -- that they did not feel for those impoundments
13 that additional regulation was necessary because they
14 were not seeing exceedances in the 33 percent that were
15 monitoring that would indicate that the problem
16 required further regulatory intervention.

17 So I think you have -- that's why I'm trying
18 to paint this story for you that shares with you kind
19 of that there's a lot of information on ash ponds, much
20 of which has not come before the Commission, and was
21 included in the '88 report to Congress specifically on
22 coal ash. And there's a much broader set of
23 information on surface impoundments and landfills,
24 lined and unlined, across the country that is relevant

Page 287

1 to interpreting the context for evaluating Duke's
2 behavior. So I will stop, and if you have another
3 follow-up on that, I'd be happy to answer it.

4 Q. No, thank you. I believe those are actually
5 all the questions that I have for you, Ms. Williams.

6 A. Thank you.

7 Q. So, Mr. Wells, let me just organize myself
8 really quickly.

9 (Pause.)

10 Q. Okay. All right, Mr. Wells. I think we
11 can -- taken care of a few of your questions already,
12 so just start in the middle here.

13 I'm on page 21 of your testimony where you
14 state that:

15 "While the Company may have been aware in the
16 1980s that unlined impoundments, in general,
17 potentially impact groundwater, there was no
18 substantial evidence showing that there were
19 significant impacts resulting from DE Carolinas'
20 facilities."

21 A. (James Wells) That's correct.

22 Q. And, Mr. Wells, how many sites had
23 groundwater monitoring around their ash basins in the
24 1980s?

Page 288

1 A. So yeah, what I'm referring to here is,
2 again, you've been -- I think Ms. Williams has kind of
3 walked through this whole evolution of '70s, '80s,
4 '90s, 2000s, and up to 2015 current state. So going
5 back to this time frame, and I think we're referring
6 early '80s time frame, the information that's out there
7 is indicating, at a national level, that there is a
8 potential for groundwater impacts. And the Company
9 initiated its study to understand that.

10 So your question is what's been looked at at
11 this time frame that you might determine that there's
12 no indication of a risk. At that time, the data would
13 have been the Allen study initiated in '78, which was
14 the full, you know, well network; the A. D. Little
15 study that was initiated in the early '80s and the data
16 that was coming in from that, both at Allen; and the
17 leachate studies that were done at all sites to -- so
18 this was the voluntary work by the Company at that time
19 to understand there's potential, what are we doing with
20 that, and they initiate this work. And this is beyond
21 what is, one, required, you know, which is a minimum,
22 what's required. You know, we always ensure
23 compliance, but it's beyond just compliance, it's
24 beyond what is also being done industry-wide. In other

1 words, we're operating at or above the industry
2 standard and cooperating with the agency to further the
3 knowl edge.

4 But at this point, that is what you're
5 seeing. You have data coming in from the site that is
6 representative of other sites, and site-speci fic
7 info -- information that's tied to the leachate studies
8 at all the ash basins throughout the Company.

9 Q. Okay. And just to clarify for the record,
10 Allen was the only site in the 1980s that had
11 groundwater monitoring wells around its ash basins; is
12 that correct?

13 A. Well, after the -- after that, you see
14 additional studies at Cliffside. And that's in the '87
15 time frame. And that's, again, voluntary work with
16 EPRI to understand what's going on. Or I'm sorry, it
17 was W.S. Lee. W.S. Lee. Cliffside wasn't until the
18 '90s. And then you also see some additional
19 groundwater monitoring in the '80s. I think you're
20 referring to some of the landfill-related monitoring;
21 Marshall, Belews, that's going in late '80s. But it's
22 also -- the landfills are located in an area where it's
23 also indicative of -- because the well location is also
24 adjacent to the basin. So those wells are also

1 providing information. So if you are beginning to see
2 an issue, it would be informative as to there is a
3 potential issue over here with the basins as well.

4 So groundwater monitoring in the '80s, I
5 think that's your specific question, it would have
6 included, at that point, Allen, self -- you know, the
7 stuff that -- monitoring the Company self-performed;
8 then there was the A. D. Little work at Allen; and then
9 there would have been at Marshall, Belews, wells going
10 in in the '80s; as well as the -- and the W.S. Lee work
11 with EPRI.

12 Q. And you had briefly mentioned the iron and
13 manganese exceedances at Allen, and I just wanted to
14 ask quickly, the 2L rules, they don't have an exemption
15 for iron and manganese, do they? Or did they at the
16 time?

17 A. What do you mean by exemption? I mean, they
18 were -- I believe they were standards at the time.
19 It's public standards for iron and manganese. And
20 remember, I mean, whenever you think of the 2L rule,
21 you have to also remember that it publishes a number
22 that applies to that particular element. So, in this
23 case, let's say it's iron, and it has a standard that's
24 listed -- and I don't remember the standard off my

Page 291

1 head, but say it's 300. I don't remember. Then it has
2 the additional requirement that, if that element is
3 also naturally occurring, then the standard is above
4 background, upon determination of what background is by
5 DEQ.

6 So you have a published number. But if
7 that's also naturally occurring, that particular
8 parameter you're referring to, then the standard is
9 background, above background. You know, if you've
10 contributed to that. And that -- so that's important
11 part of when you analyze any of your data, is trying to
12 understand what is background, and that's a very --
13 obviously, very complex undertaking.

14 Q. And thank you, Mr. Wells. And on page 36 of
15 your testimony, you discuss the fact that the Company
16 has installed various air pollution control devices at
17 its coal-fired facilities in order to comply with air
18 emission standards.

19 And so would such devices include things like
20 FGD scrubbers, low nitrogen oxide burners, selective
21 catalytic reduction? Are those the types of things the
22 Company installed?

23 A. Yes.

24 Q. Okay. And did the installation of such air

Page 292

1 pollution control devices change the way streams that
2 went into the coal ash impoundments?

3 A. I think in some instances it may have. I
4 mean, you got -- I mean, I would think -- I'll just
5 give a simple example in my mind. You know, scrubbers,
6 you suddenly introduce an additional waste stream to
7 remove, you know, the contaminants out of the air
8 provide, you know, water flushing through a scrubber
9 system, and then treating that. That water is
10 typically treated. And then, you know, whatever's
11 coming out of that treatment system end up in the
12 basin.

13 So I guess your question is did that
14 adjustment of air pollution control devices,
15 installation of those create additional waste streams,
16 ultimately were managed out of the basin as well, and
17 the answer is yes.

18 Q. And did the Company consider changing its
19 coal ash management practices when its waste streams
20 changed?

21 A. Well, without question, we would have looked
22 at this continuously. Meaning not just coal ash
23 management practices, but waste water management.
24 Always, you know, these are permitted facilities. They

1 are a five-year cycle. Every -- so in other words,
2 every five years we have to go back in front of the
3 agency and put together a very complex application that
4 lays out the entire water management system and a good
5 bit of detailed calculations as to what, if any, impact
6 this might have on the environment as it's
7 contemplated, in terms of what we believe the treatment
8 system will do, and what would end up being the
9 discharge, and the type of monitoring that we've done
10 to verify that.

11 So all of that is placed into this
12 application before we renew the permit. It ultimately
13 is issued by the state to authorize whatever we've --
14 what we've submitted in that application. So in this
15 instance, if we were to add any wastewater stream or
16 make any adjustments, we would have had to have gone
17 back in front of the agency and get that reviewed and
18 approved in the form of an authorized permit.

19 Q. All right. And thank you for that. On
20 page 46 of your testimony, lines 11 through 12 -- or
21 I'm sorry, lines 12 through 14.

22 A. I see that, yes.

23 Q. Okay. You state that:

24 "Under the CCR rule and CAMA, closure of all

Page 294

1 of the Company's ash basins had already been triggered
2 before the 2017 rate case was filed and the triggering
3 factor was not groundwater impacts."

4 Now, Mr. Wells, weren't the closure deadlines
5 under CAMA and the required type of closure due in part
6 to groundwater impacts caused by the coal ash ponds?

7 A. The -- so the closure, I think -- I want to
8 make sure. I was -- as I'm reading this requirement,
9 it's saying that the requirement to close had already
10 been triggered before the rate case. I think that was
11 the point. So the requirement to close was built into
12 CAMA and already had those dates where we either -- you
13 know, again, high priority or low, medium, or high
14 risk. But you were -- regardless, all basins were one
15 of those four. And one of those four categories --
16 each of those four categories had a requirement to
17 close by a date certain depending on where you fell.

18 Q. Okay. And then, yes, so like you just
19 stated, the timeline and the type of closure was based
20 on -- one of the factors of groundwater contamination,
21 correct?

22 A. As I recall, it would have evaluated a number
23 of factors in -- you know, in a sense, evaluating risk,
24 and groundwater would have been one of them -- was one

1 of those factors.

2 Q. Okay. Now I'd like to discuss your testimony
3 regarding -- regarding seeps, and we can start out on
4 page 12 of your testimony.

5 A. Okay. I'm there.

6 Q. Sorry.

7 A. I'm there.

8 Q. Okay. All right. So on page 12, starting on
9 line 14, you state that:

10 "From 1967 until 2009, the Commission had the
11 sole authority to regulate utility dams, including all
12 of the dams that formed DE Carolinas' ash basins."

13 A. Yes.

14 Q. And on the next page, lines 2 through 4, you
15 state that:

16 "An important part of each inspection was
17 identifying, characterizing, and monitoring seeps that
18 may be emanating from the ash basins."

19 A. Yes.

20 Q. Did I -- but these inspections, they were
21 intended to assess dam safety and integrity, they
22 weren't intended to be water quality inspections; isn't
23 that right?

24 A. I think that's correct, yes.

Page 296

1 Q. That type of oversight remained with DEQ; did
2 it not?

3 A. That's correct. Now, I do indicate in the
4 next line that these documents would have been shared
5 with DEQ for their review.

6 Q. Okay.

7 A. And I will say, I mean, this is a good
8 example, I think, of that evolution of, you know, I
9 speak to in my testimony. That things have evolved, in
10 terms of the environmental framework, the regulatory
11 approach, regulatory priorities, regulatory
12 interpretations. And really how, you know, the
13 environmental issues, such as these, are viewed as a
14 whole.

15 So if you think of seeps, you're right, I
16 mean, these are -- you're starting with a basin built
17 in 1950s that has this -- dam safety is king,
18 obviously. It's an engineered dam they want to ensure
19 is going to be solid, so they built the dam out of
20 soil. And then within that soil embankment there is,
21 you know, sand around a perforated pipe so that, if
22 water begins to permeate through that soil, there's a
23 release point for it, and it's collected, and then it
24 comes out through that engineered system and is

Page 297

1 released at the toe, the base of the dam to allow a
2 relief.

3 But this is a dam safety feature, so it would
4 have been a major focus of the dam safety inspections
5 back then and up to today to ensure that those features
6 are operating correctly. And in part, they would also
7 look at any coloration of that water. If there is
8 water coming out, is it becoming higher or lower,
9 because that could be an indication that the integrity
10 of the dam is potentially at risk. So that would have
11 been a big, big part of those early discussions.

12 Now, as you know, in 2010 -- you keep
13 following this evolution, in 2010, as we discussed in
14 the last case at length, EPA came out with a memo that
15 said, you know, we need to take a look at these. Maybe
16 these should be permitted under the Clean Water Act.
17 They may be an NPDES related discharge. And there's a
18 lot that goes into that, and we can talk about that,
19 but that began a new view of these. And, of course,
20 the Company took a lot of actions based on that with
21 the regulator and up to the date that I've been walking
22 through this.

23 Q. So that's helpful. That leads me to my next
24 question, Mr. Wells.

Page 298

1 Prior even to 2010, state law prohibited
2 discharges into waters of the state without a permit,
3 and these engineered seeps were not -- were not
4 permitted in any of the Company's NPDES permits, were
5 they?

6 A. The -- so you're talking about a prohibition
7 of a discharge under the Clean Water Act, which is
8 delegated to the state, right, via the NPDES permitting
9 program. The question is whether or not these are
10 discharges under the act. That was the question even
11 as of 2010. So the discharge -- you know, under the
12 act, again, you know, discharge is really a defined
13 term, and it looks for -- you know, you're talking
14 about a point -- you had to evaluate whether you had a
15 point source carrying pollutants to waters of the
16 United States. All three terms of art under the Clean
17 Water Act, right?

18 And there's case law from the '70s up to
19 today that is still trying to figure out what is a
20 point source in a lot of ways. The traditional point
21 source concept was a pipe, if you think of the early
22 '70s. It was clearly a pipe carrying those pollutants
23 out to the river, which is waters leave the U.S.,
24 navigable waters, and that was permitted.

Page 299

1 Now, from that early time, there's a lot of
2 evolution of, well, what else does it mean; how -- what
3 is a point source. And it's broadened in terms of;
4 one, priorities; two, views by the agency on how they
5 interpret the rules. And a lot of things changed how
6 they would be interpreted today from what it would have
7 been in the '70s. In any event, in the 2000 time frame
8 when I was referring to these permit and the permit
9 applications, there's a water balance that goes before
10 the agency as part of that application. And in that
11 water ambulance diagram, it would identified -- it did
12 identify. I've seeing that they've identified these.

13 But the bigger point is -- and those would
14 have just been in drawings. The bigger point is when
15 the Hanlon memo came out, EPA came out in 2010 and said
16 these may be subject to permitting -- it was two
17 states, it wasn't to Duke, this was to all states
18 throughout the country saying, these type seeps may be
19 subject to permitting, and you should evaluate them and
20 see what's the appropriate steps and other things.

21 Duke, at that time, approached DEQ
22 specifically with data, pictures, other things to say
23 here's what we have, you know, come on out, visit the
24 site. We'll look through this. How do you want to

Page 300

1 manage these? We believe permitting is an appropriate
2 step. And at the time, the agency determined it was
3 not. And, you know, that is represented in my
4 testimony, and I cite to, you know, Sergei Chernikov,
5 who was the permit writer. He's Ph.D., he's very
6 confident, very qualified permit writer out of DEQ, and
7 he tells you specifically the way the state was
8 approaching it. And that was they didn't see it as a
9 priority, they were very much concerned that this --
10 North Carolina was, like, in front of this issue. The
11 rest the country wasn't doing this, and that they were
12 going to be setting precedents.

13 So they were working back and forth with EPA
14 to understand what's the appropriate way to permit
15 these if they are subject to permit. And, in fact,
16 ultimately determined -- you know, they're looking to
17 protect the waters -- the receiving waters, and they
18 recognized they had a pipe coming out of the basin
19 which was direct water from the basin. Millions of
20 gallons per day under the permit, and surface waters
21 being monitored and verifying no impacts to the surface
22 waters from that discharge, but that's all permitted,
23 and that these seeps, in essence, were a small, small
24 fraction and orders and orders of magnitude below that,

Page 301

1 and didn't carry the similar even concentration, you
2 know, because the water is filtering through the soil
3 bank before it even gets to this area.

4 In any event, that's what the -- DEQ was
5 looking at this to understand if this was a priority
6 that warranted permitting. At that time, they chose
7 not to. As you know, we've revisited in 2014, and
8 ultimately really pressed hard for some regulatory
9 clarity on this issue, which we felt was -- be a
10 permit. And by the way, in that interim, we were also
11 installing collection systems where we could to collect
12 those seeps and put them back into the basin while this
13 issue was being resolved. So in a number of areas, we
14 also spent money to take some action while we sought
15 this clarity.

16 And as you know now, those are all permitted.
17 We've now been managed to get all of those permitted
18 other otherwise resolved through the SOC's.

19 Q. Mr. Wells, at the time the seeps were
20 constructed -- and as you said, these are pipes
21 channeling wastewater directly from the coal ash
22 ponds -- did the Company know about the Clean Water Act
23 and the delegated state program prohibition on
24 unpermitted discharges?

1 A. So the -- I mean, if you look at the design
2 drawings, the drawings, these were built in the '50s
3 and '60s, so the water act didn't -- the Clean Water
4 Act didn't exist. State requirements didn't exist.
5 This concept that you're talking about didn't exist.

6 Now, the second piece, you say I represented
7 these as pipes carrying wastewater straight from the
8 basin. No, I was referring -- that was a reference to
9 the actual discharge pipe from the basin. Remember
10 these basins, they have a discharge pipe, a big one
11 that was permitted from the beginning of the Clean
12 Water Act. Lawful through that pipe, the basin water
13 goes out to the river and is sampled pursuant to the
14 limits and other things. And the compliance record
15 with that, with respect to that is very, very good.

16 What I was referring to is these pipes that
17 are built into the banks. So they're not touching the
18 basin water directly, they're designed to collect water
19 that may permeate through the dam, so now you have a
20 saturated soil. And by providing this typically sand
21 or other type area around a perforated pipe, it
22 provides a release from that soil pressure a lot of
23 that water to reach a pipe. So this is water that
24 flowed from the basin originally, but it's since flowed

1 through soil.

2 So then again, you're trying to ask once
3 it -- and then that water would typically go to the
4 foot, the toe of the dam, so it's not going straight to
5 the river. So that left the question of is it -- you
6 know, even after -- now, the Clean Water Act
7 subsequently comes along and other things. But then
8 you're asked, okay, now let's look at that water. Does
9 it meet the requirements that you just referred to?
10 Which is, you know, is it wastewater in the sense that
11 it's carrying pollutants? Is it a point source if it
12 were to reach water? And is it reaching -- is it, in
13 fact, reaching the waters of the U.S.? And waters of
14 the U.S., of course, are the -- there's a lot about
15 that as well, right, in terms of legal interpretations.

16 So the point is just that there was some
17 discussion on this, probably -- I mean, and as we got
18 with the agency and sought permitting, they thought we
19 may be -- I mean, in part, some of these begin to get
20 into these areas. There was some concern, as indicated
21 in the testimony, that there could be some precedent
22 set that would apply to everything. Not basins, but
23 they reference thousands and thousands of lagoons and
24 other things that are elsewhere that were creating some

1 concerns as to how this should properly be regulated.

2 Q. Okay. And with respect to the Company's
3 other seeps, their nonconstructed seeps, Duke Energy
4 Carolinas and Duke Energy Progress combined have
5 identified approximately 200 distinct seeps from their
6 impoundments; is that correct, in North Carolina?

7 A. That is not correct.

8 Q. No?

9 A. No. So we're going to go back to my 2017
10 testimony on this issue where this was considered in
11 front of the Commission and there's extensive
12 discussion on this point. In 2014, recognizing there
13 was no regulatory clarity on this issue, this idea of
14 toe drains and constructed seeps had already been
15 before the agency. And you can see, in the development
16 of the record, we are trying to get them permitted, and
17 the agency is not doing that.

18 One of the steps the Company took -- and this
19 is in my -- I was around at this time -- we initiated a
20 survey of the sites, comprehensive, anything that we
21 considered to be an area of wetness. So this was
22 just -- and in some instances, you know, at that time,
23 when we did that inspection, if there was any water, it
24 was identified as an area of wetness. And then we --

1 that's the number I think you're reflecting is those
2 areas of wetness. How many did we have? And we
3 submitted all of them to the state and said, we have to
4 get some clarity on this issue. Because without
5 regulatory clarity, we have risk. And as far as
6 managing this issue, we have no direction to go,
7 because we're -- there are wet spots all over. You
8 know, some are -- it could be a natural wetland.
9 Some could be a storm event. You know, a seasonal
10 issue where it's holding water for a period time in a
11 particular area.

12 Not all of these flowed. Not all of these
13 had any constituents. Not all of these even had even
14 enough water to pull a sample. But they were all
15 sampled, all identified by GPS coordinates, and all
16 submitted to the state and requested regulatory clarity
17 on how to manage these. And again, some we took
18 additional steps to collect and pump back to the basin
19 while we got the -- while we sought to get the clarity
20 we now had. So that's the good -- you know, really
21 good thing about where we're at.

22 There were a lot of issues here where we're
23 requiring some interpretation, and some resolution, and
24 some work with the agencies, and now we've achieved

Page 306

1 that. You know, we're at a very good stead now. SOC's,
2 we created for the purpose of providing that regulatory
3 clarity, and those have all been executed. And we're
4 in full implementation. And we have also now received
5 revised permits for all those constructed -- the
6 constructed piece of the seeps. We have that clarity
7 we've been seeking, and we're fully compliant with them
8 moving forward.

9 Q. So I'll go back to several things you just
10 said, but first I wanted to -- and we can go to the
11 document if you would like, but I'm looking at the 2015
12 joint factual statement. And we can all go there, or I
13 can just read from it. But it's Hart Exhibit 3 in this
14 case.

15 A. I am familiar with it.

16 Q. Okay.

17 A. If I need to look at it, I'll let you know.

18 Q. Okay. So there's a sentence here that reads:

19 "The defendants have identified nearly 200
20 distinct seeps at the defendant's coal ash basins
21 throughout North Carolina in permit modification
22 applications filed in 2014."

23 So is -- so I read that to mean that there
24 were 200 distinct seeps at the two Company sites in

1 North Carolina; is that right?

2 A. Well, this was the area of wetness list that
3 was submitted to the state for purposes of determining
4 permitting.

5 Q. Okay. And you -- let's see. All right. You
6 had mentioned that the -- some of these areas were
7 seasonal. You had testimony along those lines. And I
8 would just really quickly like us to refer to, let's
9 see, Public Staff Cross Exhibit 73.

10 A. Okay.

11 Q. And that is the River Bend SOC.

12 A. I see that.

13 Q. And -- all right.

14 MS. LUHR: So, Chair Mitchell, we would
15 ask that Public Staff Cross Exhibit 73 be
16 identified as Public Staff Wells/Williams Rebuttal
17 Cross Examination Exhibit Number 6. And just --

18 THE WITNESS: I'm there. I'm at the
19 exhibit.

20 Q. Thanks.

21 A. Oh, I'm sorry.

22 CHAIR MITCHELL: All right. Ms. Luhr,
23 the document will be marked as Public Staff
24 Wells/Williams Cross Examination -- Rebuttal Cross

1 Examination Exhibit Number 6.

2 MS. LUHR: Thank you.

3 (Public Staff Wells/Williams Rebuttal

4 Cross Examination Exhibit Number 6

5 marked for identification.)

6 Q. So on looking at page 3 of this document,
7 make sure I have the correct line, which is -- here we
8 go. It's page -- I'm sorry, page 1 of the document,
9 which is page 2 of the PDF. And this is the first page
10 of the special order by consent.

11 A. Okay. I see it.

12 Q. And I would just -- I will read the first
13 sentence of paragraph 1-B, which reads:

14 "Duke Energy Carolinas is responsible for
15 unauthorized discharges of wastewater from the area
16 around River Bend seep station's coal ash surface
17 impoundments."

18 And then I will move to the last part of this
19 paragraph. We can read the whole thing if you would
20 like, but the paragraph, the part I'm focused on,
21 reads:

22 "Seeps are typical in earthen dams. Seeps
23 can be seasonal and/or transient in nature; however,
24 seepage can still constitute an unauthorized

1 discharge. "

2 Is that what that reads?

3 A. I see that, yes.

4 Q. Okay. So even if seeps are seasonal, they
5 still can be unauthorized discharges; isn't that right?

6 A. I think they can if they're unpermitted and
7 they meet all the criteria we previously set forth that
8 would constitute a discharge. You know, and the other
9 thing I may just reference, with respect to -- the SOC
10 is a big part of a special order and consent is this --
11 you know, you're looking to resolve an issue that isn't
12 clear. I mean, in this instance, an issue that isn't
13 clear. And this is a vehicle that can bring that
14 clarity as to how we do it.

15 And so now, for instance, the agency could
16 just as easily have put a lot of these straight into a
17 permanent, and they didn't, because they weren't sure
18 they required a permit or that it was proper to permit
19 some of these transient things that weren't squarely
20 falling in a point source-type hole. So they would
21 say -- so we had two vehicles that we looked at. And
22 one was permit, and we permitted those very clean ones
23 like the constructed seeps. And they didn't feel that
24 was creating a wrong precedent, and it was a good

1 approach.

2 The SOC's created another vehicle where there
3 was an opportunity where you know you have an issue
4 without a good path, a resolution, and alignment
5 between both us and DEQ on path forward. And also with
6 an eye toward; one, regulatory clarity, but also
7 ensuring adequate protection to the environment. We
8 want to ensure none of this was creating an issue. Our
9 data was saying that it's not, but what's the right
10 way. We expect the agency to clarify it.

11 So the SOC is the vehicle that allowed us to
12 do that. And so as we -- if you read -- as you read
13 through this, this was a -- this resolution was very
14 beneficial to the Company as well as the state to get
15 this done.

16 Q. Okay.

17 A. And I say that only because when you -- as
18 you read the stipulations, those are important
19 stipulations that are necessary to trigger authority
20 under the SOC for the state to enter.

21 Q. Thank you. And under the SOC's that the
22 Company entered into, did it agree to pay financial
23 penalties for its seeps?

24 A. Yes.

Page 311

1 Q. Okay. And I just have a couple more
2 questions and then I will be finished. On page 12 of
3 your testimony, you discuss the Commission's authority
4 to regulate utility dams from 1967 until 2009. And on
5 page 13, lines 6 through 8, you state that:

6 "Not once during that time did the Commission
7 or the Public Staff ever determine or opine that the
8 continued use of surface impoundments to store CCR was
9 imprudent."

10 So here you're referring to the period
11 between 1967 and 2009, correct?

12 A. Correct. That's correct.

13 Q. Okay. And are you familiar with the Public
14 Staff's role?

15 A. In -- I would need some additional clarity on
16 that question.

17 Q. Of course. So the Public Staff's role is to
18 investigate the reasonableness of rates charged by
19 public utilities; isn't that right?

20 A. I'm not familiar with the Public Staff's
21 specific role. I would agree with that. But I
22 understand they look at a lot of things to understand
23 whether they agree with the costs and the rates that
24 the Company has applied for.

1 Q. Okay. And the first time that costs
2 associated with corrective action and closure of coal
3 ash impoundments came before the Commission was in 2017
4 for Duke Energy Carolinas; isn't that right?

5 A. I don't know that that was the first time. I
6 think what I was referring to here is that the dams --
7 now, the concept of the -- we have basins. This is how
8 we manage our basins. And we're doing inspections, and
9 there's a docket that's set up, and all those
10 inspections are being submitted. And there is some
11 involvement by the Public Staff, by the AG, by all the
12 parties today. There's involvement by the DEQ that was
13 evidenced, as I read the docket, where some of these
14 were shared, you know, saying by practice they share
15 them with DEQ who does have that environmental
16 authority.

17 The point is that -- the point of this
18 portion of the testimony is there is -- Duke has not
19 operated in a vacuum. This is not all, you know, 20/20
20 hindsight on everything that Duke's practices were. It
21 was intended to say, look, this has been the practice
22 of Duke, but in a very open way, this is how wastewater
23 and coal ash has been managed. Not just here at Duke,
24 but nationally. And we weren't in a vacuum. We had

1 the regulators involved. We had -- you know,
2 obviously, from the dam safety perspective, we've had
3 the Commission involved. The Commission was sharing
4 documents with others.

5 From the regulatory side, environmental,
6 DEQ's involved, they're permitting. We're engaged with
7 EPA on everything they do. We're engaged with EPRI
8 over the years. We do multiple studies at our sites on
9 this very issue. We're voluntarily engaging in a
10 broader level of USWAG. All of this is occurring over
11 the years.

12 And my point is, there seems to be this
13 concept that Duke's out on its own and now let's take a
14 hard look at what they did, and we don't have any onus
15 for this. My point was, this is how -- this is -- and
16 it's not that there was wrongdoing, it's that this was
17 the evolution of this practice, and we are where we are
18 today. And we're in a good place, and we're ready to
19 move forward. And that was my point, is that this
20 wasn't just -- there were others involved in
21 understanding how ash is managed.

22 Q. And who is it that's ultimately responsible
23 for the Company's ash ponds and compliance with
24 environmental regulations; would that be the Company,

Page 314

1 or DEQ, or the Public Staff?

2 A. I believe the Company is responsible for
3 management of the ash and it's compliance.

4 Q. All right. Thank you, Mr. Wells. Those are
5 all my questions.

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

JAMES WELLS AND MARCIA E. WILLIAMS,
having previously been duly affirmed, were examined
and continued testifying as follows:

CROSS EXAMINATION BY MS. TOWNSEND:

Q. Good afternoon, Mr. Wells, Ms. Williams.
Welcome to the wonderful world of this hearing.

A. (James Wells) Thank you.

Q. You're welcome. Mr. Wells, I'm going to
start with you.

A. All right.

Q. Okay. I assume you were listening to
Ms. Bednarcik's testimony, right?

A. I did hear portions of it. I did not hear
any of the confidential, I wasn't tied into that, but I
did hear most of the rest of the testimony.

Q. All right. And you're aware that she

1 directed me to ask you certain questions pertaining to
2 the subject of wells; are you aware of that?

3 A. Sure. Yes, ma'am.

4 Q. Okay. So I'm going to be asking you
5 questions understanding that you are not a
6 hydrogeologist, correct?

7 A. So I do have responsibility for the
8 groundwater. So I'm not a hydrogeologist, but I -- in
9 my role, as you know, the EHS programs, I'm responsible
10 for all environmental programs, all environmental
11 compliance programs enterprise-wide, so that includes
12 groundwater, but also air water waste. So I rely on
13 any -- you know, each of those different disciplines, I
14 rely on expertise. And with -- you know, specific to
15 groundwater, I have a groundwater team that reports up
16 to me that has their geologists, engineers, and
17 environmental managers. And they also hire consultants
18 who are hydrogeos and geologists and other -- and we
19 also rely on university professors with some very niche
20 expertise.

21 So all of those type -- I rely on that
22 expertise to bring me the facts and assist with
23 informing decisions, and they're engaged with those --
24 that expertise in evaluating my decisions.

1 Q. Okay. First of all, I want to establish that
2 all North Carolina sites require a groundwater
3 monitoring program under CAMA; is that correct?

4 A. CAMA does require a groundwater monitoring
5 program; that is correct.

6 Q. Okay. And in going over the various sites
7 with Ms. Bednarcik, we talked about Allen. And that --
8 at Allen, the CAMA groundwater monitoring network
9 comprises a sampling of 136 wells, 33 quarterly, and
10 103 semiannually; does that sound correct?

11 A. It -- you know, I would -- subject to check,
12 I'm -- that sounds very --

13 Q. Okay.

14 A. Sounds reasonable. Sounds like consistent
15 with what I would expect, yes.

16 Q. Okay. And can you tell us when this network
17 requirement under CAMA began?

18 A. So groundwater assessments were required
19 under CAMA upon the enactment of CAMA in 2014.

20 Q. Okay.

21 A. All stations.

22 Q. All right. And so when were the -- when was
23 the well supposed to be in place and operating under
24 this requirement?

1 A. Did you say when were the wells required?

2 Q. Right. When were they supposed to be
3 operating and starting to give out data?

4 A. You know, I don't recall, specifically. I
5 remember the framework, generally, which is, you know,
6 to establish a groundwater -- a pond enactment CAMA.
7 It was a requirement to develop an assessment plan,
8 and -- which would include what you're referring to as
9 the groundwater monitoring network. And that would be
10 submitted to the state, and the state would have to
11 approve. And then that, I believe, would -- a day
12 would be triggered off of DEQ's approval. I don't know
13 that there's an express requirement there. But I do
14 know, with respect to corrective action, for instance,
15 we have to begin implementation of corrective action
16 within X days of DEQ's approval of the plan.

17 Q. All right. So was there an actual timetable
18 to establish the Allen network when it had to be
19 completed?

20 A. I think there was. I would have to pull CAMA
21 and look. It seems like there was a timetable.

22 Q. Okay.

23 A. But I would have to check that.

24 Q. Okay. And based on Allen's network, which

1 was 136 wells, how many monitoring wells were in place
2 that were able to be used as part of that network?

3 A. I don't know the exact numbers. I couldn't
4 tell you that.

5 Q. 1 percent, 10 percent, 20 percent?

6 A. Well, I mean, you know, first I'd like to
7 start with -- I mean, I probably want to give a little
8 more background to that, because I don't know the
9 percentage. I would have to -- I mean, to get some
10 specifics, I'd have to look at some records. But the
11 whole concept of groundwater monitoring is this --
12 honestly, it's this iterative approach. So, for
13 instance, if you look at the federal CCR rule, it sets
14 forth that beginning monitoring network of a minimum of
15 one up, three down, which you heard Ms. Williams refer
16 to.

17 So this is 2015 federal rule, one well
18 upstream, upgradient, three wells down. Those are the
19 minimum. Now, you do more to have additional
20 characterization, but that's the starting point. With
21 respect to Allen, obviously, we had the early wells,
22 which were -- we've already discussed in the '80s. But
23 with respect to Allen, we then had a voluntary network
24 that we established in the 2000 time frame. I think it

1 was 2004. That be -- and so there is a set of wells.
2 And then additional wells are installed around the 2010
3 time frame. And, again, you know, I'd have to have
4 documents for specifics, but the point is, more wells
5 go in then.

6 And then we're working with the state on all
7 those results. There's some various processes being
8 worked through. And, at some point, CAMA came along.
9 And then CAMA said do an additional -- a full
10 assessment. So now it's starting you down the
11 assessment path. So, normally, you do a
12 detection-level monitoring, you see what you have. If
13 you start to pick something up, then you move toward
14 assessment. And that's where we were at when CAMA came
15 along, moving toward assessment. And assessment then
16 means you do a full assessment to understand the full
17 extent of the impacts. And that's where we were at in
18 2014.

19 So then you see these additional wells in
20 place just for the assessment purpose, not that initial
21 detection monitoring network which is where we were at
22 prior to this.

23 Q. My question was, were you able to use any of
24 these prior wells that were established in the '80s, or

1 the '90s, or 2010, or whenever, or did you have to put
2 in an additional 136 wells?

3 A. There -- we would have used -- first of all,
4 all the data would have been informed. So all of it's
5 useful. And the wells that were installed would have
6 been useful, and I believe continued in use unless
7 there was something wrong with the well or for some
8 reason it wasn't providing accurate information. So I
9 believe all the wells, to the extent they were still
10 operable, would have been used in the development of
11 the assessment plan, which is the additional monitoring
12 network.

13 Q. Where would we find that information as to
14 how many wells were, in fact, still there and useful?

15 A. I believe there has been some discovery
16 responses. It's just a lot here. But I believe there
17 have been some responses with respect to when the wells
18 went in and when -- any that would have been abandoned
19 since then. And I don't know if it said why, but I
20 believe it showed the wells installed, and then the --
21 if any had been abandoned. Typically abandoned would
22 mean that it was no longer functional or was providing
23 some other issues. We had to re-drill a well, or who
24 knows what could be going on. But I filed a discovery

1 response that summarized all that.

2 Q. All right. Did Duke install these wells, or
3 were they -- the new additional wells, or were they
4 installed by a third party?

5 A. We would have managed third-party contractors
6 to install. We would have provided the oversight and
7 we would have provided the -- well, with -- I say we.
8 We would have hired -- we had consultants who assisted
9 us with developing the monitoring network. And then we
10 would have -- with respect to the drilling work,
11 actually installation, that would have been done by
12 drillers that we would have hired. And -- but Duke
13 would have done the oversight.

14 Q. And who determined the number and the
15 location of the wells in these networks?

16 A. So that is -- you know, I spoke earlier
17 about, you know, how the groundwater team works, but we
18 would have done that with our in-house subject matter
19 experts, expertise at each of the different sites, in
20 conjunction with consultants. We hired various
21 consultants to assist with this based on their
22 qualifications and experience in these areas. And then
23 as I say also, some university professors assisted
24 where we needed that.

1 And all of that -- so that may have been the
2 initial work. We also had other -- we would have had
3 other reviewers that we hired or engaged with at times
4 with specific expertise to review it to ensure -- you
5 know, often just seeking them to challenge, to ensure
6 we've got it right or we've got it technically as
7 strong as we can make it for its intended purposes.
8 And then all of that would have been submitted to the
9 state for their review.

10 And then there would have been back and forth
11 with the state on any concerns, questions,
12 recommendations. Out of them, would have made the
13 adjustments for that, and then ultimately implemented
14 what was approved with the state.

15 Q. So when you talked earlier about an
16 assessment plan that you submitted to the state, that
17 assessment plan would have indicated what Duke and/or
18 its third-party helpers would indicate thought how many
19 wells were needed at any particular site?

20 A. I don't remember specifically how it's laid
21 out, but in general, that's what it would be. It
22 wouldn't just be, hey, we need 20 wells. It would say
23 here's what we want to do, we want to evaluate --
24 here's what we know to date, you know, everything we

1 know about the geology, what we know about groundwater
2 flow, what we know from past data, what we know, and
3 given what we know, we wanted to move into an
4 assessment. So let's look to understand -- continue to
5 build on that.

6 So we needed to find a well network that's
7 going to provide some additional information, and
8 that's really a next step. Now, it doesn't stop
9 suspect at therefore, I want 40 wells all sentry lined
10 along this line. It looks at depth, it looks at what's
11 going on with the geology that might create different
12 formations with respect to the flow. It looks at a lot
13 of different technical factors as to how groundwater
14 might be flowing, and making sure that we're getting an
15 adequate characterization of what's going on using
16 wells in this very large area. You're just one --
17 you're dipping a straw in one spot versus -- but you
18 got a long area you're trying to cover. So you're
19 trying to cover a large area as effectively as you can.

20 And then that's just really the first step.
21 Again, groundwater assessment corrective action is
22 iterative. So we would have done the assessment plan.
23 And even since then, would have continued once we get
24 data back from that first set of wells we thought we

1 needed per the original assessment plan. That would
2 provide additional information, and potentially more
3 wells or different depths. And all of that would be --
4 continue to be an iterative process with the state.
5 End goal to understand the full picture of what's going
6 on with respect to groundwater and use that to inform
7 the corrective action plan.

8 Q. So if I'm understanding you correctly, then,
9 a number of wells that was used in this case, 136 at
10 Allen, was based on information supplied by DEC to DEQ;
11 is that correct?

12 A. So again, kind of the full picture. It would
13 have been -- there would have been back and forth with
14 DEQ. Certainly, we would have proposed, brought a lot
15 of data together, and then there would have been back
16 and forth with DEQ on whether -- what they thought.
17 You know, they may say, hey, I'd like -- I think this
18 well should be moved 30 feet this way, or I think you
19 need three more wells in this area because I've got
20 some questions about this. Those are the kind of back
21 and forth that would have gone on.

22 Q. But the base information, obviously, had to
23 be supplied by Duke, correct?

24 A. There would have been a starting point, I

1 believe, where we would have taken it to the state;
2 that's right, and then --

3 Q. Thank you.

4 A. -- and then get the conversation going.

5 Q. Okay. Allen also has a CCR groundwater
6 monitoring network consisting of 48 wells. Plus,
7 according to the CAMA report, there were an additional
8 24 monitoring wells voluntarily sampled.

9 First of all, when did the CCR groundwater
10 monitoring network requirement begin; when did that one
11 begin?

12 A. The CCR groundwater monitoring network would
13 have been a part of the CCR rule when it was finalized,
14 which I believe was 2015.

15 Q. All right. And was that network requirement
16 for all of the sites at the same time?

17 A. It would have set forth a groundwater
18 requirement in terms of a performance standard that we
19 need to demonstrate by a date certain. We either were
20 or were not meeting a perform standard by a date
21 certain. And then you had to have a number of
22 monitoring events in order to demonstrate that. So
23 that was the setup. And that would have applied to all
24 of the CCR units that were subject to the rule at the

1 time.

2 Q. So the performance standard --

3 A. (Marcia E. Williams) If I could just jump in
4 for one second. I think it was about 30 months.
5 Initially, EPA had proposed a year to get that
6 monitoring well system in, but I think it got changed
7 to two years from the effective date of the rule to get
8 the monitoring well system installed, the data
9 collected, and sampling and analysis provided to the --
10 provided. Which, of course, North Carolina chose to
11 engage on that. The rule, you know, was essentially
12 self-implementing at that point. But that's the rough
13 time frame.

14 Q. Thank you. Is there any overlap of the wells
15 that are used for sampling at the CAMA groundwater
16 network and the CCR groundwater network?

17 A. (James Wells) Yes.

18 Q. Okay. And my understanding is that the
19 original CCR GR -- groundwater monitoring network was
20 to provide what they call detection monitoring,
21 correct?

22 A. The CCR monitoring, did you say?

23 Q. Yes.

24 A. Okay. Yes. And that was the process I was

1 referring to. I mean, it's -- I'm referring to
2 generally groundwater, what I'm seeing over the years,
3 not just any specific state or federal, but a process
4 that looks like detection assessment, corrective
5 action. Those are common kind of different phases of
6 groundwater monitoring that we see.

7 Q. And the detection monitoring phase is what?

8 A. So the detection phase is I think what you
9 referred to in the CCR rule, is that you initially
10 install a detection monitoring network.

11 Q. Okay. And that would have been, for Allen,
12 the 48 wells, correct?

13 A. I don't know if the 48 included some
14 additional assessment wells. I don't know what the --
15 I don't know, without looking, you know, at all the
16 sites, there were various wells put in at different
17 times for different reasons. But in the federal rule,
18 2015, effective at the end of 2015, the CCR rule came
19 into play. It did set forth a requirement that we
20 begin doing some detection monitoring.

21 Q. Okay. And because of contaminants detected
22 at levels above applicable groundwater protection
23 standards at every site, the sites were all placed in
24 the CCR assessment monitoring program, correct?

1 A. Correct. Here's the one key point. The
2 CCR -- I mean, a big difference, I think, between when
3 you think about the 2L rule versus the CCR rule, the 2L
4 rule has always had this compliance boundary that
5 applied since '84 time frame. A compliance boundary
6 around the basin that was 500 feet from the baseline,
7 horizontal. Just strictly horizontal, nothing vertical
8 or anything of that nature.

9 So with respect to the stay, that's where
10 your compliance boundary lied, and you built a lot of
11 your assessment. And even your ongoing monitoring
12 through the years was premised on the idea that your
13 compliance is at that 500 feet from the waste boundary.
14 CCR came along, it's different. It works at the waste
15 boundary. So it established an attention network at
16 the waste boundary, and not the 500 feet, and installed
17 the wells there. And it did have some different
18 parameters to this.

19 But in any event, that's the -- the
20 detections went in there. So at the waste boundary, if
21 you have a detection above the standard that I was
22 referring to, the performance standard with respect to
23 detection monitoring, then you move to assessment. And
24 all of our -- I believe all of our units would have

1 exceeded -- had a detection above the detection limits
2 applicable at the waste boundary and moved us into
3 assessment monitoring at those facilities.

4 Q. And what additional requirements were imposed
5 for assessment monitoring versus detection monitoring?

6 A. It is a different set -- slightly different
7 set of parameters that it has you -- as I recall, you
8 look at as well as additional wells to determine. It
9 may drive some additional wells depending on what
10 you're seeing. I think it's -- it can vary depending
11 on what you're seeing and what the parameters are.

12 Q. Okay. The number of wells in the various
13 sites in the network groundwater monitoring system
14 varied both for the CAMA and for CCR.

15 Can you explain why, for instance, Cliffside,
16 which covers approximately 1,500 acres, as opposed to
17 Allen's 2,000 acres, required 253 wells, over twice as
18 many wells in the CAMA network, and an additional 70
19 wells in the CCR network in Allen? Can you explain the
20 difference?

21 A. Well, it can -- I mean, what drives the
22 number of wells is driven by a number of factors which
23 I think are some of the things I talked about. For
24 instance, the geology, the groundwater flow, the

1 conductivity. Various things can affect the way --
2 where you want wells in order to do an adequate
3 characterization.

4 The other thing is just the real estate,
5 meaning where are the units, waste units compared with
6 other waste units. You know, if you look at Allen, for
7 instance, they're all kind of in one spot. You've got
8 the active basin, the retired basin, they all sit
9 together. Cliffside, if you look at it, you've got one
10 unit on one side of the plant, one on the other side of
11 the plant, and another unit, you know, kind of offset.

12 So all of that would drive -- if you want to
13 characterize these units, it could require more wells
14 if they've got -- if they're separated apart further.
15 But there's also -- I mean, just describing, it kind of
16 really shows how this stuff can vary from professional
17 judgment as well. So we may see, for instance, working
18 with one -- you know, again it's a groundwater subject
19 matter expert with the state in one region may have a
20 different view on how they want to approach those sites
21 versus, you know, you may work in a different region
22 with a different person, and it could even -- so even
23 who you're working with at the state can drive, you
24 know, kind of differences of opinion on how -- where

1 things go and number of wells that are needed, all
2 those things to factor.

3 Q. So these assessment plans that you were
4 giving were given to the various regions; is that
5 correct, rather than to the DEQ -- the main DEQ
6 headquarters?

7 A. They went to both. So the whole structure in
8 DEQ, we do have -- they do have regional groundwater
9 folks with expertise in that area. And then they roll
10 up sort to a centralized oversight, particularly all --
11 with respect to all the groundwater, there's sort of a
12 couple of centralized folks that oversee all the
13 regions. Oversee in the sense that they help
14 coordinate the submittals, and the responses, and
15 comments, and, you know, talking through all the
16 technical issues and coordinating meetings. And
17 then -- and they're groundwater folks as well. I mean,
18 all that obviously ultimately rolls up to what I
19 consider headquarters, senior DEQ management.

20 But the regional hydrogeologists are -- I
21 mean, you know, they're there with -- they had the
22 authority, they are -- I mean, they're a big part of
23 understanding technically what is appropriate and
24 needed in light of what we -- you know, what's the

1 right level of assessment. So they have a big part of
2 it, but it's also joined centrally to keep -- try to,
3 you know, have some consistency.

4 Q. Could you tell us what the approximate cost
5 of a well for these network wells were?

6 A. I don't have that figure.

7 Q. You have no idea?

8 A. I do have -- I have an idea. I'm not -- I
9 think I'm not sure. I mean, it can vary so much. For
10 instance, a bedrock well can take a long time to drill.
11 You know, you may be -- I've seen drills that are
12 real -- you know, they only can get so much depth per
13 day because they're in bedrock. And when you've got a
14 drill that's parked on something like that, this deep
15 well that's in bedrock, that cost can be significant.

16 You may also -- you may have another well
17 that is relatively shallow and simple to put together
18 and develop. I mean, even after you drill the well,
19 then you have to do -- there's steps to make sure the
20 well is not only constructed properly, but then
21 developed and other things just to make sure it's
22 providing accurate data.

23 Q. So what would be an approximate range from
24 the shallow well to the much more complex deep well?

1 A. You know, I would really -- I would prefer to
2 have numbers for you with respect to that. And perhaps
3 there's a -- you know, on a break, if we're still
4 going, I could see what I can find on that. My sense
5 is it was -- you know, I'm reluctant to throw out a
6 number that I don't feel good at. But it was -- I
7 would -- if I had to put something out, I think it's
8 like the 10 to 40,000 range.

9 Q. Okay. All right. Turning to your --

10 A. I would like to -- just so the record is
11 clear, I would really like to -- you know, I wouldn't
12 rely on that number. That would be -- that would need
13 to be verified.

14 Q. Understood.

15 A. I just -- you know, there is a range here,
16 but maybe something close to that.

17 Q. I don't think you need to go to your
18 testimony, but on page 15 you say something to the
19 effect that the environmental regulatory regime has
20 involved the science knowledge, and regulatory
21 priorities have changed. Sound familiar?

22 A. Yes.

23 Q. Okay. However, one environmental regulatory
24 regime, the North Carolina 2L rules, haven't changed

1 since 1984 -- or -- yes, 1989 when it added its
2 corrective action provision, correct?

3 A. Well, 2L has changed. The rule which you're
4 referring to. I mean, there have been changes to it
5 over the years.

6 Q. Okay. It added the compliance boundary and
7 the corrective action program, correct?

8 A. Well, and additional parameters have been
9 added to the 2L list. I mean, I think it started with
10 something like -- and again, it all -- you'd have to
11 check, but I think in the early '80s maybe it was 17
12 parameters, and now there's probably 150, you know.
13 And what -- you know, and the concentrations associated
14 with different parameters would have changed with time.
15 And again, it's all part of that -- yeah, I think it is
16 representative of the evolution of environmental regs
17 as a whole.

18 Q. Okay. Basic premise against degradation of
19 the groundwater has stayed the same since 1979; has it
20 not?

21 A. Can you restate? I'm sorry.

22 Q. I said the basic premise of the 2L rules that
23 prohibits degradation of groundwater has stayed the
24 same since 1979; has it not?

1 A. When the -- I believe, when the 2L rule was
2 promulgated, it would have established standards with
3 the goal that you would not have exceedances beyond
4 those standards outside of the compliance boundary.
5 And I did include in my testimony, there's some
6 discussion about that that is applicable to ash basins
7 and historical sites that were built pre-2L and how
8 they would be handled.

9 And the recognition that there is some chance
10 that you already have these groundwater impacts when
11 this rule comes in, and that they will work with
12 permittees on that through the permit program to
13 establish the permit controls as needed, as
14 appropriate. And that did play out at some facilities
15 throughout the -- you know, that's what we -- we saw
16 some of the permitting come into place in the early
17 '90s.

18 Q. Okay. If we could go to AGO prefilled Cross
19 Exam Exhibit 15.

20 A. (Witness peruses document.)

21 Okay. I'm there.

22 Q. Waiting for Chair Mitchell.

23 MS. TOWNSEND: Are you with me? If we
24 could have that marked as AGO Wells/Williams

1 Rebuttal Cross Examination Exhibit Number 1,
2 please.

3 CHAIR MITCHELL: Just to --
4 Ms. Townsend, just to confirm, this is a -- this is
5 the document, it's a brief to the Supreme Court of
6 North Carolina?

7 MS. TOWNSEND: That's correct.

8 CHAIR MITCHELL: Okay. So this document
9 will be marked as AGO Wells/Williams Rebuttal Cross
10 Examination Exhibit Number 1.

11 MS. TOWNSEND: Thank you.

12 (AGO Wells/Williams Rebuttal Cross
13 Examination Exhibit Number 1 was marked
14 for identification.)

15 Q. And if you look at the front, you will see
16 that this is an amicus brief prepared by -- for DEQ,
17 correct?

18 A. (Witness peruses document.)

19 Q. If you look at the second page, it will tell
20 you.

21 A. Oh, I'm sorry, second page.

22 Q. Right across the front.

23 A. I do see that, yes.

24 Q. Okay. All right. And if you'll go to

Page 34

1 page 13 of that document, you'll see that DEQ has made
2 its position on the subject of change unknown in this
3 brief on the 2L rules on page 13 that says -- let's
4 see. In the first full paragraph of -- fourth line, it
5 starts with "groundwater assessment and corrective
6 action"; are you there?

7 A. I am. I see that.

8 Q. "Are legal requirements that flow from the
9 existence of a violation of the 2L standards. They are
10 not, themselves, used to determine whether a violation
11 has occurred"; is that correct?

12 A. That's what that reads, yes.

13 Q. And then it says:

14 "It is irrelevant in this context that, as
15 the Utilities Commission noted, requirements changed
16 over time. The fact that any party may have failed to
17 conform itself to new standards once those standards
18 became enforceable does not negate any violations of
19 those new standards."

20 Is that accurately stated?

21 A. That is read accurately, yes.

22 Q. Okay. And if you'll go back a few pages to
23 page 10.

24 A. Okay.

1 Q. And the very first sentence, it says:

2 "Whether an enforcement agency chooses to
3 enforce immediately or to defer enforcement does not
4 inform whether a violation has occurred. It only
5 speaks to the agency's enforcement discretion, not its
6 authority."

7 Do you agree with that statement?

8 A. I agree that you read that accurately, yes.

9 Q. Okay. And in its brief, it also puts forth
10 its position on the difference between an exceedance
11 and a violation under the 2L rules, and that's on
12 page 9.

13 A. Okay. I see that.

14 Q. Okay. And it says -- well, let's read the
15 second full paragraph:

16 "Most tellingly, witness Wells incorrectly
17 restated critical language in the groundwater rules.
18 Witness Wells explained in the passage above that, upon
19 the detection of exceedance, the," quote,
20 "owner/operator must assess the extent of the
21 exceedance. That is inaccurate." Groundwater rules
22 mandate instead that, in such circumstances, the
23 owner/operator must assess the extent of the
24 violation."

1 Is that what it says?

2 A. I agree you read that accurately.

3 Q. Thank you.

4 MR. MARZO: I guess if that's the last
5 question, I probably don't have an objection. But,
6 Chair Mitchell, we'll stipulate the document says
7 what it says. If Mr. Wells is going to be asked
8 questions about it, it would be different.

9 CHAIR MITCHELL: Ms. Townsend?

10 MS. TOWNSEND: I have one last question
11 on it.

12 Q. If you'll go to page 10 again.

13 A. Okay.

14 Q. And it talks about noncompliance, which is
15 something you testified to about in your -- the last
16 hearing; is that correct, Mr. Wells?

17 A. I did, yes.

18 Q. Okay. And it states that:

19 "Noncompliance is not the result of a failed
20 corrective action, but is instead a necessary precursor
21 to the requirement to undertake corrective action"; is
22 that correct?

23 A. What are you reading?

24 Q. Right.

1 A. Can you direct me again? I'm sorry.

2 Q. Okay. Very last sentence --

3 A. Okay.

4 Q. -- on the page.

5 "Put another way, noncompliance, that is a
6 violation, is not the result of a failed corrective
7 action, it is instead a necessary precursor to the
8 requirement to undertake corrective action."

9 Is that what they state?

10 A. I do see that that says that.

11 Q. Okay. Thank you. And that's all the
12 questions I have.

13 A. All right. I do want to speak to this,
14 obviously.

15 Q. Mr. Wells, I'm sorry, go ahead.

16 A. I would like to speak to this.

17 Q. Sure. Go ahead.

18 A. Okay. Good. The -- so, I mean, this -- the
19 amicus brief here, I did get a chance to see that when
20 it's filed, and it's obvious I was -- testified in a
21 prior case on this very issue, there was a great deal
22 of discussion. I think there are a couple key points
23 that I want to make sure are clear in this instance.

24 One, there was a lot of discussion in the

1 past case about what's a violation, and what's an
2 exceedance, and what does it mean. And we did have
3 some discussion, and I've had it in the same case here,
4 that where we have groundwater impacts -- and I think
5 this is very clear, and amicus lays that out very
6 clearly as well -- where you have impacts to
7 groundwater, that is not a violation unless you are
8 outside of the compliance boundary and above the
9 standard. So in the last case, there was a lot of data
10 being thrown around that was inside the basin, at the
11 edge of the basin, but it was inside the compliance
12 boundary and the term was being used very loosely. So
13 there was an effort to have some clarity around that.

14 More specifically -- and this was in my
15 testimony, and this is ultimately what the Commission
16 also in its 2017 opinion, it also directed, as I
17 understood, in their ruling. Whether -- with respect
18 to a violation, if there is an activity -- if you
19 conduct an activity that causes an exceedance of the
20 concentration of ash-related constituents outside of
21 the compliance boundary to exceed the standard, then
22 that activity is a violation of the 2L standard. That
23 activity violates the standard.

24 Q. And where would we find that?

1 A. It's in the 2L rule. So this is the 2L rule.
2 I'm summarizing the 2L rule. We can pull it up if
3 you'd like. I think it's like 103(b), but we can look
4 at it specifically. I summarize it with respect to ash
5 basins, but we can quote the -- we can pull the rule up
6 and look at it.

7 So an activity -- because if you conduct an
8 activity that causes an exceedance of the 2L standards,
9 that activity is the violation. So that's the way the
10 2L structure, as I read them, and it's -- again, we
11 could pull the language up.

12 What -- with respect to the question before
13 the Commission -- so this is where in my last testimony
14 I indicated, that's the standard with respect to what's
15 a violation. But more importantly, that's not what's
16 in front of the Commission. What's in front of the
17 Commission is whether or not that is indicative of or
18 evidence of mismanagement, or wrongdoing, or fault.
19 And what I was indicating is that the violation of the
20 2L standard for these historical sites that were built
21 before the groundwater rules, before the Clean Water
22 Act, '50s, '60s, '70s time frame, that were designed,
23 constructed, operated not only consistent with the law
24 but consistent with industry standard and beyond. And

1 we even operated, in my mind, in some instances beyond
2 industry standard throughout those years.

3 So with respect to a basin that's been
4 operated -- built, constructed, and operated consistent
5 with laws and industry standard, now that we find the
6 groundwater exceedance that results in a violation of
7 the standard, that is not evidence of mismanagement,
8 and it shouldn't be used against the Company to punish
9 the Company. It's, instead, an indication of where we
10 are in that evolution of regs, and time, and the
11 science.

12 And with respect to discovery of this, the
13 expectation is we take the next steps. That is the
14 assessment; that is the corrective action; that is the
15 hundreds of wells that you referred to. And that that
16 is the appropriate action upon discovery of this.
17 Notify the state and then assess the extent of the
18 exceedance of the standard. And again, that activity
19 that exceeds the standard is a violation.

20 And that was a lot of discussion that went on
21 last time where I ultimate -- what I ultimately was
22 indicating is that it didn't matter what you call it.
23 The question before the Commission is whether or not
24 it's evidence of mismanagement. And the Commission

1 heard that, and if you read the opinion, they do state
2 that. That the seeps -- they heard all the things that
3 are being discussed here and the groundwater and found
4 that, even if whatever -- violation, or an exceedance
5 of the standard outside the boundary, whatever the
6 language is that gets used, it's not evidence of
7 mismanagement. And that was my point.

8 You know, the second point -- and there's a
9 lot of in this amicus brief about it -- is I was
10 referring to -- and you had me read this enforcement
11 language. When I talked about enforcement, it was in
12 the context of Duke, it was in the context of utility
13 basins. Not 2L as a whole. What this amicus is
14 discussing is enforcement as a whole, and the authority
15 to bring enforcement under 2L. And I have no objection
16 to that.

17 What I was referring to is that when Duke
18 went to the state in 2009, in 2010 and was saying
19 here's what we're seeing in our groundwater, and we
20 want to start moving toward the next steps, DEQ was
21 trying to figure out what 2L read, what it meant, what
22 the interpretations of the rule were. You may know
23 they had some back and forth with the Attorney
24 General's Office trying to get some interpretations of

1 the 2L rule. Ultimately culminated in the 2011 policy
2 memorandum, the Ted Bush policy. He was head of
3 aquifer protection. That I laid out a flow chart of how
4 the state would react upon these detections that
5 exceeded the 2L standard. And it had you walk through
6 assessment, corrective action, determination of
7 background.

8 So they built the flow chart specifically for
9 these historical sites, and unique to historical sites
10 that were properly operated up to that point, but now
11 have discoveries of these groundwater contaminations
12 outside compliance boundary. And -- and in it, it is
13 structured such that enforcement would not come absent
14 failure to take the assessment and corrective action
15 steps.

16 That -- so the 2011 memorandum, the policy of
17 DEQ is what I was relying on for that position. That's
18 further substantiated in the DEQ settlement, the Sutton
19 settlement, which refers to the policy and affirms it
20 was the policy. At the time, it was an accurate
21 policy. It further discusses the intent of the policy
22 was that penalties would not be -- upon a discovery, if
23 the flow chart is followed, assessment corrective
24 action and penalties, that that's the action that would

1 be appropriate in lieu of penalties. So that's set
2 forth in the Sutton settlement.

3 The other thing I'd mention is CAMA follows
4 the same structure. CAMA is enacted in 2014, it
5 supersedes the policy, and it too works the same way.
6 Detection, assessment, corrective action without an
7 enforcement provision with respect to that discovery.
8 And that's not inconsistent with other regulatory
9 regimes that are particularly remedial in nature like
10 this, where they act on almost a no-fault basis to
11 impose cleanup obligations consistent with public
12 policy, irrespective of whether or not the operator was
13 fully compliant with the law.

14 So 2L was consistent with that, the Sutton
15 policy, 2011 memo all support that that's the
16 interpretation that was being applied to Duke in this
17 light.

18 And the only other thing I'd mention is the
19 CCR rule works the same way. There are federal
20 statutes, regulatory statutes, remedial statutes work
21 the same way, and Ms. Williams has talked about some of
22 that.

23 Q. All right. I think we can agree to disagree,
24 Mr. Wells. Going to Ms. Williams.

1 Based on your discussion with Ms. Luhr, I
2 have a few questions for clarification, if I may.

3 First of all, the CCR rule ultimately
4 determined that coal ash would not be treated as a
5 hazardous waste; is that correct?

6 A. (Marcia E. Williams) At this point, it is
7 not treated as a hazardous waste, and EPA essentially
8 deferred its final decision on the bevel of intention.

9 Q. Thank you. And as you indicated, the EPA
10 gave the states control under RCRA to deal with solid
11 waste facilities, correct?

12 A. What EPA did was develop a set of minimum
13 standards nationally that defined what was a protective
14 solid waste facility. And it did that largely in
15 narrative form. And the enforcers of that were the
16 states or citizens, either one, who felt that any
17 individual facility was not meeting it, then they
18 could -- they could take action. So states were taking
19 actions. And in some cases there were citizen suits.
20 EPA did not have actual enforcement authority, but EPA
21 continued to provide guidance to the states on
22 interpretation of various issues.

23 Q. All right. So in North Carolina, it enacted
24 its Solid Waste Management Act in 1982 and has the

1 authority to enforce that act, correct?

2 A. I can't -- subject to check. I can't -- I
3 don't recall when North Carolina enacted its solid
4 waste law. But again, for impoundments -- coal ash
5 impoundments, they were regulating them under their
6 Clean Water Act as a waste water treatment system and
7 using the NPDES authority. I would say, you know, at
8 least about third of the states did it that way, and
9 other states did cover them under solid waste
10 regulations.

11 Q. Okay. And the EPA is not the entity that
12 legislated the 2L rules in 1979, was it?

13 A. No, they are not. Although they are the
14 entity that has included corrective action in the final
15 CCR rule. And as Mr. Wells said, that is set up to
16 require detection monitoring, moving to assessment
17 monitoring, moving to corrective action where necessary
18 to protect health or the environment. And so the
19 requirement is there. It's not a violation under the
20 federal rule. The only violation is if you don't do
21 those steps that are necessary to protect health and
22 the environment.

23 And that's the same way that EPA set it up
24 for its hazardous waste regulations. Everybody was

1 required to monitor groundwater in those rules, and
2 everybody was required to meet health protective
3 standards. But if you failed to meet the health
4 protective standards, EPA did not assume that there was
5 mismanagement. EPA said, well, now you got to clean it
6 up, basically. You got to assess it, you got to clean
7 it up. So there's no mismanagement or assumption of
8 bad behavior in the way the federal regs look at
9 necessary assessment and cleanup.

10 Q. All right. And if you would go to Hart
11 Number 10, Exhibit Number 10.

12 A. Is this directed at me or at Mr. Wells?

13 Q. At you, Ms. Williams. I'm talking to you
14 now.

15 A. (Witness peruses document.)

16 Okay. I have it.

17 Q. All right. And Hart Number 10 is the actual
18 1979 2L rules that were first -- when they were first
19 promulgated; is that correct?

20 A. Yes, that's what it looks to be.

21 Q. All right. And if you would -- well, let me
22 read to you what the General Assembly said about these
23 2L rules and why they were enacted, and tell me whether
24 or not that's your understanding. It says:

1 "Only in the very last few years has
2 pollution been recognized as a major threat to the
3 quality of the groundwaters of the state. The
4 increasing incidents and potential for pollution
5 results primarily from the change in the use of land
6 from principally agricultural and civil cultural
7 activities to residential, commercial, and industrial
8 activities.

9 "This change in land use has resulted in a
10 large and continuing increase in the amount of waste
11 disposed of on the land and in the number of other
12 sources of pollution, such as landfills, waste disposal
13 and processing facilities, chemical stockpiles,
14 chemical and hydrocarbon spills, and concentrations of
15 septic tanks.

16 "Although the land in such of the state is
17 capable of cycling many types of waste, unlimited and
18 uncontrolled pollution sources will result in not only
19 pollution of the groundwaters, but eventual pollution
20 of the surface waters as well. Poorly managed
21 groundwater development is having a significant impact
22 on the groundwater quality in some parts of the state."

23 Did I read that correctly?

24 A. Yes. Except I think one word which you may

1 have misread, but it's not important.

2 Q. Thank you. All right. Turning to your
3 testimony, pages 92 to 97, you distinguish between
4 various laws and regulations stating that:

5 "Some deal with compliance obligations
6 addressing facility and waste unit design and
7 operational obligations, while others, such as the
8 North Carolina 2L rules, are remedial in nature and
9 apparently" --

10 And I don't mean to overstep, but if I'm
11 reading your testimony correctly, it appears that you
12 consider the 2L rules to play a less important role?

13 A. I think you are reading it incorrectly.
14 That's not my intent at all. It's just there's two --
15 there's the kinds of requirements that get identified
16 up front as to what's necessary to be protective. And
17 those regulations and those permits are designed to
18 ensure that you end up with a protective outcome, not
19 only of groundwater but of soil, of sediments, of air,
20 et cetera.

21 And you have a different category of rules,
22 which I think when I mentioned it earlier I said you
23 could think of them as environmental performance
24 standards. In my report, I call them remedial or

1 response laws. They're very important laws, but
2 they're doing -- they're doing -- they're almost a
3 check on everything else. Because they're saying, if
4 you're doing all the things that is believed to be
5 appropriate proactively, but you still have an issue
6 that can be attributed to a particular activity, you
7 need to address that activity if it exceeds health and
8 environmental protective levels.

9 But it does go to the issue of the purpose of
10 those laws. Typically, the purpose of these kind of
11 laws is to make sure that you address anything that is
12 not being adequately addressed by the proactive
13 requirements the people believe will be sufficient to
14 protect the environment. So it's of kind of a circle,
15 but they are a different type of a regulation or a law,
16 and so that's what I was trying to explain in my
17 testimony.

18 Q. Okay. I would expect that the state
19 legislator expected those laws to be considered
20 important and to be complied with; would you agree with
21 that?

22 A. Well, I certainly would agree that I think
23 they're important. And I do believe that the reason
24 that EPA has taken so much time, which they did

1 initially during my tenure back in the '80s, to lay out
2 what that process should be to do the investigation,
3 and the detection, and then the assessment, and then a
4 whole lot of information on corrective action, which
5 EPA worked very closely with the states on in this
6 process, was to lay out a reasonable way to implement
7 these laws, which are very important laws.

8 But I think it goes to what Mr. Wells said,
9 and EPA has gone to great lengths to say you got to
10 clean this up. We don't like it. We don't want it
11 there. But knowledge is changing over time, and we
12 have to acknowledge, if knowledge is changing and what
13 we thought was protective historically is no longer
14 protective, then we need a process to get it assessed
15 and cleaned up. And that was really the purpose of --
16 I'm going to speak for federal. I'm not going to speak
17 for the State of North Carolina. I'm just telling you
18 that the 2L laws -- law looks very similar to a whole
19 raft of laws that exist both federally, including
20 Superfund, and exist in many other states.

21 And other states sometimes implemented the
22 way North Carolina does. I worked in many states
23 where, for example, they'll issue a groundwater permit
24 similar to an NPDES permit, but it controls what's

Page 51

1 allowed to be discharged to groundwater. So states do
2 it differently, but I'm just trying to develop a
3 distinction between these proactive compliance
4 operational requirements, and what you do to check
5 whether they're good enough and what you do then if
6 they're not.

7 Q. Okay. On page 90 --

8 A. (James Wells) Ms. Townsend, I did -- I -- I
9 did -- I mean, if it's okay. Just to make -- I also
10 wanted to be clear. I think I was, but with respect to
11 the 2L, as I was discussing the application of that
12 rule to Duke, it was in context of historical sites,
13 not 2L on the whole. I have no opinion on that. I was
14 speaking to -- specific to historical sites as set
15 forth within the body of the 2011 policy. It talks
16 about its application, and that that flow chart and
17 that policy flow is specific to historical sites. And
18 the Sutton settlement is consistent with that, as is
19 CAMA. So I was -- I just want to make sure that's
20 clear. I'm speaking with reference to the Duke
21 historical ash management basins here, not broader.

22 Q. Okay. Thank you.

23 Ms. Williams, on page 97, you state:

24 "The parties who exceed the 2L standards are

1 responsible for remediating the release, but are not
2 typically punished or penalized for the exceedance,
3 itself"; is that correct?

4 A. (Marcia E. Williams) I'm just -- give me a
5 second to find the line number. I see it now.

6 Q. All right. If you would turn to AGO Cross
7 Exhibit Number 26, please. And this is the letter from
8 DENR, D-E-N-E-R -- D-E-N-R, to Duke Power dated
9 December 18, 1998.

10 A. Yes, I have it up.

11 Q. All right.

12 MS. TOWNSEND: And, Chair Mitchell, we
13 would like to have that marked as AGO
14 Wells/Williams Rebuttal Cross Examination Exhibit
15 Number 2, please.

16 CHAIR MITCHELL: All right. The
17 document will be marked AGO Wells/Williams Cross --
18 Rebuttal Cross Examination Exhibit Number 2.

19 MS. TOWNSEND: Thank you.

20 (AGO Wells/Williams Rebuttal Cross
21 Examination Exhibit Number 2 was marked
22 for identification.)

23 Q. And if you will look at the second
24 paragraph -- you're more than welcome to read the whole

1 letter if you want. I don't think it's necessary, but
2 that's your call. But if you'll look at the second
3 paragraph of the letter, it says:

4 "At this time, the section was to only
5 address whether or not the 2L standards are being
6 exceeded at the compliance boundary. If, indeed, it's
7 found that the landfill does cause an exceedance of the
8 2L standards, then the landfill will need to be
9 closed."

10 Is that what it says?

11 A. Yes, you've read it accurately.

12 Q. Okay. And then it goes into -- the third
13 paragraph talks about -- starting with the 2L standard,
14 which is the fourth -- in the fourth line there. Do
15 you see where I am? Okay.

16 "The 2L standard has been exceeded at well
17 MW3 for manganese and for pH consistently, according to
18 our records. The manganese has been recorded at three
19 times the 2L standard and seems to be increasing over
20 time."

21 Is that accurate?

22 A. Yes, you read that accurately.

23 Q. Okay. Then, at the very last paragraph, it
24 says:

1 "The intent of this letter is to make clear
2 some important issues which need immediate attention
3 before a final review of this can be completed."

4 Is that accurate?

5 A. Yes.

6 Q. It appears from this letter from the
7 regulator that they were ready to require closure of a
8 landfill for exceedance at -- exceedances at the
9 landfill, including one well that has exceedances three
10 times the manganese level of the standard for
11 manganese; is that correct?

12 A. Well, I think it would be perhaps more
13 appropriate to ask Mr. Wells about background of this
14 letter since I'm not familiar with the details. But
15 the letter clearly looks like they're at least
16 requesting some additional information and analysis,
17 and have said that it may be necessary to close the
18 landfill as a corrective action in this case, yes. I
19 mean, that's how I'm reading it.

20 Q. Okay. Thank you. And that's all the
21 questions I have. Thank you.

22 CHAIR MITCHELL: All right. Ms. Lee?

23 MS. LEE: Thank you, Chair Mitchell.

24 CROSS EXAMINATION BY MS. LEE:

1 Q. Good afternoon, Mr. Wells and Ms. Williams.
2 My name is Bridget Lee, and I'll be asking questions
3 today on behalf of the Sierra Club. Most of my
4 questions will be for Mr. Wells, and I'll have a few at
5 the end for Ms. Williams.

6 Now, appreciating that we've all been
7 together for some time, I've tried my best to frame my
8 questions to elicit yes or no answers. So if you'll do
9 your best to listen to the question that I ask and to
10 answer directly, I think we'll be able to make sure
11 that we don't need to come back together again
12 tomorrow. Okay?

13 A. (James Wells) Fair enough.

14 Q. Starting with you, Mr. Wells. You testified
15 that, quote:

16 Unlike ash basins or impoundments were the
17 accepted approach employed across the power industry at
18 the times when the basins were built"; is that right?
19 I'm looking at page 11, starting line 9 of your
20 rebuttal.

21 A. (Witness peruses document.)

22 That's correct.

23 Q. Okay. And in the 1980s, weren't some
24 utilities employing dry handling techniques for coal

1 ash?

2 A. 1980s, I believe there were probably some
3 that were -- I mean, there may have been some that went
4 to dry -- I mean, for instance, we went to dry ash
5 handling at Belews in the '80s.

6 Q. Okay.

7 A. We didn't build any basins after '82.

8 Q. Okay. So --

9 A. From there, I think it was a transfer to
10 landfills, and if there were opportunities or other
11 drivers to look at dry fly, I think that was things
12 that were looked at for planning purposes.

13 Q. Thank you. So while unlined ponds might have
14 been more common in the Southeast region, other options
15 were available and being employed in other parts of the
16 country; is that right?

17 A. I mean, I think it -- in other parts of the
18 country, I mean, even within Duke, you know, we
19 employed other options where --

20 Q. Okay.

21 A. -- it was appropriate.

22 Q. Okay. And speaking generally, not getting
23 into dollars and cents here, but would it be cheaper to
24 dump coal ash into a stream valley or other low-lying

1 area on the Company's property rather than build a
2 lined storage unit?

3 A. Well, I don't know what you mean by the term
4 "dump." I don't know what you mean by "stream." I
5 don't know what you mean by "low-lying area." I don't
6 know what you're implying.

7 Q. Okay. So by dump, I mean deposit, take the
8 bottom ash from the bottom of the boiler and sluice it
9 into an area. Stream valley. I believe a number of
10 Duke's power plants are of course located next to lakes
11 and rivers, so many of those properties have
12 tributaries to those lakes and rivers on them. Any of
13 the beds of those tributaries is what I mean by a
14 stream valley or other low-lying area.

15 A. And what's the question?

16 Q. Is it cheaper to put coal ash in those places
17 rather than build a lined storage unit?

18 A. I don't know what the cost in the '50s, or
19 the '60s, or the '70s would have looked like for a
20 comparison of that nature. I do know that the basins,
21 based on the design documents that I've seen, which are
22 published on our website, indicate that these were
23 engineered. They were -- the dams are engineered in a
24 manner to ensure appropriate safety features and that

1 there won't be a release.

2 The -- with respect to a low-lying area, it
3 was, in essence, an area that -- where a dam would have
4 been built near the lake for purposes of sluicing from
5 the boiler to this area to collect. From what I have
6 seen in the drawings, I don't know what they did with
7 respect to the flows, but it appears the flows were
8 redirected to -- out of the -- meaning natural
9 stormwater flows, redirected to ensure that, you know,
10 we weren't flowing into the basin there in a way that
11 would not meet the purposes of the basin, which was to
12 receive the sluiced ash.

13 So the cost of what they did, I would
14 imagine, was not insignificant. But I, obviously,
15 don't know what those costs were. And, you know, the
16 other piece I would add is '50s, '60s concepts of
17 liners, I'm not sure even what that would have looked
18 like. I'm almost sure it wouldn't have been a
19 discussion that even sounded anything like what we
20 would be talking about a liner today.

21 Q. Okay. But the Company did continue to build
22 or to deposit ash in unlined ponds up until the '80s;
23 is that right?

24 A. We continued to operate the basins consistent

1 with the permits that were issued. And -- you know,
2 every five years. And, of course, we also had the
3 additional studies that were progressing with time with
4 the development of this knowledge of what's going on
5 and the additional monitoring. So all of that is
6 playing a part, and in particular with our interaction
7 with the regulator on the things that we're seeing:
8 additional monitoring being added, exchange of
9 information, exchange of data, questions like what you
10 saw with respect to the past exhibit. You know, an
11 exchange between the regulator about what we were
12 seeing, which I think ultimately there it was
13 determined that it was not an issue. But in any event,
14 that was the exchange that went on.

15 Q. Okay. And you mentioned dams being
16 constructed at the Company's ponds.

17 Is it true that those dams were often
18 constructed out of coal ash itself?

19 A. At which facility?

20 Q. At any of the facilities.

21 A. Do you mean at the Duke facilities?

22 Q. Yes.

23 A. I don't -- what I saw from the drawings, it
24 looked to me like it was typically a bottom -- I mean,

Page 60

1 I -- so I just looked at Allen a while back. I'll give
2 you an example. It shows a borrow area in the drawings
3 of where the soil was being borrowed from and
4 creating -- it would have been at least part of what I
5 think was intended for the dam.

6 So my understanding in what I've seen, and I
7 don't -- I -- without -- I'm not -- I am aware that
8 some utilities had times when they expanded used ash in
9 their dams, I don't know that that was a practice at
10 Duke.

11 Q. Okay. And, Mr. Wells, were you present
12 yesterday when my colleague and Ms. Bednarci k were
13 discussing the Company's timeline upon construction?

14 A. So vaguely remember that.

15 Q. Okay. Sure. So Ms. Bednarci k testified that
16 she did not have available to her details about the
17 design or engineering of the basins constructed between
18 1951 and 1972. Do you have details about that design
19 and engineering?

20 A. The details I would have are what are
21 available on the website. That's where I -- that's
22 what I've reviewed.

23 Q. Okay. So no additional homework looking at
24 historical documents, just what was submitted under the

1 CCR rule; is that correct?

2 A. The -- right. Which is the design and
3 construction documents. It's the drawings and relevant
4 documents with respect to how it was built.

5 Q. Okay.

6 A. That's correct.

7 Q. And were you also able to listen to the
8 testimony of Public Staff witness Junis earlier during
9 the hearing?

10 A. Yes.

11 Q. Okay. Did you hear him discuss with
12 Mr. Mehta the DE Progress Sutton site at which a
13 clay-lined pond was constructed in 1984?

14 A. I don't remember that specifically, but I'm
15 aware of that.

16 Q. Okay. And in 1984, constructing ponds with
17 liners was not required by either federal or state law,
18 was it?

19 A. That's correct.

20 Q. Okay. Do you know whether the Company was
21 able to recover the costs of constructing the 1984
22 Sutton pond?

23 A. I don't know the specifics there.

24 Q. Okay.

1 A. There were, though, some specific driver --
2 you're referring to the Sutton '84 pond?

3 Q. That's right.

4 A. There were some drivers there. And one of
5 the things that we've talk about in my testimony is
6 that when we did have -- you know, if you follow the
7 Company's logic on a lot of things. But when there was
8 an indication of a risk or a potential impact that was
9 beyond what we were seeing, we weren't seeing any
10 evidence of significant groundwater impacts or anything
11 that suggested, you know, we were working outside of --
12 we were migrating outside of the immediate vicinity of
13 the basin. At Sutton, that was an exception, which I'm
14 sure we'll discuss on the next case.

15 So there was -- where the Company saw a need
16 for additional action to ensure adequate protection of
17 the public health and environment, it took those steps,
18 and the Sutton '84 liner was --

19 Q. Thank you.

20 MS. LEE: Bless you, Terri. I think
21 you're unmuted.

22 MS. TOWNSEND: Thank you. I just
23 realized that. I apologize.

24 Q. Mr. Wells, you are aware, of course, are you

1 not, of the plea agreement into which the Company
2 entered with the federal government that includes
3 admissions of criminal negligence, violations of the
4 Clean Water Act with respect to coal ash handling?

5 A. The plea agreement, I'm very familiar with.
6 That was --

7 Q. Okay.

8 A. -- part of even my job over the last years,
9 and the -- you know, it was a big part of last case.
10 You know, we talked about it at length. And, you know,
11 obviously, in that case, the witness case, any of those
12 facts are part of -- in terms of the recovery, that's
13 relevant here. But I think what the plea does
14 represent is us very much cooperating with the federal
15 government, working toward resolution, finding some
16 common ground, and establishing a path forward.

17 And, in fact, you know, a lot of the facts,
18 the statement of facts that's been read here, I've read
19 a piece of it I think this morning, it's been read by
20 other witnesses. But, you know, obviously, those facts
21 speak for what they were in that given period of time
22 and aren't representative of the Company as a whole.
23 The Company took responsibility, entered the pleas,
24 cooperated.

Page 64

1 The Commission, in the last case, considered
2 those facts and ultimately, you know, imposed a
3 management plea -- a management penalty, which I think,
4 in part, was based on that. So, you know, I understand
5 that, and also the -- I mean, I would just indicate,
6 you know, we have completed -- you know, that was
7 entered into five years ago, five-plus years ago.
8 We've completed probation, we completed all the
9 obligations there, and really we are in a very good
10 place moving forward here.

11 Q. Okay. Thank you. And understanding that
12 that document speaks for itself, I won't have us go
13 through paragraph by paragraph, but just a couple quick
14 questions about your understanding of it.

15 Is it your understanding that the Company
16 admitted to criminal violations that were not directly
17 related to the Dan River spill?

18 A. Criminal negligence on some other items
19 outside the Dan River spill, itself, that's correct.
20 And, you know, kind of everything we just discussed, in
21 terms of the contents in the past case.

22 Q. Okay. And for those specific actions to
23 which the Company did admit criminal negligence, would
24 you consider those actions consistent with applicable

1 regulatory requirements?

2 A. I -- if you could clarify. What do you mean
3 consistent with applicable requirements?

4 Q. Well, I believe it was -- pull the page in
5 your rebuttal testimony, you testified that DEC has
6 met -- quote:

7 DEC has managed CCR consistent with industry
8 standards and environmental regulations.

9 A. Yes.

10 Q. So even those instances where the Company
11 admitted criminal negligence, that was, in your
12 opinion, consistent with regulatory requirements?

13 A. I think you're referring to the River Bend
14 seep. I mean, perhaps that's what you're referring to.
15 That was one of the items that was included in the
16 statement of facts that supported the plea. And, you
17 know, I think my point here is we have tens of
18 thousands of compliance obligations on this fleet, and
19 with respect to the ash basins that I manage current
20 day. And that's just in a given time period. If you
21 look from the time of inception from the '50s to now, I
22 can't manage the number of compliance missteps that
23 exist.

24 On the whole, over that period, without

1 question, the management of our basins has been very
2 strong, very powerful, consistent with industry
3 standard, consistent with the regs. No doubt there
4 would -- if I looked back, I would find periods of time
5 where we had mishaps, we had instances where we had to
6 adjust. We thought we had it under whatever management
7 system, and then we find we aren't, and we need to make
8 a right adjustment, and that's what was done. So the
9 plea represents that period of time, snapshot in time
10 for that with respect to the entire, you know, 78-year
11 period. I think on the whole we've, I think, performed
12 very well, consistent with regs, consistent with the
13 law, and consistent with the standards.

14 Q. Okay. Thank you for that answer.

15 The Company was aware that unlined ponds had
16 the potential to impact groundwater and surface water
17 back in the '80s; is that right?

18 A. Yes, I think that's correct.

19 Q. Okay. Is it the Company's position that it
20 need only take action to prevent or mitigate impacts to
21 groundwater when those impacts represent significant
22 risk of environmental harm?

23 A. No. I don't think so.

24 Q. Okay.

1 A. I mean, here's why. I think you imply
2 through significant that there's something less than --
3 you know, something you take no action on. The
4 standards are set forth in the reg in terms of
5 standard. There are limits and the compliance
6 boundary. And if we find that we are outside of
7 compliance boundary and above the regs, then no doubt
8 that would drive action toward corrective action,
9 irrespective -- I mean, it's a regulatory requirement,
10 so that's regardless of if that's presenting a risk to
11 the public health. And that's what we're doing today.

12 So there are instances where there's not a
13 significant risk to the public health. Nevertheless,
14 you have a regulatory requirement that you're not
15 meeting, or you're at risk of not meeting. And even if
16 there's no risk to health, even if there's no risk to
17 the surface water, even if it's not hitting any wells,
18 that regulatory requirement to clean up because you're
19 outside that standard, that is something you do and
20 will do. And that's what we're doing now.

21 There are other instances where you may find
22 there is no significant risk of a regulatory risk, and
23 maybe even no significant risk to the public health as
24 you said. But as you review the data and review the

1 facts, there's a potential that could develop. And
2 maybe -- you know, there are instances I could point
3 you to where, as opposed to just investigating and
4 maybe proving a negative, or you may just take the
5 steps. You may support the steps just to provide that
6 certainty for people. Even if you don't believe
7 there's a risk there or you don't anticipate a risk,
8 but it would be an extensive work to demonstrate that.

9 We've done that with respect to waterlines in
10 some instances. You know, the risk isn't there, the
11 evident of an impact isn't there, but there's also an
12 issue there. So even though there's no significant
13 impact there, we're still taking proactive steps to
14 resolve an issue associated with it. We've done that
15 at other facilities in DEP, and we'll talk about it
16 when the time comes. But in any event, there are times
17 that there are so many different, I think, fact
18 patterns that can play, and they all got to be looked
19 at.

20 But on a whole, Duke is looking at meeting
21 regs minimum, then doing whatever else is needed to
22 manage the risk with respect to public health and the
23 environment or regulatory compliance issues. And then,
24 on top of that, you know, asking what is also the right

1 thing. And those are the steps that I saw the Company
2 taking from the '80s up until today.

3 Q. Okay. Thank you for that answer. I think
4 you might have just answered some of my upcoming
5 questions, so I'll just go through them real quick and
6 maybe just give me a quick yes/no.

7 Would you agree, Mr. Wells, that in addition
8 to the abatement of pollution and contamination, the
9 North Carolina 2L rules were also intended to prevent
10 pollution and contamination?

11 A. Well, I think it's as I've discussed. I
12 think it established limits which are performance
13 standard, and then establishes that you cannot conduct
14 an activity that would cause an exceedance of
15 constituents above the 2L concentrations outside the
16 compliance boundary. So, I mean, it's -- so it's
17 setting up that performance standard with an eye toward
18 things. Particularly if you were going to design a
19 basin today, a lot of requirements would be built in
20 into your -- even into your design, into the way you
21 engineer it with an eye toward ensuring you will meet
22 that performance standard in the coming years.

23 Q. Okay. And would you agree that those 2L
24 rules are also intended to maintain and preserve water

1 qual i ty?

2 A. I mean, the purpose of the 2L rules is to
3 ensure -- I mean, they're established there for all the
4 reasons that I think we've reviewed with respect to the
5 2L.

6 Q. Okay.

7 A. The language wi thi n the rule.

8 Q. Okay. Shifting gears a little bit, have you
9 evaluated whether any groundwater impacts could have
10 been avoided or mitigated if the Company had ended its
11 storage of coal ash in wet ponds earlier?

12 A. Well, I mean, I think the first thing to make
13 sure you understand what you're talking about with
14 respect to storage of -- I think you said coal ash in
15 impoundments earlier, what that means, what that takes.
16 So you would -- these are all permitted for a number of
17 waste streams. Not just ash. And with respect to ash,
18 not just dry ash. It includes bottom ash. So all of
19 these are very big propositions that you're talking
20 about. So if you do make that conversion, you have to
21 find real estate for another retention basin to receive
22 these wastewaters. There's a large volume of water.

23 You have to convert to dry fly. You have to
24 convert to dry bottom. You have to divert all the

1 stormwater that flows that -- you know, there are sheet
2 flows still going in just as a result of the terrain.
3 Have you to find a way to divert that. You have to
4 establish alternative wastewater treatment systems that
5 don't exist, and build those in to manage the
6 additional wastewaters that are going in. I think
7 you're familiar with the low volume waste and other
8 things of that nature.

9 So once you build all that, then now you may
10 be in a position to move toward no longer sluicing to
11 the basin. And you may be able to move the basin
12 toward closure. And as you do that, you then look at
13 the groundwater, and whatever is there even at closure
14 is still there. So now you still have, at that time,
15 after you go through that action, you still have that
16 groundwater impact. And you still have whatever action
17 is needed at that time to remediate pursuant to the 2L
18 standard, which is where we're at today.

19 Q. The sooner you close, the fewer coal ash
20 constituents will enter the groundwater, right?

21 A. You know, not necessarily. And I say that
22 because -- and this is, I think, a bit of discussion.
23 Isn't this plume just growing? And I've indicated it's
24 not. And I say that because we've done model after

1 model. I mean, I have models submitted to the state,
2 very sophisticated groundwater models, and if I could
3 simplify it, if you were to look at the site, look at a
4 basin, you would see a plume, a yellow picture around
5 the basin where we have impacts. And in some areas it
6 exceeds -- you know, it's outside of the 500-foot
7 compliance boundary, which is those in the areas we're
8 moving toward corrective action.

9 But that is a very -- if you model that, five
10 years, 10 years, no action, meaning it just would
11 continue on, it looks the same. If you do it with
12 closure in place, closure through excavation, this
13 looks the same. It's when you move in and do that
14 corrective action that you -- I mean, not the exact
15 same. It begins to reduce over time. Let's say
16 50 years out you begin to -- but not in a substantial
17 way, right? Where you see the action is when you get
18 in there and do corrective action on the groundwater,
19 itself.

20 So depending on what the state of the impact
21 is at that time to restore all that at that time, which
22 could have been the '80s, '90s if that's that what
23 you're referring to, you would still be going in and
24 doing that level of effort to remove that groundwater.

1 Q. Okay.

2 A. Make Sense?

3 Q. Oh, sorry. Please finish.

4 A. I just -- I was asking if that was making
5 sense or not.

6 Q. It does make sense. But just to go back to
7 my original question of whether anyone has evaluated
8 that.

9 I guess from your answer I'm understanding
10 you describing that evaluation maybe as difficult, but
11 has anyone actually tried to conduct it?

12 A. Conduct specifically --

13 Q. Evaluating whether groundwater impacts, there
14 were any that could have been avoided or mitigated if
15 the Company had switched to dry handling sooner.

16 A. Well, I think that -- I mean, I think the
17 model here is that you have a groundwater impact at or
18 near the basin. And that that's -- as it flows away
19 from the basin, it's attenuated with the soil. So, I
20 mean, that was sort of what the premise of the
21 understanding of the '80s was. And that's -- you know,
22 we do see that that's still the case. You know, there
23 is attenuation going on. But now you do see the plume
24 where it is. We have much more -- wells studied. What

1 existed in the '90s, specifically to that, we didn't
2 have as -- what I would consider to be the same level
3 of monitoring that would present that picture to us.
4 So what was it back then, I don't know.

5 There were certainly impacts to the -- to
6 the -- at the basin early, it's just they weren't
7 expanding or migrating. I mean, when I say early,
8 meaning when we were looking in the '80s, that's what
9 you saw, right? You saw -- I mean, you guys -- I think
10 some of, you know, Hart knows and cited some wells
11 there that were inside the basin that indicated there
12 was groundwater impacts there.

13 But, you know, the question is was it
14 migrating. I think you'd have to understand when that
15 occurred, and I -- in the end of the day, I don't
16 believe that -- I think your corrective action would
17 have -- it would have looked similar in different time
18 frame. But to have been doing work to restore the
19 groundwater and gone in and done it. I don't believe
20 there's, like, it's worse, or it would have been worse
21 if we -- or less worse -- it would have been better if
22 we'd have moved earlier. I don't know that there's any
23 evidence to support that.

24 I just don't know. What we see today is, you

1 know, that impacted area is still at the basin and
2 still attenuates as it goes, but it is outside the
3 compliance boundary and warrants corrective action.

4 Q. Okay. Let me ask a slightly different
5 question.

6 Have you analyzed whether an earlier shift to
7 dry handling would have resulted in different closure
8 costs today?

9 A. I have not looked at --

10 Q. Has anyone at the Company?

11 A. I don't know. I don't know the answer to
12 that. Now, I mean, I would assume, if you had to look
13 at all that, you'd have to -- you have to look at all
14 the factors, right? I mean, running dry fly, now you
15 got to have landfills, and you got operating costs over
16 the time from that, in addition to just the capital
17 shift to go to dry fly. I mean, I'm sure there are
18 just many factors that, you know, both capital and O&M
19 versus -- it would be a part of that analysis, but --
20 and then anything that would suggest how that affects
21 closure, I think, would just be incredibly speculative.

22 Q. Okay.

23 A. Because the basins predated all of this, and
24 I think there's -- I mean, I think your organization,

1 for instance, has taken a very strong position that
2 those basins that -- where there's any groundwater
3 potentially flowing in a way that it might be impacted,
4 their only option is to excavate. And that -- so we
5 could have converted to dry fly in all sites in the
6 '80s, and that still wouldn't -- what I understood the
7 Sierra Club's position, still would have required the
8 level of closure we're looking at today.

9 Q. Okay. And an earlier switch to dry handling
10 of bottom ash would mean fewer tons in the ponds today,
11 would it not?

12 A. The -- remember the way that basins worked is
13 you -- ash was sluiced there, and then at times it was
14 dredged out. So what's the total -- you know, at times
15 things, I think, were dredged, or moved, or managed
16 differently, but -- so I can't say across the board
17 that's true.

18 Q. Understood. And between the prior rate case
19 and this one, the Company was ordered to excavate all
20 the ash from its ponds and has since agreed to do -- to
21 excavate most of the ash; is that right?

22 A. That's correct.

23 Q. Okay. And the excavation costs can be
24 measured in dollars per ton; is that right?

1 A. I think there are a lot of factors that drive
2 the costs, but I think there are some generalities
3 around, you know, cost per ton or cost per cubic foot
4 with respect to excavation. I think that's right.

5 Q. Okay. Thank you so much, Mr. Wells. Those
6 are all my questions for you. And now I just have a
7 few more for Ms. Williams.

8 A. (Marcia E. Williams) I wonder if before
9 you begin your questions, I just have a handful of
10 small points I wanted to supplement with what Mr. Wells
11 was saying on some of the questions you asked him. I
12 mean, they go to the topics you were asking him, so.

13 Q. I mean, you know what, if Duke counsel would
14 like to ask you those questions on redirect to clarify
15 for him --

16 MR. MARZO: Chair --

17 Q. -- I'm happy with the answers that Mr. Wells
18 has given to my questions, and they were directed
19 towards him.

20 MR. MARZO: Chair Mitchell, we typically
21 allow, when there are panels, for the other panel
22 member, if they have some information to provide,
23 to provide it. And Ms. Williams seems to have some
24 information that would be responsive to the

1 question. I just ask that she be allowed to
2 provide and summarize it now.

3 CHAIR MITCHELL: All right.

4 Ms. Williams, Mr. Wells, I would ask that, if
5 counsel asks the panel a question or asks a witness
6 a question that you feel you're better suited to
7 answer or you have something of material value to
8 add to your panelist's -- your co-panelist's
9 response, please do so at the time the question is
10 asked, just in the interests of facilitating,
11 understanding, and a clear record. And again,
12 hearing -- making the most efficient use of our
13 hearing time.

14 Ms. Williams, I'll allow you to proceed
15 and make the points that you need to make in
16 response to the questions that Ms. Lee has asked,
17 but I would ask -- just ask that you do so, please,
18 ma'am, in an efficient manner so that Ms. Lee can
19 get to the remainder of her questions and we can
20 move on with the hearing. Thank you.

21 THE WITNESS: I will. I apologize. I
22 thought about trying to intervene, but the question
23 flow was going so quickly, I thought it was better
24 to let it finish. I just have a handful of things

1 that I thought might be helpful.

2 One, the trend towards dry fly ash that
3 has been discussed here and was originally
4 discussed in the EPRI manual was largely because
5 EPA made a determination in 1982 that for new --
6 for new facilities, dry ash management was
7 necessary for fly ash, not for bottom ash. So that
8 was kind of what was driving that trend initially
9 in the early years. And because it was limited to
10 fly ash, even for new facilities that might have
11 gone to dry fly ash handling, they would still have
12 had to deal with wet bottom ash handling because
13 the technology was not evolved at the same time.

14 The second point I wanted to make is the
15 switch to landfills, which would have gone with dry
16 fly ash, would most likely, in that time frame,
17 have gone to unlined landfills, because at that
18 time there were not a lot of lined landfills being
19 built and operated. And, in fact, again, when EPA
20 looked in 1986, only 12.5 percent of industrial
21 landfills of any type were lined. So for the most
22 part, they were unlined.

23 And then the third point I was going to
24 mention is that you had asked a number of questions

1 about cost, Ms. Lee, in terms of the difference
2 between lined and unlined units, both lined and
3 unlined impoundments, and lined and unlined
4 landfills. And I was just going to point out that,
5 in the 1988 EPA report to Congress, as of that
6 date, there's a fair amount of information provided
7 with regard to cost -- information cost per ton.
8 And a lot of these are overlapping ranges, so you
9 can't really say that the cost per ton is
10 necessarily less expensive for an unlined unit or
11 for a landfill versus a surface impoundment. So
12 it's just Exhibit 6.6 in that document, and it is a
13 joint exhibit, and it does provide a number of the
14 costs. So that's all I wanted to supplement.

15 Q. Thank you for that. Moving on, I use a sort
16 of intro, but now that we've begun, I apologize for the
17 out of orderness of this.

18 But, Ms. Williams, you've never been employed
19 by Duke Energy, correct?

20 A. That is correct.

21 Q. Okay. And for the last 30 years, you've been
22 acting as a consultant primarily, correct?

23 A. Yes.

24 Q. Okay. Could you please turn to your résumé,

Page 81

1 and that is Exhibit 1 of Williams' rebuttal. Just let
2 me know when you're there.

3 A. (Witness peruses document.)

4 Okay.

5 Q. Okay. I see you included a list of
6 proceedings in which you've offered expert testimony,
7 correct? It starts on page 8 of the résumé.

8 A. Yes.

9 Q. Okay. And it's a pretty long list. It
10 starts at page 8 and continues to page 12, and we
11 certainly don't need to talk through each of these, but
12 I did just want to ask you a very few questions about a
13 couple.

14 I'm looking at page 9 of the résumé, and the
15 fourth bullet from the bottom of the page identifies a
16 2003 Colorado case, Carol Antolovich vs. Brown Group
17 Retail; do you see that?

18 A. I do.

19 Q. Okay. This was a class action suit brought
20 by homeowners who live near a chemical storage facility
21 and where toxic chemicals were found in plaintiff's
22 groundwater, soil, and in the indoor air of their
23 homes, correct?

24 A. It was a manufacturing facility, it wasn't --

Page 82

1 I mean, I don't know what you mean by chemical storage
2 facility, but it was a manufacturing facility.

3 Q. Were they storing chemicals on site?

4 A. Yes. They used chemicals on site. I don't
5 recall -- I don't recall that there was any
6 landfiling, but I think there was chemicals on site.

7 Q. Okay. Sure. And on whose behalf did you
8 offer testimony in that case?

9 A. I offered testimony on behalf of Brown Group
10 Retail.

11 Q. Okay. And that is the owner of the
12 manufacturing facility or the owner of the property?

13 A. Yes.

14 Q. Okay. Looking at the next page, this is
15 page 10 of the exhibit, the fourth bullet identifies a
16 2007 West Virginia case, Perrine vs. DuPont; do you see
17 that one, Ms. Williams?

18 A. Yes.

19 Q. This was also a class action, and it dealt
20 with homeowners' exposure to hazardous substances
21 released by DuPont from a zinc smelter in
22 West Virginia; does that sound about right?

23 A. That's my memory, yes.

24 Q. Okay. And --

1 A. At this point I don't have an -- I don't have
2 a -- there were a couple different related cases. I
3 don't have a completely distinct memory of the details
4 of those issues.

5 Q. Okay. This case is probably close to
6 20 years more recent than your work at EPA, though,
7 right?

8 A. Yes. I left EPA in 1988.

9 Q. Okay. And on whose behalf did you offer
10 testimony in the DuPont case?

11 A. My testimony was on behalf of DuPont.

12 Q. Okay. Thank you. And if we could turn to
13 the next page, this is page 11 of the exhibit. I'm
14 looking at the first bullet on that page which
15 identifies a 2010 Florida case, Nancy Sher vs. Raytheon
16 Company; do you see that one?

17 A. Yes.

18 Q. Okay. I believe this was another class
19 action brought by homeowners in Florida against
20 Raytheon for groundwater contamination emanating from
21 that company's storage of hazardous wastes; is that
22 correct?

23 A. The case -- as all these cases, in terms of
24 what I'm asked to testify on, is the evolution of

1 knowledge as to when certain practices were understood
2 to be related to groundwater contamination and other
3 standard of care or standard of practice issues.

4 Q. Okay. But -- sorry, just for the clarity of
5 the record, if you could answer my question.

6 Was this case about groundwater contamination
7 emanating from Raytheon's storage of hazardous waste?

8 MR. MARZO: Madam Chair, I'm going to
9 object just to relevance of this line of cross.
10 It's late in the day.

11 MS. LEE: Chair Mitchell, I am almost
12 done. And I believe this is quite relevant. The
13 Company has offered Ms. Williams as an expert on
14 environmental regulatory matters, and has directly
15 pointed to her consultant years.

16 CHAIR MITCHELL: All right. Ms. Lee,
17 I'm going to overrule the objection. Proceed with
18 the questions, the witness may answer it.

19 THE WITNESS: The issue involved with
20 the Raytheon case was a contaminant called
21 1,4-dioxane, which was a new contaminant that
22 hadn't been recognized until roughly in the time
23 frame of this case, and that's what this case was
24 dealing with. I would like to put on the record

1 that I have worked for many entities on both sides
2 of most issues -- most of these kinds of issues,
3 including environmental groups and homeowners. So
4 I don't think -- you're welcome to, obviously,
5 highlight the cases you want, but I have worked for
6 the government of the United States, the government
7 of Mexico, the government of Canada, and for
8 plaintiffs in suits.

9 Q. On this list of testimony, can you point to
10 any plaintiffs work you did?

11 A. Well, I've got -- a lot of what's on here is
12 plaintiffs work, but it's not plaintiffs work if you're
13 talking about neighbors. But yes, I -- the plaintiffs
14 work that I've done on behalf of -- well, one was
15 involving the port of Houston against a bunch of
16 chemical facilities. And once that I've done for
17 neighbors have generally settled before they've gotten
18 to either deposition or trial.

19 Q. I see. Okay. Last one. I'm looking at the
20 sixth bullet on the page we're looking at now, which
21 identifies a New York case, Doris Bai ty vs. General
22 Electric; do you see that, Ms. Williams?

23 A. Yes.

24 Q. Okay. I believe this was another toxic tort

1 class action brought by homeowners, this time against
2 GE for contamination emanating from waste disposal
3 activities. Does that sound about right?

4 A. The answer is it did involve that. But what
5 I -- as I recall, the issues were narrower than that in
6 terms of at least what I was dealing with. And at this
7 point, as I said, I can't --

8 Q. Okay.

9 A. -- give you the detailed discussion.

10 Q. Fair enough. Companies like DuPont, and
11 Raytheon, and GE wouldn't hire a consultant who might
12 conclude that their actions resulted in contamination
13 of environmental harm or who disagree with their
14 perspective on regulatory requirements, would they?

15 A. My testimony --

16 MR. MARZO: I'm going to object. Well,
17 I'll let Ms. Williams answer, but that calls for
18 speculation as to what DuPont would do and not do,
19 and they're not here testifying.

20 MS. LEE: That's fine. I'll withdraw
21 the question. I have nothing further,
22 Chair Mitchell. Thank you for your time,
23 Ms. Williams and Mr. Wells.

24 CHAIR MITCHELL: All right. We had

Page 87

1 originally -- we were originally scheduled to end
2 at 4:30 today. We are close to 4:30. We have a
3 ways to go before we can -- we are in a position to
4 conclude the hearing. What I would like to do at
5 this point is take a break for our court reporter.
6 Let's take a 10-minute break. We will come back on
7 the record, and I would like to take us until 5:30
8 today. That should give us plenty of time to
9 finish up the remaining portions of this hearing.
10 But again, let's go off the record now. We will go
11 back on at 4:20.

12 (At this time, a recess was taken from
13 4:08 p.m. to 4:20 p.m.)

14 CHAIR MITCHELL: All right. Let's go
15 back on the record, please. Mr. Marzo, you're up
16 on redirect.

17 MR. MARZO: Chair Mitchell, I have no
18 redirect. I do want to let the Chair know, and I
19 know you mentioned a moment ago that you were
20 extending the hearing, that we have talked to the
21 witnesses, and they are here as long as the
22 Commission's pleasure is to question them.

23 CHAIR MITCHELL: All right. Thank you,
24 sir. All right.

1 We will move to questions by the
2 Commi ssi oners, begi nni ng wi th
3 Commi ssi oner Brown-Bland.

4 EXAMI NATION BY COMMI SSI ONER BROWN-BLAND:

5 Q. Good afternoon. And I think my questions
6 will start and be directed towards witness Wells.

7 A. (James Wells) Yes, ma'am.

8 Q. So just for my curiosity, as I believe the
9 first of these storage basins, I believe the
10 evidence is Duke constructed the first one in 1956.

11 And my question is, so between 1956 and, say,
12 1975, was there ever -- to your knowledge, in terms of
13 what you've reviewed, was there ever discussions about
14 whether there was any reason or value to dig up the
15 unlined basins and handle CCRs in a different manner?

16 A. There was not. Nothing that I've seen.

17 Q. And then if you break that up and say between
18 1975 and 2000, was there ever any discussion amongst
19 the folks at the Company as to any possibility of
20 digging up the storage ponds, impoundments?

21 A. I did not see anything specific to digging
22 up. I do recall seeing documents that discussed -- I
23 mean, I'll give you an example. I saw -- I recall in a
24 discussion about conversion and dry fly at Marshall

1 based on a commercial opportunity to recycle ash. So
2 I've seen things that look like that. Nothing that
3 would have been as specific as an analysis to excavate
4 a basin during that time period.

5 And I did see -- of course, post 2000 I saw
6 planning documents that I think we've talked about in a
7 case before, so I do recall seeing those as well.

8 Q. And so prior to 2000, as far as you know,
9 there was never, you know, any real thought given to
10 digging up a storage basin?

11 A. Well, I don't know -- I don't know that there
12 was a discussion about closure, generally, that I've
13 seen, and what that would entail, and what those
14 options would be. I don't know that there was
15 discussions along those lines. There was the concept
16 of taking a basin inactive, I believe, is more in line
17 of what that discussion or thought process was.

18 Inactive, meaning no longer sluicing to it. And
19 normally what that meant, at that time, was to allow it
20 to dewater and revegetate and no further action until
21 such time as closure -- there was clarity around
22 closure, which you start seeing in the 2002. 2010, you
23 know, once we got into the modern days is when you
24 start seeing some of that.

1 Q. When was the first time that you know of that
2 seriously considering digging up one of the basins or
3 ponds came up?

4 A. Well, I think from the time that closure was
5 beginning to get discussed in its -- in a way that
6 it -- there was real guidance and standards being
7 established. So you're into the, you know, development
8 of the CCR and into the modern days. I think when that
9 started, then the dialogue around, okay, does that --
10 what does that mean, closure. And in some instances
11 does it mean excavate; does it mean cap in place; does
12 it mean hybrid approaches? That's where all those, I
13 think, different options starting being looked at.

14 I believe from inception of that discussion,
15 there was a camp that viewed excavation as the
16 preferred option. Meaning camp, meaning there were
17 folks that that would have been their approach from the
18 beginning of that dialogue.

19 Q. All right. And then with regard to your
20 direct testimony and, you know, the testimony you've
21 given live today, is it your testimony and opinion that
22 it would not have been reasonable for Duke to believe
23 that the basins and ponds with CCRs in them would pose
24 any health or environmental harm at any point?

1 A. I think I need to -- I'm sorry, I had trouble
2 following that. Would it have been -- can you restate?
3 I'm sorry.

4 Q. In your opinion, is it -- are you saying that
5 it would not have been reasonable for Duke to believe,
6 at any point, that the basins and ponds would pose any
7 health or environmental harm?

8 A. I think my opinion was focused on the data
9 that was -- that -- what the data was telling the Duke
10 people with respect to decisions. And the fact that
11 the data was not indicating a risk to the public health
12 based on what they were evaluating, the analysis that
13 were done at that point. So there -- I was saying it
14 was reasonable, in my mind, that they would not be
15 seeing that based on the data this was in front of
16 them.

17 Q. And was it reasonable that -- to believe
18 that -- or did it -- or would it have not have been
19 reasonable to believe that the basins or ponds would
20 have leakages or seepage?

21 A. No. I think they did believe that the pond
22 was permeating through the bottom of the basin and
23 having a localized impact to the groundwater in or
24 around the vicinity of the basin. I think that --

1 that -- but the point was that that is an impact. I
2 mean, by definition, you're impacting the groundwater.
3 But there -- but that doesn't imply or doesn't mean
4 harm. That doesn't mean risk to the public health in
5 and of itself. It's meaning risk to the public health
6 in terms of the drinking water receptor or to a surface
7 water. And I think, in the '80s, that's what they were
8 evaluating.

9 So I think it was reasonable. I think what I
10 saw is they were concluding there was an impact, it was
11 localized, but it -- so it would have been -- I guess
12 to answer your question, it would have been reasonable.
13 And I think they did reasonably conclude that there was
14 some water from the basin that is permeating through
15 the surrounding soils in the immediate vicinity. But
16 any of the -- but they also went on to understand --
17 and what does that mean with respect to risk to public
18 health or the environment? And that's -- I think that
19 was the analysis that was ongoing.

20 Q. As opposed, I guess, from your testimony to
21 believing that there was a potential -- potential for
22 impact versus a likelihood of risk. And I guess that's
23 why I'm asking, would sort of the inverse be true, that
24 it would not have been reasonable for the Company to

Page 93

1 believe -- are you saying the Company would have been
2 unreasonable in any belief that -- or any camp that
3 might have believed that the ponds would have caused
4 harm or would have leaked; is that what you mean by
5 impact?

6 A. Well, I think I was more indicating what
7 was -- what ended up being -- I mean, what was evident
8 from what the thinking was of the Company at the time
9 based on those studies and finding those reasonable. I
10 didn't see an alternative opinion. And my view on that
11 is, you know, I believe there would have been, you
12 know, some good analysis of the data, and ultimately a
13 decision going forward after that full analysis. And
14 so -- and again, I've already indicated, you kind of
15 view that holistically. There are a lot of factors
16 that come into play. By my indication, that's the
17 analysis, and I thought that was reasonable.

18 Q. So even as far back as 1996, having
19 groundwater samples in hand that show the presence of
20 CCRs related to contamination and possible seepages and
21 exceedance at Allen, Belews Creek, Dan River, Marshall,
22 and Lee, even having that made the -- made the
23 potential that you talk about in your testimony
24 significant enough that the Company put its

1 insurance -- insurer on notice of potential
2 environmental claims.

3 Do you agree with that?

4 A. They did. And you know, Commissioner, I
5 understand again, they were citing to those impacts
6 that I'm talking about. Impacts at the basin. And
7 then the next question is, is it creating a regulatory
8 issue with respect to a potential for migration beyond
9 the basin that could ultimately lead to a cleanup or
10 corrective action obligation. And I -- so I did read
11 that as providing the insurers on notice that we have
12 this. And there is some potential and we don't know,
13 and they need to file something because they're
14 solving -- they're settling a case or moving a case, a
15 different case, different set of facts, but absent
16 mentioning this now, which there is this potential --
17 there's a potential, then you could forego your rights,
18 right? So there has to be some reservation of rights,
19 so let's make sure we bring that in as we bring this
20 claim. Otherwise, we may be construed as waiving it.

21 But I didn't see they had evidence in front
22 of them suggesting there was anything what they --
23 different from what they were already seeing, which was
24 that localized impact, but not suggesting that this is

1 something that's migrating or creating a risk to the
2 public health.

3 Q. And you -- when you say impact or potential
4 for impact, it seems to me that the testimony was
5 driving at, and maybe I was reading this wrong, but it
6 was driving at that that potential for impact was
7 insignificant?

8 A. No. I just wanted to be clear what -- terms,
9 you know, can mean a lot of things. And, you know,
10 impacts -- you know, imagine any -- anything from the
11 basin that reaches groundwater is an impact. I mean,
12 it's just -- it could be directly beneath the basin.
13 And then before that impacted area migrates any further
14 where it would present a risk, say, to a surface water
15 1,000 feet away or a drinking water well in the event
16 that were in the path, if it attenuates, then we're --
17 while there was an impact, that impact does not appear
18 to be presenting a risk.

19 So wouldn't downplay the impact, but I would
20 be -- you know, what I am referring to is impact
21 doesn't mean either; one, harm, or risk to public
22 health in terms of receptors or surface water bodies in
23 the ecosystem as a whole; or two, a regulatory risk.

24 So in this sense, it's the fact that you may

Page 96

1 have impact beneath the basin, if you have a compliance
2 boundary, your regulatory compliance is 500 feet out.
3 So it's not insignificant, but it's a consideration,
4 and then that leads to additional considerations as to
5 what that additional risk looks like and whether
6 there's additional action warranted based on what
7 you're seeing.

8 Q. All right. Would you agree or disagree that
9 the General Assembly required the Company to excavate
10 and move the CCRs from Dan River and River Bend into
11 lined basins based on a potential for impact resulting
12 from having the CCRs in the unlined basins?

13 A. I don't know the specific basis Dan River --
14 and I agree River Bend and Dan River were considered
15 sites that had to be excavated and placed in a lined --
16 what I would refer to as a modern some type of D-type
17 landfill requirements with liners. So there was a
18 requirement to dig and replace. Now, the basis for
19 that, I don't know. I do know they were located near
20 water bodies, and, you know, I do recall at the time
21 some consideration of concepts of, you know, being near
22 a water body presents a risk, similar to Dan River was
23 near the water body and resulted in a release.
24 Anything that's -- you know, if we're near the water

1 body, that's risk in and of itself in the event, for
2 instance, a dam were to fail or something to that
3 effect.

4 Q. So I'm trying to explore what it is you mean
5 for us to get out of your language there that a
6 potential impact versus a likelihood of significant
7 harm. Seems that, if it's a potential, you somehow
8 think that should curb what the Company might do to
9 rectify the situation?

10 A. No. I think that, if there's a potential,
11 then that is what the Company would evaluate to
12 understand whether they're realizing that risk. And
13 what I was referring to with the potential and the
14 significance of that is I've read the historical
15 documents. The '70s documents, and this is, you know,
16 Aragon, Los Alamos, others in that era, they speak to
17 these concepts of -- at a national level wastewater
18 treatment units like these are presenting a risk.
19 There is some potential for groundwater impacts. And
20 then the Company says, okay, we have a potential. I
21 think the Companies recognize that, and that's why they
22 initiated the analysis in 70 days of Allen. And I
23 think that's why they initiated the work with
24 A. D. Little. I mean, cooperated with the work with

1 A. D. Little. That was an EPA study.

2 And I think that's why they did the leachate
3 studies at all the sites. I think they were beginning
4 to say let's understand if this potential is real at
5 our sites. Because the guidance says this could be a
6 potential for your site, and you should consider it,
7 you know, that -- so that to me is what I was referring
8 to as potential. And the next steps are what the
9 Company did in the '80s based on that. And then they
10 realized, I mean, I think the data there was indicated
11 that there was an impact at the groundwater.

12 So there's potential, so we did the study.
13 We found localized in the vicinity of the basin, the
14 impact is showing. They asked is it migrating. So I
15 think the next step is, remember, you've got --
16 North Carolina today and, you know, is built around
17 this concept that you've got a basin and a compliance
18 boundary. So there's an anticipated and authorized
19 impact in this area.

20 So now you got -- you go back to this
21 analysis in the '80s, it's indicating there's an
22 impact, but it's in the localized area, so they're
23 asking is it migrating. And that was the conclusion,
24 which is saying you've got it here, but there's no

Page 99

1 indication of migration, and we believe that it's not
2 migrating because of this attenuation. And they go
3 into a lot of discussion about how things were
4 attenuating before they go. And then predicting, you
5 know, future migration in the coming decades. Draw
6 some conclusions with respect to arsenic.

7 So that was where I was referring to is, you
8 know, potential analyzed to understand and then finding
9 yes, impact, now what does this mean in terms of
10 potential harm. Harm meaning impacts to the surface
11 water, to receptors, and then that regulatory risk.
12 You know, irrespective that, the compliance obligation
13 and the compliance boundary.

14 So that evaluation would support that that
15 was not -- those points weren't at risk. And then,
16 subsequently, similar concepts, similar, I think,
17 analysis in following that type of logic.

18 Q. But you think, based on your knowledge, that
19 DEQ's order of excavation at Allen, I think Belows,
20 Cliffside, and Marshall, that they would have ordered
21 that based on a likelihood of a significant risk, or do
22 you think it was merely on the potential for impact
23 that you discuss?

24 A. I think the order -- you know, I think it was

Page 100

1 largely based on the idea that they viewed it as more
2 protective than a cap. There were just a lot of, I
3 think, comments from the public and, you know, at
4 the -- probably at the regulatory level, discussion
5 around a solution that was more protective than a cap.
6 And, ultimately, they believed excavation was that
7 solution.

8 Q. More protective based on --

9 A. I think it's any --

10 Q. -- impact or based on a likelihood of risk?

11 A. Right. I think -- I mean, I think you just
12 have to look at what was there. I mean, the
13 groundwater data was in front of them at that time,
14 exactly what we have. And you recognize what we have
15 there is impacted area at the basin, and in some areas
16 exceeding at the compliance boundary. You know, the
17 point was outside the compliance boundary, which means
18 that that activity is violating the 2L standards at
19 that point, and they're evaluating that. Now, with
20 respect to modeling of that plume, it's not indicating
21 that it's creating a public health risk. You know,
22 that it's not indicating that it's hitting surface
23 waters or that it's in a way that is impactful, meaning
24 create -- you know, having an impact on ecosystem or

1 water quality standards.

2 Nevertheless, it's there. From a regulatory
3 standpoint, there's an action required. So I think
4 they're evaluating that they have the groundwater, so
5 they know, and at the same time they've also, at this
6 point -- you know, the other question would be, well,
7 is there a receptor at risk. That would be a big deal
8 if we thought there was potential that impact could
9 begin to affect a receptor in terms of a drinking water
10 well. And the data, again, indicated to them that
11 that's not existing.

12 But, you know, I think ultimately they're
13 looking at this and saying, look, this is an old basin,
14 it does have these impacted areas, there are -- it is
15 ash, there is a river nearby, there are -- you know, it
16 is a dam. So risk isn't zero, regardless of what you
17 do here. So they chose to go the more protective path
18 given all of those risks. And, I mean, that's my view
19 of the decision point.

20 Q. But on the risk scale, I think in terms of
21 your rebuttal of some of the other witnesses: Junis,
22 Quarles, Hart -- on the risk scale, I read the
23 testimony and the use of the potential for impact to
24 suggest that wasn't enough to have the Company to act

1 on; is that what you're trying -- is that your
2 testimony?

3 A. No, no. I think the potential required
4 acting to understand that potential and determine if it
5 was, in fact, an issue. But then you have to do the
6 look-back to understand, well, what's that mean in that
7 era. So the way I might look at it today is different,
8 say, in 2020, you know, with the CCR rule, et cetera.
9 I may look at that -- and public understanding of
10 groundwater and what all that means, certainly would be
11 different.

12 But if you were to evaluate in a 1980s -- if
13 you could do that, then you put yourself in those shoes
14 and say there's a potential, then what action's
15 warranted. And that's where I see that very proactive
16 voluntary action at Allen is telling in the sense that
17 they're evaluating that potential. And then they're
18 drawing conclusions based on very, you know, scientific
19 data and real data, not just speculation, and using
20 that to drive decisions.

21 So I saw that as reasonable understanding of
22 trying to evaluate the potential. And then finding
23 some impact, but then trying to determine, now, does
24 that mean -- what does that mean with respect to our

1 risk and an obligation from either a regulatory
2 perspective or a risk to the public health, which would
3 be something we would want to act on very quickly.

4 So I think I was saying potential is can
5 drive action, and I think they did here, and the
6 action, as I saw it, was very appropriate for where
7 they landed.

8 Q. So you mentioned the Little report, and as I
9 understand it, Allen was used -- and the studies from
10 Allen were used as part of that Little report?

11 A. That's correct.

12 Q. Do you know why Allen was a chosen location
13 to assist with that report? Was that by Duke's choice,
14 or the folks who were in charge of the study, did they
15 request Allen? How did it come to be Allen?

16 A. I don't know the specifics. I know -- I
17 mean, on the face of the document, it indicates Allen
18 was the chosen site because they felt that it was
19 reflective of a common wastewater treatment unit, in
20 terms of what was in there, and how it was managed, and
21 what the waste streams were, and the fact that it was
22 located in the Piedmont region. So they felt it was
23 representative of a lot of the basins in the Southeast
24 along this -- you know, there were a lot of basins in

1 the Southeast and a lot of them in the Piedmont region.

2 So I think from the contract -- EPA contract
3 perspective, they thought it was a really good site to
4 bring a lot of information that would then be useful
5 for a broader analysis or conclusions based on what
6 they were seeing. So I think it fit well with a
7 representative site for them, for a good portion of the
8 industry.

9 And then I think, two, what I've typically
10 seen with these -- some of these studies is that
11 there's Duke involvement in the sense that -- I mean,
12 Duke volunteers and works with the study in order to
13 provide access, and data, and do what's necessary to
14 support the study. So on that, it would indicate to
15 me -- I mean, it wasn't like an EPA unilateral
16 authority come in, I'm going to begin sampling and done
17 the study; it would have been more common where Duke
18 may have been approached and it would have been a yes,
19 let's do this. And at that point, we were already
20 doing some internal groundwater study, and I understand
21 that was all shared with the A. D. Little team as you
22 look at the reports.

23 So I think it -- you know, my sense from all
24 that was that it would have been a very cooperative,

1 you know, collaborative work. And then, if you read
2 the A. D. Little report, there is on the front few
3 pages, there's acknowledgements to a lot of different
4 people for their participation and, you know, and Duke
5 is in that list.

6 Q. So in your answer, when you say "they,"
7 you're referring to the EPA as if you think the EPA
8 selected the site?

9 A. I am --

10 Q. Are you saying it was a cooperation between
11 the Company and EPA to kind of find the one, and they
12 agreed on Allen or?

13 A. (Marcia E. Williams) I think I could add a
14 little bit of perhaps perspective on this. EPA was
15 looking -- EPA, at the time, was looking for a small
16 number of sites that represented different situations
17 across the country. So they wanted some that were
18 unlined, you know, perhaps some that were lined. They
19 were looking for a variety of case summaries. And I
20 think they -- if I recall, I think we worked with EPRI
21 to get a list initially. And I think, if you look in
22 the report, there actually is a discussion of a much
23 larger set of sites that were originally looked at, and
24 then they screened the sites to try and find sites that

1 looked like they would be representative of these
2 different situations and conditions.

3 So I think that's how Allen ultimately got
4 chosen. It was ultimately A. D. Little and EPA that
5 made the decision on the sites.

6 Q. All right. Thank you for that.

7 Do we know why -- I mean, I'm just trying to
8 think through it -- why Allen as opposed to, say, River
9 Bend or another location; do we know, do we have any
10 insight?

11 A. The only thing that I could add on that, and
12 I'm not -- I believe this is correct, but I'm -- is
13 that because the site already had done monitoring
14 before this study started, that was a positive. And I
15 think the other thing is they were interested in the
16 fact that there was a variety -- there were several ash
17 ponds and so different ages of ash ponds were at that
18 facility are some of the things that come to mind.

19 Q. All right. Thank you. Mr. Wells, do you
20 think, in your opinion, the Company had a reasonable
21 belief, you know, throughout the '90s, throughout the
22 decade of the 2000s, and on up to 2015 that its method
23 of CCR storage treatment and handling using the unlined
24 facilities was going to be or would remain a permanent

1 solution and a permanent resting place for the CCRs?

2 A. (James Wells) I think they were reasonable
3 in the operation. I mean, based on my review and based
4 on the data that was in front of them, and in the
5 context of what the regulatory construct as well as
6 industry standard were at the time. I do believe that
7 they were reasonable in their operations of the basins
8 during that period.

9 With respect to sort of forever, I -- I
10 think, as you get into the 2000s and later, you are
11 beginning to talk about closure. And certainly as you
12 get closer to, say, 2010 and beyond, now there's a lot
13 of real decision going on about what is closure, and
14 what is the guidance, and how do you do this. And
15 because these -- I mean, it was just unique, they
16 didn't have a regulatory -- any regulatory guidance or
17 a regulatory requirement for closure.

18 But yes, I think they were reasonable to
19 operate up to that point, not to say we'll run them
20 forever, but to that point. You know, and a lot --

21 Q. What's that point, did you mean? What's that
22 point -- where you may not -- when the Company may have
23 come to realize these weren't going to be a permanent
24 solution, these basins?

1 A. Right. I think you're beginning to see in
2 the 2000 and beyond a discussion of, if we need
3 additional ash management, what are the real estate
4 needs for that. And at that point, you know, we hadn't
5 built a basin since '82. There was no -- they would
6 not -- based on the records I'm seeing, nobody's saying
7 we're going to go build another basin. But I think the
8 discussions at that point are, if we need more ash
9 management space, we need real estate and we need --
10 you know, we'll follow what we think is going to be the
11 future requirement, which is closer to lined
12 operations.

13 So, you know, they're mindful of that, and so
14 I think that's what you're seeing. And I think it was
15 reasonable up to that point. But now they also
16 realize -- when you say what is up to that point;
17 there's a lifetime to the pond. I mean, there is an
18 amount, a capacity of the pond that will, at a point,
19 drive it to closure. Question is, what's going to be
20 closure?

21 Q. When you say future, I take it you -- and
22 real estate needs, you're talking about subsequent
23 deposits of the ash. But with regard to the ash that
24 had already been in place in the unlined basins, at

1 what point was there a thought that those might not
2 remain the permanent -- the last place for that ash?

3 A. Well, as I can tell it, I think it's when you
4 start seeing that dialogue around closure.

5 Q. When is that?

6 A. I think -- again, I think you're beginning --
7 that -- you're starting to see that discussion, as I
8 can tell, in the 2010 and later time frame, and it's
9 ramping up even more with time. You know, that's when
10 the Company was working with DEQ to ask what do we do
11 for closure; how do you define closure; what does this
12 mean. And there was some -- I understand the state was
13 working on some guidance on closure. I understand the
14 Company was working for -- you know, with a draft
15 closure plan at that time, which they thought might be
16 a less complex one, one of the easier ones to see if
17 that could start to refine what the key points are that
18 would answer those questions. What is closure?

19 And it was recognized even then that that was
20 likely to be a very significant challenge. For
21 instance, if we were pursuing a cap, which is where
22 we're starting to have this discussion, I think, after
23 2010, it was a concept of a cap in place was being
24 pursued, or hybrid-type closures where you would move

Page 110

1 some of the ash in small footprint and cap it. It was
2 anticipated that that was going to be challenged, and
3 guidance as it was developed was going to be
4 significant challenge.

5 So that's what I'm seeing in that 2011, 2012
6 time frame, 2013, a lot of starting to mature the
7 thinking there, beginning to work toward what is
8 closure, what's the long-term closure of these.
9 Working with the agency to get a sense of that, having
10 an eye on the CCR rule and its developments on -- you
11 know, you've already got a draft, we anticipate a final
12 very soon. And also recognizing that all of this is
13 very much a contentious issue with respect to the
14 environmental community, and a hard drive for them with
15 respect to what they believed was the appropriate
16 closure.

17 Q. So the Company, as part of the industry, was
18 involved in efforts with the EPA -- I mean, there's
19 been testimony about the evolving nature of the science
20 and so forth. But also the law was evolving and their
21 interests were seeking to define the CCRs as hazardous
22 or not, or other parts of that broader discussion.

23 The Company was involved in those discussions
24 at the federal, legislative, and regulatory levels; was

1 i t not?

2 A. We were -- I think -- I can't -- I don't know
3 the specific involvement. You mean with respect to
4 development of the regulations?

5 Q. Yes. And having influence on how those might
6 come out or what those might look like.

7 A. (Marcia E. Williams) One thing I could add
8 on this that might be helpful. EPA, between the
9 proposed rule when EPA asked for comments from all
10 interested parties, there was -- there were like
11 500,000 entities that commented. So EPA received a
12 huge number of comments. I mean, I believe that Duke
13 did submit comments, but it's one of the largest groups
14 of comments that I think the agency has received on any
15 of its rules that it was trying to, you know, sort
16 through and deal with between 2010 when it had
17 published three very different approaches to how EPA
18 might finalize the rule, both in terms of whether it
19 was hazardous or not, but what kind of closure
20 requirements would be put into place federally and what
21 kind of -- you know, whether or not excavation would be
22 needed. So EPA was trying to deal with all of that to
23 try and come to a conclusion, which it finally did, of
24 course, in early 2015.

1 A. (James Wells) And I do believe --
2 Commissioner, I believe we -- my recollection is Duke
3 did submit comments to the draft rule, and that is how
4 we would have engaged with respect to, you know, the
5 rulemaking. And also, we were members of industry
6 groups that would have also had some comment and likely
7 some dialogue with EPA on some of their issues as well
8 as other -- I know other industry groups would have
9 done the same. But I believe that would have been the
10 Duke involvement in that.

11 (Reporter interruption due to
12 Commissioner Brown-Bland's Webex feed
13 freezing.)

14 CHAIR MITCHELL: All right. Let's give
15 her a few seconds here. She's had intermittent --

16 COMMISSIONER BROWN-BLAND: I'm back.

17 CHAIR MITCHELL: She's back. All right.

18 Q. All right. And I could hear -- Mr. Wells, I
19 could hear you talking, but I couldn't hear your
20 answer, so if you could remember, could you clue me in?

21 A. I'll do my best. I think I was largely just
22 following up on Ms. Williams. I do believe Duke
23 submitted comments to that rule, and it -- I don't
24 specifically recall that, but I believe we did. And

1 that would have been, I believe, how we would have
2 interacted with EPA and what manner on that. Also we
3 would have been involved with utility groups that would
4 have had interaction with the EPA with respect to the
5 position of various utilities on the -- or the group
6 with respect to the rule, as did -- I'm sure other
7 trade groups did the same in terms of their
8 interaction.

9 Q. So I think those efforts are consistent with
10 your earlier testimony that around the 2011 time frame,
11 possibly 2010, but during that time frame, the Company
12 began to at least think about previously deposited ash
13 might have to be moved; is that in the back of --

14 A. I think they're thinking around that time
15 that closure guidance is beginning to -- we're starting
16 to refine the thinking as to what is the closure on
17 these basins. And we're beginning to see regulatory
18 clarity on that, both at the state and potentially the
19 federal level through this rule. Now, what that means
20 with respect to what is closure, if that meant this ash
21 is going to be here for the long-term, or does it mean
22 it is there but we put a permanent cap on it. You
23 know, a lined -- a liner over top and a cap, longer
24 term groundwater monitoring; you know, consolidate to a

1 smaller footprint. Various options of what that may
2 end up looking like. But definitely I believe that is
3 the time frame where some of that was starting to get
4 refined, and then you see even more of that in the '13,
5 '14 time frame.

6 Q. Was the Company expecting change, or were you
7 really expecting things to remain the same?

8 A. Well, in my mind, it's highly speculative at
9 that point. It's so wide. I mean, I'll just give you
10 an example, for instance. That -- I know we've talked
11 about the concept of hazardous waste, subtitle C. If
12 the rule landed on subtitle C, it is just unbelievable
13 how big that impact is for something to be managed --
14 to be considered a hazardous waste. Because it kicks
15 in, you know, these concepts of what they call
16 treatment storage disposal facility requirements under
17 RCRA, which is very big. So the impact would have just
18 been unbelievable.

19 Compare that to other options that are being
20 proposed, which one was subtitle D, which is almost
21 like a standard solid waste non-haz -- nonhazardous.
22 And then one subtitle D prime, and I can't remember
23 which one played. But one was basically do nothing.
24 You know, we continue to operate, and if you do close,

1 it may end up being potentially what we've done in the
2 past, which is dewater, de- -- you know, inactivate the
3 pond, dewater, and naturally vegetate, potentially a
4 cover. You know it's just hard. The range at that
5 point was just so wide and speculative.

6 But we were trying to get it to a point that
7 it was landing on something that provided that
8 certainty, and clarity, and coverage from the
9 regulatory standpoint. So that if we did get agreement
10 with the state, for instance, on what is the closure
11 and the closure plan, if we got that approved, now
12 you've got the certainty that -- and the confidence to
13 move forward to actually do it and not have to go back
14 and redo something and spend twice the money or find
15 that you didn't meet, you know, various nuanced
16 requirements within what the rule ended up being.

17 Q. Were steps taken in the interim, you know,
18 internally to be ready for a change?

19 A. Internally, there was -- I mean, I think
20 there was a lot of discussion about all the regs, and
21 part of the planning process. And I think you see it
22 in some of the planning documents that have been part
23 of the case, if you -- the ten-year planning. And
24 those -- even over time, I think we had some various

1 topics with respect to some of the coal ash discussion
2 out of -- I think it was the EHS coal management
3 concept. All of those reflect that. You know, the
4 Company's keeping an eye on this incredible uncertainty
5 that can go a lot of different ways, and is watching
6 and trying to work with it. And refining its planning
7 with an eye toward where we -- it looked like things
8 were going to land.

9 That's what it looked like to me. That
10 was -- I mean, you say are they getting ready; it
11 seemed like that's exactly what they were doing. They
12 had planning going on and had an eye on this
13 uncertainty. It was -- you know, with time, was
14 starting to -- you're getting some sense or some feel
15 of how this is starting to refine into what will
16 ultimately be the requirements. I think that's what
17 they were trying to do.

18 Q. And going back to your earlier testimony, in
19 your opinion that we were looking at a potential for a
20 likelihood of a significant risk, did you think it was
21 a wise decision for DEC to settle with DEQ to excavate
22 at Allen, Belows Creek, Cliffside, and Marshall?

23 A. In the final settlement of just recently,
24 you're referring to?

1 Q. Yes. Are we still talking about -- is it
2 still your opinion that it was still, even at that
3 point, just a potential for impact?

4 A. It's not my opinion that there was a
5 potential for impact there, no. I mean, at that point,
6 we're in 2020, 2019, 2018, the time period that all
7 this was current. We have a lot of groundwater
8 monitoring. I mean, you've seen the number of wells
9 we've done. We're into assessment under CAMA, we're
10 developing corrective action plans, there are a lot of
11 wells, we have a very clear picture of what's going on.
12 So we understand the impact there.

13 Now, I think what you may have been also --
14 maybe you're also referring to the potential for, is
15 this creating a risk to the public health, in terms of
16 is it impacting a well and surface water. And our
17 models say that it's not. So is it still wise for us
18 to -- you know, did I think it was appropriate for us
19 to go forward and settle? The answer to that is yes, I
20 do think it was very reasonable.

21 And I say this because the ultimate decision
22 on this is with the regulator. You know, it's just the
23 way it is. They drive what they believe is necessary
24 and adequately protective based on their review, and

1 they have incredible -- wide discretion to exercise
2 that. That's their duty. And we did present a lot of
3 technical cases of our position that we believe was
4 adequate. We made an incredible record on that. They
5 evaluated in fairness. They evaluated. They have a
6 lot of very highly qualified people, as do we. And in
7 the end, they felt it was more protective for the state
8 to move in this direction based on comment, public
9 comments, public hearings and everything else.

10 So they did their duty, and did what they
11 needed to do. We still have, you know, technical
12 arguments that would support what we believe. But in
13 the end, it's their authority. And they've decided
14 what is appropriate for the state, and at this point,
15 that's the cost for it -- that's the cost for us to do
16 business with the state and continue to be a utility.

17 So that -- in my mind, it was also important
18 to maintain this relationship with the state. So, I
19 mean, that was also a huge part for me, is we have a
20 very strong relationship with the state. Strong in the
21 sense of they -- we are -- we communicate, we exchange
22 tech -- we have good strong discussions on technical
23 debates. We find ways to resolve them, and we keep
24 things moving forward in a positive way. And I wanted

1 to keep that pattern now and in the future.

2 Q. I agree with that. We need to keep things
3 moving forward and working together. Did -- so you
4 would think that the General Assembly's requirement
5 that the Company provide the residents within a half
6 mile of the CCR base, connections to municipal or
7 county water systems or water treatment systems, you
8 would think that was based on a real significant risk?

9 A. Well, again, the risk wasn't -- didn't -- it
10 wasn't present in the well data. So, I mean, here --
11 at that point now we've got a -- we had done, you know,
12 receptor surveys to understand all the wells within a
13 half mile of any facility, all private wells. And we
14 sampled all those wells, and none of those wells are
15 indicating an impact to the basins. The data is there.
16 But -- you know, and I think we've talked a little
17 about this. It's almost -- there's -- it's almost more
18 challenging at times to have what we have here, which
19 is secondary -- naturally occurring standards as
20 opposed to, say, a dry cleaner that has a -- you know,
21 I need a perchloroethylene-type substance that's hit
22 groundwater. If you sample it and you find that, there
23 is a very clear source.

24 On the other hand, if you find what's

1 naturally occurring compounds or elements or
2 constituents, you begin to talk about, well, who did
3 this. And if it's iron and manganese, and a secondary
4 standard, then you begin to -- you're starting to
5 really -- you got to make sure you do a good analysis,
6 or you end up creating issues that aren't there. For
7 instance, cleaning up, you know, what is a naturally
8 occurring standard would be inappropriate, if it's
9 truly naturally occurring, at the ratepayer's expense.

10 With respect to the off-site wells, once you
11 make that move to sample wells, and you know you're
12 looking for constituents that are naturally occurring,
13 and you know they commonly fall high above the
14 published 2L standard, you know you also are getting
15 ready to concern neighbors. Because no matter -- I
16 mean, a lot of people know, they live near the basin,
17 and then they get a hit -- you know, vanadium, and then
18 they find out it's above standard, and they understand
19 vanadium is a constituent of ash, but it's also
20 naturally occurring. You're creating concern with
21 those neighbors.

22 Now, ultimately, all of that -- you know,
23 wasn't just analyzing -- I used the vanadium standard.
24 You can see a Duke University study did a full analysis

Page 121

1 of all the wells for vanadium and determined it wasn't
2 associated with the basins. So the science supports
3 that there's nothing there. But it doesn't matter.
4 You've already concerned the neighbors. And, in fact,
5 in this case, DHHS, the Department of Human Health and
6 Services, sent letters from where those standards were
7 exceeding, irrespective of naturally occurring, because
8 they don't -- they're thinking about health, not
9 whether this was from the basins. They sent letters
10 that said do not drink, your well's not safe.

11 So now you have these well owners upset, you
12 know, naturally concerned. And then subsequently they
13 issue a letter that says, no, you're okay. They
14 rescind the do not drink. So there's a lot of
15 confusion at the neighbors' level. And I saw the
16 General Assembly's move as an opportunity to bring some
17 peace to those neighbors, build some confidence back
18 with the neighbors, you know, and take away any
19 concerns that they have with respect to what their well
20 is.

21 Q. But aren't you describing -- so if they were
22 dealing with something more --

23 CHAIR MITCHELL: Commissioner

24 Brown-Blair, we are losing -- we've lost connection

1 to you. Let's give her -- let's give her a few
2 seconds to come back.

3 (Pause.)

4 CHAIR MITCHELL: All right. Well, it
5 appears that we have lost Commissioner Brown-Bland,
6 so I would ask that -- all right.

7 Commissioner Gray, do you have any
8 questions for the witnesses?

9 COMMISSIONER GRAY: I do not have any
10 questions for the witnesses.

11 COMMISSIONER BROWN-BLAND: I'm back.

12 CHAIR MITCHELL: Commissioner
13 Brown-Bland. All right. Please proceed.

14 Q. So, Mr. Wells, I was just asking you, you
15 would agree that they were dealing with more than a
16 potential for impact in the water connection
17 requirements?

18 A. Well, I think my point was that we had
19 verified there was no impact there with respect to
20 impact to the off-site neighbors. And at that point,
21 my view of it was they were dealing with the neighbors'
22 concerns with what the results were telling them in the
23 do not drink letters from DHHS that were based on the
24 naturally occurring constituents in their wells being

1 above the 2L standards for various parameters.

2 Q. All right. Earlier we had some discussions
3 about the regulators. And we talked about perhaps the
4 DEQ had a soft approach, not really punitive, but
5 wanting to get correction done and working with the
6 parties to get the right -- so whether DEQ had a strict
7 enforcement approach or not, or perhaps based on a
8 recognition that DEQ's approach was a little softer,
9 wasn't it the Company's decision -- in not taking
10 actions to eliminate seeps, wasn't that really a
11 business decision to accept the risk of harm that might
12 result from any continuing seeps?

13 A. With respect to the -- okay. I understand
14 the question. So -- right. I think this is a
15 reflection of that evolution of, again, an
16 understanding of the seeps and that EPA began to say
17 these may be subject to the Clean Water Act. It wasn't
18 clear that it was. We did begin to look to DEQ to
19 assist with understanding that. And I understand your
20 question is, well, should you have taken additional
21 action. Well, that did occur. It took, you know, time
22 before we got there, but it did occur. And again, if
23 there's not an indication that these seeps are
24 presenting a risk to the surface waters, remember, the

1 surface waters are being sampled continuously. And,
2 you know, upstream, downstream for all water quality,
3 as well as the fishery studies, and everything else
4 that's going on. So it's not a -- for instance, a
5 public health risk. The question is whether these were
6 a regulatory risk again. You know, we got to make sure
7 we aren't creating a regulatory compliance risk.

8 So that's where we were trying to get the
9 permitting coverage. In some instances where we could,
10 in that interim period, we did install -- we took
11 actions while we were seeking that regulatory coverage
12 to find ways to collect or contain seeps. And in most
13 instances, it was pumping systems we would try to send
14 in -- you know, we would create -- we built
15 infrastructure to collect and try to send it back to
16 the basin until we got the regulatory clarity on how we
17 wanted to manage these going forward.

18 So those were built in various facilities
19 where it was appropriate. It is a significant effort
20 and -- you know, so those did take some time.

21 Q. All right. And we kind of touched on this
22 before, but just to be clear.

23 In your opinion, and based on your knowledge
24 and professional judgment, can you give us a date when

Page 125

1 it was reasonably known to the Company that it would be
2 wise or prudent to dispose of CCRs by means other than
3 unlined basins?

4 A. Well, with respect to thinking going forward,
5 the -- I think moving -- you know, once we have a
6 federal rule that's beginning to set specific
7 requirements around the management of the basins, and
8 CAMA is established to provide similar guidance, and we
9 also are understanding where we're at on our
10 groundwater monitoring and the application of
11 corrective action to those, with all of that as a point
12 where you're shifting toward closure and an investment
13 of other infrastructure to manage this -- and very
14 significant investment, obviously, to manage. So in my
15 mind, we're there now, in terms of support of the
16 necessary investment to manage the ash in the time
17 manner that we are. So that all occurred with the
18 development of CAMA and CCR, definitely.

19 Q. So I understand that to mean that, not until
20 the CCR rule was final did you -- did you have the idea
21 that it would have been prudent to dispose of CCRs in a
22 way other than unlined basins; are you saying it took
23 up until 2015?

24 A. Right. So I think what I'm saying -- first

1 of all, for new operations, that's different, right? I
2 mean, we didn't build basins from the early '80s. The
3 question is whether you continue to operate what we
4 had. And through all those years we're doing all that
5 monitoring, all those things, there aren't any red
6 flags that are indicating there is something here that
7 is sufficient to justify or to take you that direction.
8 You watch, though, the evolution of the '80s '90s,
9 2000, 2010, that's where I think you're starting to see
10 it.

11 Now, if you even look at the CCR rule, for
12 instance, which is; one, federal EPA; but also it's
13 based in large part on the industry as a whole. It's
14 still supporting continued operation of basins where
15 they meet certain criteria. So there's still even a
16 concept there that was viewing continued operations.

17 Now, our sites, what we're seeing, our
18 groundwater impacts, and all that's developing, you
19 know, what we're really working the agency in the 2010,
20 '11 time frame, and understanding that groundwater
21 impact and what might be needed in terms of corrective
22 action. But the corrective action at that point,
23 we're -- could still be at just an MNA, meaning a
24 modern natural attenuation. There's still so many

Page 127

1 options as to what that means. But, certainly, once
2 you get into CAMA and CCR space, now you're seeing --
3 you know, here's the clarity of exactly what is the
4 proper management of ash basins going forward. Sorry,
5 go ahead.

6 Q. When we got into CAMA after the Dan River
7 spill, I think, are we saying that it -- that it's at
8 the point where we have some action like that, that
9 it -- is that -- that -- does it take that -- is that a
10 missing element for the Company -- that the Company
11 needed in order to be able to think we need to do
12 something different?

13 A. No. I mean, I think it would have been
14 dependent on the facts. What I'm referring to is those
15 facts weren't present. So facts that would have
16 driven -- would have presented a risk to public health
17 without question would have been a point that would
18 have -- you know, likely that would have been a
19 site-specific driver. But that would have been a
20 strong basis not to continue to operate that basin at
21 that site.

22 If we were seeing something more widespread
23 in terms of a risk, it may make it even more universal
24 or a more broad determination. What I'm saying is that

1 didn't exist. I mean, now, at Belews, you know, '85 or
2 early '80s there was a shift, you know, and that shift
3 was based on seeing some impacts to surface water. So
4 what I was --

5 Q. That's -- well, I'll stop you right there,
6 because that's my next question. So you can
7 incorporate it as you continue to explain. But what
8 were the -- what were the facts that were known to the
9 Company that led to the -- that led the Company to
10 decide, in 1985, to convert to dry ash handling at
11 Belews Creek?

12 A. So there again, as I had indicated earlier,
13 surface waters would have been studied, they would have
14 been sampled, and -- for water quality, meaning, you
15 know, there are concentrations of parameters in surface
16 water bodies that are called the water quality
17 standards. And you look if you're discharging into
18 there, you monitor that water body, or we monitored
19 that water body to ensure we weren't seeing anything
20 approaching the water quality standards, or having an
21 impact in a way that could potentially exceed a water
22 quality standard.

23 So that's one standard we would have looked
24 at as an indicator for a possible action. This

Page 129

1 probably warrants some action if we start to see an
2 impact of surface water. The other thing we did at
3 surface waters is we did fishery studies, you know, to
4 understand the reproduction of the capabilities of the
5 fishery. Maintaining a thriving fishery. So we
6 looked -- we would have taken various years' samples of
7 fish and determine -- you know, there's a scientific
8 approach that's beyond my abilities. But in essence,
9 studying the fishery and make sure it's healthy.

10 And at Belews, we began to see an impact
11 there of selenium. And it wasn't from groundwater, it
12 was from -- remember I referred to this pipe that comes
13 out of the basin, it goes straight to, and there it
14 went straight to Belews Lake. And one of the concerns
15 with a lake versus a river is it -- you know, it's a
16 very closed system. And the selenium we were
17 discharging, we would then suck it back in, and then
18 discharge it again. And ultimately you're kind of
19 cycling up selenium in that lake.

20 That started -- we started seeing that, and
21 we started detecting some impacts to the fishery as
22 well in terms of reproductive capability. And it's --
23 when that was discovered, then the Company took action
24 to remove that discharge to Belews Lake, move to some

1 dry fly, and find another way to manage its ash in a
2 way that was less impactful.

3 Q. But there was no legal requirement at that
4 time to convert to dry ash; that's just the way the
5 Company decided to handle --

6 A. They did, based on that risk that they were
7 seeing. And I guess it was my -- as opposed to we
8 weren't seeing elsewhere. We didn't see that with
9 respect to groundwater, or surface water, or fisheries.

10 Q. And did the Commission allow recovery of
11 costs associated with the conversion?

12 A. You know, I don't know. I don't know that
13 the Commission didn't. And I think it would have been
14 a very -- and I think, based on recognizing that risk,
15 based on our operation, that to me was a very
16 reasonable step for the Company to take.

17 Q. You would imagine that the Company just came
18 to the Commission and made its case for recovery, or
19 tried to make its case?

20 A. I don't -- I think so. I don't know the '80s
21 well or kind of rate cases general.

22 Q. All right. Were there studies, reports, or
23 cost-benefit analyses performed by the Company, other
24 than the 1985 study which was called the coal ash

1 disposal and water quality study? Were there other
2 studies prior to the decision to convert to dry ash
3 there at Bellevue?

4 A. You know, the only other thing I remember, I
5 thought, as I did see something in the record that
6 referred to they were very -- weighing various cost
7 options. In other words, there could have been --
8 there were other ways that they could manage the
9 selenium issue potentially versus dry fly, and they
10 were looking at what those options are. Regardless,
11 they were looking to address the environmental issue
12 they were seeing. And they had options to do it.

13 And one, I know they moved the outfall out of
14 the lake and moved it into the Dan River, which added
15 some value. But also, I think there was a market at
16 the time for some ash that was a factor that also
17 supported dry fly approach as opposed to, say, a
18 treatment system -- additional treatment at the
19 discharge. I remember seeing a document that is
20 weighing all of that and ultimately landed on the dry
21 fly.

22 Q. So there --

23 A. That may be the document you're referring to;
24 I'm not sure.

1 Q. So do you know if there were other documents
2 or that's --

3 A. I was -- I was saying the document I'm
4 referring to may be the one you're referring to. But
5 those are the factors I saw it considering. It was a
6 potential ash market, they have moved outfall to Dan
7 River. They were also evaluating other wastewater
8 treatment, and they were weighing those options. And I
9 think that may be the same document you're referring
10 to, but if so, that's the only one I'm aware of.

11 Q. Would you be -- would you have access to or
12 be able to look back if you had a little bit of time to
13 see if there were other studies or benefit analysis
14 during this time period that informed the decision to
15 convert to dry ash?

16 A. Yes. Yes, ma'am.

17 Q. And then similar set of questions with
18 respect to Marshall.

19 What were the facts that led to that
20 conversion, and were there other -- were there studies
21 and reports that helped inform that decision?

22 A. Yes.

23 Q. So --

24 A. Oh, you're asking if I'm aware of them. I'm

1 sorry.

2 Q. And what were the facts, yes.

3 A. I -- I believe witness Bednarci k had some of
4 this information. I wasn't as well versed on some of
5 that. I will tell you I understood the -- Marshall
6 was -- I mean, there were -- there was a market
7 available. And I'm kind of hesitant to -- my -- my
8 details are a little -- I don't have full confidence in
9 what I think are the facts there. I had a high degree
10 of confident what I think it was. I think it was a
11 market-driven opportunity, but.

12 Q. Well, so let me do this. I would ask you to
13 take a look and see if you find that there were other
14 studies, reports, or cost-benefit analyses that the
15 Company or those working on behalf of the Company
16 performed or had that helped to inform the decision
17 about converting to dry ash handling at Belews and
18 Marshall.

19 And I would follow that also with a request
20 for a late-filed exhibit, same type of information with
21 respect to whether there were similar studies, or
22 analyses, et cetera done on the prospect of converting
23 any of the coal-fired plants to a dry ash handling
24 process.

1 Let me see. And again, do you have any
2 knowledge that the Company was ever denied any of its
3 costs for disposing of CCRs?

4 A. I do not have -- I would not have looked at
5 that, and I have no knowledge of it.

6 Q. All right. Earlier when you were talking
7 with the Public Staff and we were talking about seeps,
8 and you were talking about some of the voluntary
9 actions that the Company had taken.

10 In 2014, was there -- did the -- what were
11 the reasons that the Company sought to have seeps
12 permitted in the NPDES permit?

13 A. I think the biggest reason was regulatory
14 clarity on this issue. I mean, if we -- I think there
15 was an open question: Are these subject to the Clean
16 Water Act, and if so, do they require permitting? And
17 that began with the 2010 handling memo out of EPA to
18 the states to evaluate that issue. And then when we
19 had gone to the state, you know, it was -- again, it
20 wasn't a priority for them, because they didn't see
21 that as a -- for all the reasons that were in my
22 testimony.

23 So in 2014, you know, at that point we still
24 have -- I mean, to the extent the state says we don't

1 want to permit it, we wanted clarity that either it
2 required permitting, in which case we would permit, or
3 take additional steps -- you know, make the investment
4 for additional steps, or get consideration, understand
5 that it does not require permitting, make a regulatory
6 determination one way or the other. And we had that
7 very broad set of, you know, areas of wetness that
8 weren't -- we didn't have that clarity.

9 And we needed that in order to ensure
10 compliance. You know, this is all hallmarks of a
11 strong environmental compliance program, which is what
12 we were driving to.

13 Q. But before you went to DEQ seeking to get the
14 seeps permitted, had there been -- was the Company
15 aware that the -- that there was citizen suits in the
16 offing, or had they been filed or threatened in federal
17 court?

18 A. I believe they would have been. I think
19 timing-wise, yes, I think they did precede that effort.

20 Q. And would that have had some impact on the
21 reason you might have gone to DEQ at that time?

22 A. I think it certainly would have been part of
23 the consideration. And again, the concept being this
24 is an area that we don't have clarity as to what the

1 regulatory requirements are, and there's exposure here
2 that we want to get resolved. And either want to do it
3 through a permit or through a regulatory determination.
4 And then we can rely -- once we have that, we can rely
5 on that to drive additional investments, if needed, or
6 other steps.

7 Q. And with regard to the -- I think we -- the
8 acronym is SOC, but that consent -- special order
9 consent --

10 A. Yes.

11 Q. -- in order to get that, didn't the Company
12 have to admit that it polluted the waters of the state
13 through the seeps from its coal ash impoundments and
14 pay a penalty?

15 A. Right. The -- I think I had some discussion
16 on this earlier. I think part of the authority for the
17 state to enter into that SOC was that there be a
18 discussion about the pollutants to waters of the state.
19 They needed -- either has to be -- I think a number of
20 things can trigger it in order to establish the
21 authority in the state, but one of those was that. So
22 if you imagine that, though, the waters of the state
23 are different than the waters of the U.S.

24 And the Clean Water Act and permitting is

1 tied to the waters of the U.S. and discharge these
2 navigable waters. When they say there's pollutants to
3 a water of the state, that can -- waters of the state
4 are nearly anything. You know, that's a different,
5 much broader definition. I mean, not everything. It's
6 like everything else. It has some interpretations.
7 But any -- again, any molecule of anything that might
8 be an ash contamination, that might reach an area that
9 the state deems the water of the state satisfies that.

10 So in terms of an admission, that is -- it
11 may be that it's sitting stationary and not affecting
12 anything with respect to navigable waters or waters of
13 the U.S., but nevertheless, it could still meet that
14 definition. And the state needed that in order to have
15 the authority to enter into the agreement, so we agreed
16 to it.

17 Q. All right. And then, Ms. Williams --

18 CHAIR MITCHELL: All right.

19 Commissioner Brown-Bland, I'm going to stop you
20 right there, please, ma'am. We've come to the end
21 of our day today. I was overly optimistic that
22 we --

23 COMMISSIONER BROWN-BLAND: I'm not too
24 far from done, but I hear you.

Page 138

1 CHAIR MITCHELL: I was overly optimistic
2 that we'd cross the finish line, and we've got to
3 come back tomorrow regardless for the remaining
4 Commissioners and questions on Commissioners'
5 questions. So we will come back tomorrow morning
6 at 9:30, and we will cross the finish line
7 tomorrow.
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

1

2

3

4

5 JAMES WELLS: Having been previously affirmed,

6 Testified as follows:

7 CONTINUED EXAMINATION BY COMMISSIONER BROWN-BLAND:

8 Q Good morning, Ms. Williams. I was just about
9 to ask you a question when we stopped yesterday.

10 A (Williams) Good morning, Commissioner.

11 Q And I apologize. I guess you're up and ready
12 over there at 6:30. My first question was in your
13 testimony on page 54, after you spoke about regulatory
14 uncertainty as a basis for waiting before taking action
15 with regard to the Company's CCRs, you had a statement
16 there -- in my copy it's down near the bottom of that
17 page, but it says "Closing or upgrading an ash basin
18 before issuance of the final requirements could easily
19 lead to actions that would, a relatively short time later
20 when the rules were finalized, be either insufficiently
21 rigorous or overly stringent. In either case, this could
22 lead to expenditures that would be imprudent absent a
23 situation where environmental damage would occur or be
24 exacerbated if the ash pond was not upgraded or closed

1 prior to the deadlines in the final CAMA CCR Rule."

2 There, are you taking the position that DEC
3 acted prudently if it made no change in the manner in
4 which it disposed of its CCRs unless such a change was
5 required by statute, regulation, or an Agency directive
6 from a regulatory agency having jurisdiction?

7 A No. That wasn't my position. My position was
8 that if there was an environmental issue that was
9 understood at the time, that the Company, to be prudently
10 behaving, would need to take some kind of action. But in
11 the absence of either a regulatory requirement or an
12 environmental issue that was understood, then I believe
13 it was prudent to wait because the uncertainty that was
14 put into play by the 2010 EPA proposed rule was quite
15 extreme, and the three choices that were discussed in
16 that rule in terms of where EPA might finalize the
17 requirements were order -- at least well over an order of
18 magnitude of cost differences. And EPA was clearly still
19 trying to evaluate all the comments that it was receiving
20 from all the parties and complete its risk work to decide
21 what at least the Agency felt was necessary to be
22 protective of health and the environment as a generalized
23 standard.

24 So in answer directly to your question, I

1 believe that if there was an environmental issue that was
2 -- they were aware of, for example, an exposure to
3 somebody's drinking water well, they needed to move to
4 address that, but I think, as Mr. Wells was explaining,
5 they had been doing that throughout the period of time
6 after the proposed rule. So given that they addressed
7 environmental issues that were known in terms of risks, I
8 think it was very prudent for them to wait for this rule
9 to finalize.

10 Q So you -- but you are saying, then, that if
11 there was a situation where there -- environmental damage
12 would occur or be exacerbated by waiting, then earlier
13 spending or taking action could have been prudent?

14 A Well, I think the starting point would have
15 been to have continued to try and identify if such a
16 situation existed, which in my review of the Company's
17 activities in that time frame they were doing, and then
18 to work with DEQ to figure out what kind of an action was
19 appropriate.

20 Given the complexity of doing -- of selecting
21 appropriate remedial measures, the appropriate action may
22 have been additional groundwater monitoring at that time
23 to get better information. So it's very taste specific,
24 site specific, but I do think it would have -- I mean, it

1 is my opinion that they would have needed to work with
2 DEQ to figure out what the next steps of appropriate
3 action were. As I say in my review of the Company's
4 activities in that window of time between 2010 and when
5 the final rule came out, it looked to me they were doing
6 precisely that.

7 Q And I want to ask you the same question I asked
8 Mr. Wells yesterday. Based on your review and what you
9 know about what the Company was doing through having done
10 your review, your homework, based on your knowledge and
11 professional judgment, when or on what date did it become
12 reasonably known that it would have been prudent for the
13 Company to dispose of CCRs by means other than unlined
14 basins?

15 A I don't think that you would reach that date
16 until EPA effectively completed its work to finalize the
17 rule, which was late 2014. I think it was known and
18 prudent to have groundwater monitoring well systems in
19 place at facilities in the 2010 time frame. Many coal
20 ash facilities across the country did not have
21 groundwater monitoring in place in that time frame. DEC
22 did have it in -- at all of its facilities in that time
23 frame. So I think I would distinguish between when it
24 was appropriate to make sure you had groundwater

1 monitoring systems in and when it was clear that a
2 separate or a different approach was appropriate for
3 managing CCR.

4 As I said in answer to your previous question,
5 though, on a case-specific basis, if -- if the Company
6 was working with DEQ on a particular issue with regard to
7 a particular pond and that led to a determination that
8 for a given ash pond something different should be done,
9 then obviously it would have been prudent to proceed, but
10 from what I can see, they were working with DEQ and they
11 were taking actions to do the next proper step, which
12 was, for the most part, improve the monitoring system to
13 get a better understanding of what was really going on.
14 So I didn't see any specific date prior to the
15 finalization of the CCR Rule that I could give you.

16 Q From a nation -- national point of view, since
17 you were at the EPA level and even though, you know, you
18 left the EPA around 1988, did -- but as you watched and
19 followed these issues even after that, start to occur to
20 the industry and folks who work in the area like yourself
21 that there was the possibility, a reasonable possibility,
22 that the waste in the unlined basins would have to be
23 moved, that the unlined basins would not remain a
24 permanent site?

1 A I think, if I'm speaking for EPA, EPA, and I
2 think they discuss this in the preamble through either
3 the final rule or one of the supplemental rules that have
4 come out after 2015, EPA actually thought that most of
5 these ponds would probably close in place. So it wasn't
6 -- I think EPA did think a number of the existing ponds
7 would close, but in place. I think EPA was actually
8 somewhat surprised by the direction taken by many states
9 to require as much excavation as they did. So I guess
10 that's really the way I would answer that. I don't think
11 that it was predictable that Duke would need to excavate
12 all of its ash basins as a result of this rule.

13 Q Right. But I guess my question is, were people
14 even looking to and thinking that this was a reasonable
15 possibility in EPA's or anybody else's wheelhouse that
16 these -- that there would come directives, orders,
17 regulatory situations where a pond would have to be
18 excavated?

19 A Well, I mean, I think there's always the
20 possibility, but if you're asking me was that something
21 that was generally thought would be the direction that
22 would -- people would go because it was necessary for
23 protection of -- risk-based protection, I think I would
24 tell you, no, not on a generalized basis. There might be

1 an individual pond or an individual landfill where a
2 determination was made that that was the appropriate
3 thing to do, but it would have been very site specific
4 and it would have been as a result of analysis of the
5 information available on a given pond. It was not a
6 generalized belief that that was going to be necessary.

7 Q All right. Thank you for that. Mr. Wells, are
8 you still with me?

9 A (Wells) Yes, ma'am.

10 Q I did have one question. So part of what we've
11 heard about maybe taking action too early, as referenced
12 there in Ms. Williams' testimony, was a concern that
13 somehow the regulatory body would frown upon or not
14 approve cost recovery because it might be looked at as
15 gold plating. Do you recall that argument as being made?

16 A Honestly, I had not had that argument in my --
17 I'm not familiar with that. I'm not on the rates side of
18 it in terms of that recovery, so I'm not familiar with
19 that argument.

20 Q Would you have thought that would be a possible
21 risk, that somehow if it were not a requirement in the
22 law, that the Commission might not allow recovery?

23 A Well, I just -- I mean, I view it from the
24 reasonableness of the Utility's action, the Company's

1 actions, and that's what I was reviewing it from. And
2 from that -- in that context I look at the regulatory
3 requirements as well as where there is a potential threat
4 to public health, whether that would drive some actions
5 and then all of that would have to be worked through the
6 appropriate cost recovery mechanism. My point throughout
7 is that that's not what we see if we look at the history
8 of basins in terms of construction, operation from the
9 early days to today. There was a lot of actions taken to
10 evaluate that risk, and it was not seen -- they weren't
11 realizing anything of that nature, so I was viewing the
12 steps taken to the point we are today have been
13 reasonable.

14 Q Do you have any reason to think that with --
15 even without a requirement or directive or order,
16 regulation or statute, that if -- let's just pick a date
17 and say 2001 -- if the Company had come to the Commission
18 saying we're digging up these ponds because we now think
19 this is the thing to do and they make the case for it, do
20 you have some reason to think that it would be the
21 absence of a law that would possibly cause the Commission
22 to deny coverage or recovery?

23 A I think that's outside of my area.

24 Q All right. Do you think it would have been

1 reasonable if the Company is coming and making a case to
2 the Commission for this is the reason we want to do it,
3 this is the exposure, this is a safety issue, do you
4 think it would be reasonable that the Company would be
5 allowed to recover its cost?

6 A In my review, I didn't see where there was
7 anything that rose to the level that would suggest there
8 was a threat or a risk to the public health. There was
9 ongoing monitoring, ongoing verification of that. And if
10 there was something like that, then I would expect the
11 Company to evaluate all options. So, for instance, let's
12 -- if there were, say, potential impact where we believe
13 that we have --

14 Q We just -- we just talking hypothetical, so --

15 A Okay.

16 Q Okay.

17 A So if there were like groundwater impact that
18 we thought modeled to potentially in the future affect,
19 say, a receptor well, that would be something the Company
20 would need -- reasonably need to take action to evaluate,
21 but when in doing that it would be to evaluate all those
22 options and that -- and to ensure that it's balancing the
23 risk it's seeing with the cost and understanding the
24 extent of the options.

1 So in that instance it may be a water line or
2 it could be an interceptor well or some means of
3 intercepting what we believe may be a potential impact.
4 The Company didn't see any of that and still doesn't see
5 that to this point, but so -- but hypothetically, it
6 wouldn't be a wholesale, you know -- I wouldn't -- I
7 think if you looked at and said we have this, therefore,
8 we need to look at the things that would be necessary
9 for, you know, an extreme solution, like excavate the
10 basin in light of this potential risk, all those would be
11 the measure.

12 Q Right. So if I'm understanding you correct,
13 you're saying there would be an analysis and a balancing,
14 and then whatever you decided on as a proper, reasonable
15 thing to do, you would -- you would proceed from there
16 and bring the case to the regulator. Is that fair to
17 say?

18 A If there were a risk of that nature presenting
19 itself, the Company would evaluate options and take the
20 appropriate action.

21 Q Right.

22 A And that's what the Company has done.

23 Q Thank you. And then I'd just like to get an
24 opinion or basically just feel out and get some

1 information from the two of you, and that is do either of
2 you know of any instance since the CCR Rule or CAMA where
3 a regulated utility was required by a regulatory agency
4 to remove CCR from a basin that included a synthetic
5 liner and then move the CCR somewhere because that liner
6 was not acceptable under a CCR or CAMA type of statute?
7 Are you familiar with any such thing?

8 A If you state -- I may ask -- I'll rephrase. I
9 think I heard you say did -- do you mind --

10 Q If you -- yeah. If you are aware of any
11 instance anywhere, doesn't have to be just here in North
12 Carolina, but where after the adoption of the CCR Rule or
13 a CAMA type of statute an electric utility was required
14 by a state regulatory agency to remove the CCRs from a
15 basin that had a synthetic liner and move that because
16 the synthetic liner was somehow unacceptable under a CCR
17 Rule or a CAMA type rule?

18 A I'll let Marcia answer on a broader level. My
19 familiarity is with North Carolina, and there my
20 experience is with the '84 basin at Sutton which is --
21 well, which was designed to be a liner which was
22 acceptable at the time, it was a clay-lined facility, and
23 that basin was ordered for excavation. I do know liners
24 have progressed over time and over the last few decades,

1 but that was one lined facility that was ordered
2 excavated.

3 Q But that was -- but that was prior to the CCR
4 or CAMA type rule.

5 A The -- you mean when the basin was required to
6 excavated?

7 Q Yes.

8 A It was required to be excavated in 2014 with
9 the passage of CAMA.

10 Q With the passage of CAMA, and it was a
11 synthetic liner?

12 A It was as a -- it was a clay liner.

13 Q All right. And Ms. Williams?

14 A (Williams) Just, I don't think I can answer
15 your question directly with regard to a CCR pond. What I
16 thought I might share with you is that only 30 percent of
17 ponds had the kind of composite liner by 2020 that EPA
18 had talked about as a requirement of the CCR Rule. And
19 secondly, what I also can tell you is I am aware of quite
20 a large number of hazardous waste facilities, whether it
21 be a pond or a landfill, that did have synthetic liners
22 where those liners did leak because unfortunately liners
23 are better than no liners, but they do, in fact, often
24 leak, both at the time of installation and later. So I

1 certainly can give you examples where those kinds of
2 issues have come up for hazardous waste facilities, but I
3 can't tell you about CCR ponds being required to
4 excavate. And normally in that case if that happens, if
5 you have a liner leak, okay, then you would have to
6 remove waste and repair the liner.

7 But what I would say with regard to excavation
8 is if that pond had been placed in an area that -- even
9 if it was lined, that didn't meet EPA's location
10 standards, then it's certainly very possible that it
11 would have had to have been excavated if the State felt
12 that failure to meet those location standards was not
13 fully protective. So I think you're dealing both with
14 the issue of liners and the issue of a long list of
15 location-related factors.

16 Q But you are not -- so you're not aware of an
17 actual case where that's happened, though, at this point?

18 A I can't cite you a specific case because I
19 haven't followed the individual site-specific decisions.
20 I think it's possible that we could, you know, look at
21 that, but I haven't looked at it.

22 Q What about --

23 COMMISSIONER BROWN-BLAND: Madam Court
24 Reporter, did you hear the end of that answer as she

1 trailed off? I know what she said, but did you get --

2 COURT REPORTER: Yes, I did.

3 COMMISSIONER BROWN-BLAND: All right. Good.

4 Q Do you know of any instance since the adoption
5 of the CCR Rule or the CAMA where a regulated utility,
6 electric utility, was required by a state agency to
7 remove an existing cap on a CCR basin and replace it with
8 some other type of cap because that existing cap was not
9 acceptable under the CCR Rule or in a CAMA type statute?

10 A I think it may be too early to really give an
11 answer to that because a lot of this is still evolving in
12 the states at different locations. The final CCR Rule
13 has really been in litigation since the Rule was
14 finalized. EPA has issued a number of amendments to
15 those -- to the Rule. For the most part, the amendments
16 are going more stringent, not less stringent. There have
17 been a few places where EPA has allowed some site-
18 specific variances to go in, but they're very limited.
19 So I can't give you an example, but I don't think we're
20 at the end of this yet. I think it's still evolving all
21 over the country in terms of how this is being applied.

22 A (Wells) And the only thing I might add on that,
23 I think with respect to the North Carolina sites where we
24 do have some of the historical basins that were capped in

1 the sense of what may have been deemed capped in the day,
2 typically inactivated in the sense that they no longer
3 received ash, those -- and instances where they may have
4 had soil cover applied in the form of, you know, what may
5 have been viewed as a cap at the time and revegetated,
6 that would be -- I mean, currently, that -- those will
7 all have to be removed and excavated.

8 Q All right. And do you know of an instance
9 since the adoption of CCR and CAMA where the regulated
10 utility was required by law or state agency to cease
11 using the dry ash handling system and replace it with
12 some other type of system because the dry ash system
13 wasn't acceptable under the new CCR or CAMA type statute?

14 A (Williams) Again, I would just say that it
15 wouldn't necessarily be the issue of whether the dry ash
16 handling system was installed at the plant, but it would
17 be the question of how the ash from the dry ash handling
18 system was managed and if that ash was put into a
19 location either in the landfill whose liner wasn't
20 appropriate or in the landfill whose location standards
21 weren't appropriate -- were inappropriate. It would not
22 be surprising to have that unit have to be remediated in
23 some fashion.

24 Q All right. But today, is it fair to say that

1 you -- that your answer means you're not aware of a
2 situation where either the CCR Rule itself or the CAMA
3 type rule anywhere else in the nation has required these
4 type actions that I'm asking about, the switch from an
5 existing dry ash system or a switch or change from a cap-
6 in-place?

7 A I can give you examples where the Rule would
8 require that. I haven't done a national survey of all
9 the different ash ponds to be able to answer your
10 question, so I can't answer it one way or the other
11 because I haven't done that kind of review. I can talk
12 to you about there are situations in the Rule that that
13 would be required. They're -- you know, they're
14 hypothetical. If a company had done A, B, and C, then
15 under the Rule they would not be able to leave it there
16 and be in compliance with the Rule. I haven't done a
17 national survey.

18 Q Subject to --

19 MR. SOMERS: This is Bo Somers. I apologize,
20 Commissioner Brown-Bland. I wanted to point out, Ms.
21 Williams, I believe we've lost your video. Would you
22 check that, please?

23 COMMISSIONER BROWN-BLAND: She's back.

24 MR. SOMERS: Pardon the interruption. Thank

1 you.

2 COMMISSIONER BROWN-BLAND: That's all right.

3 Thank you, Mr. Somers.

4 Q But sitting here today and subject to whatever
5 -- call it homework, but other study or knowledge that
6 you have just sitting here today, you're not aware of
7 such?

8 A I'm not aware of such, but I don't think you
9 can take that to assume that it's not happening. It just
10 means I haven't done a thorough look at the 600 ash --
11 700 ash basins to understand what's happening to each of
12 them in all the different states.

13 Q As a result of the CCR Rule or, you know, as a
14 result of recent legislation?

15 A Correct. Recent regulations or state
16 legislation.

17 Q And Mr. Wells, do you have anything you want to
18 add to that or are you in agreement?

19 A (Wells) I have nothing to add on that, no. I
20 also have not looked nationally.

21 Q Let me see. One more thing.

22 COMMISSIONER BROWN-BLAND: All right. I think
23 that's all the questions I have. Thank you.

24 CHAIR MITCHELL: All right. I'll check in with

1 Commissioner Gray again to see if he has questions.

2 COMMISSIONER GRAY: No. No questions, Ms.

3 Chair. Thank you.

4 CHAIR MITCHELL: Commissioner Clodfelter?

5 COMMISSIONER CLODFELTER: Yes. Just a couple
6 things.

7 EXAMINATION BY COMMISSIONER CLODFELTER:

8 Q Mr. Wells, can you hear me okay?

9 A (Wells) Yes, sir.

10 Q Okay. I really have just a few loose ends for
11 you. In the Company's 2003 10-Year Coal Combustion
12 Products Plan there are a number of action items -- and
13 you don't need to have the document in front you. It's
14 just several -- for several of the plants the action
15 items in the plan included performing evaluations of
16 conversion to dry ash handling. Two stick out in my
17 memory. It was a recommendation to do that kind of
18 evaluation for Dan River and for W.S. Lee plant. My
19 question -- they have names of who was supposed to do the
20 study and target dates for when they were supposed to be
21 completed. My question to you is, do you know whether
22 those studies can be found in the record in this case or
23 in the data requests that were served on the Company? Do
24 you know if those studies have been produced and made

1 available?

2 A I don't know if they have, Commissioner.
3 Witness Bednarcik was -- had some information on that,
4 I'm understanding. She had talked with some of those
5 folks. But on that specific issue, I don't know that --
6 what's in the record on that.

7 Q Do you know whether the studies were even done?

8 A I don't know the details on that. I'm aware
9 that ultimately decisions were made, and what the
10 documentation was related to those, I'm not aware.

11 Q Okay. Well, okay. Thank you. I'll pursue
12 that in my laundry list of late-filed exhibits that we're
13 working on compiling, so I won't bother you with that
14 anymore, but I am curious about one thing. Do you know
15 -- and I know this is maybe outside your area, but you
16 might know it, so I'll ask it. Do you know when the
17 Company began to seriously explore converting units from
18 coal to gas or, for example, Cliffside, Dan River, when
19 did the consideration of converting Dan River to gas, for
20 example, when did that start?

21 A I apologize. That is not -- I'm not familiar
22 with that --

23 Q Okay.

24 A -- the details.

1 Q All right. Again, as I stated, just a few
2 loose ends here. The other one is are you familiar with
3 the Company's 2007 Environmental Management Program for
4 coal combustion products?

5 A I'm familiar with that document, yes.

6 Q Okay. Was there any earlier iteration of that
7 program/plan, whether it had a different name? It might
8 have had a different name. Might have been called
9 something else, but anything, earlier iteration or
10 similar to that, that you know of?

11 A I've not seen anything of that ilk or things of
12 that nature.

13 Q Okay. All right. Well, I know you don't have
14 it in front of you, and what -- I want to ask you a
15 question really about the earlier period than that
16 document, but in order to do that, I've got to read you
17 something from the document, so bear with me --

18 A Okay.

19 Q -- and I'm going to try to read it out. In the
20 2007 Environmental Management Program, the statement of
21 principle or philosophy of the Company I'm going to read
22 to you. It says "Duke is committed to CCP management and
23 disposal strategies which comply with all applicable
24 state and federal regulations, are protective of human

1 health and the environment, and reduce future risk
2 associated with groundwater contamination. This
3 compliance includes not only the specific requirements
4 contained in the applicable regulations, environmental
5 statutes, and environmental permits, but also the general
6 regulatory requirement to ensure that ash reuse and
7 disposal activities do not contribute to future
8 exceedances of surface water or groundwater standards."

9 And my question to you is, do you know whether
10 that statement of philosophy or principle represented any
11 change from what the Company's prior policy and practices
12 had been?

13 A I don't think that's a change. I think it was
14 documenting and restating the philosophy of what the
15 Company's policy was on those issues.

16 Q And that had been the policy before it was
17 formalized in a written document?

18 A Correct.

19 Q Okay. Thank you, Mr. Wells.

20 COMMISSIONER CLODFELTER: That's all I have.
21 Thank you. Madam Chair, that's all I have.

22 CHAIR MITCHELL: All right. Commissioner
23 Duffley?

24 COMMISSIONER DUFFLEY: Yes. I just have a few

1 questions.

2 EXAMINATION BY COMMISSIONER DUFFLEY:

3 Q So the first is for Mr. Wells. You were
4 talking about regional offices. I assume a lot of the
5 sites are in the Mooresville Regional Office, but what is
6 the other -- are there other regional offices involved,
7 and what are they?

8 A (Wells) Oh. I am not as well versed in the
9 different regions. I typically think of the Raleigh
10 Regional Office and the Mooresville office, and then
11 Raleigh being the headquarters for DEQ, but as I think
12 about it, based on your question, I believe the Raleigh
13 Regional Office probably covered more of the Progress
14 Energy sites versus the DEC sites.

15 I do believe there are other -- a couple other
16 regional offices that would have been involved, but I
17 can't remember, honestly, the structure of DEQ, the other
18 regionals -- the other regions.

19 Q Okay. That's fine.

20 A Asheville. Maybe -- I just remembered,
21 Mooresville Office; Asheville Regional would be another
22 one I think would be applicable to DEC.

23 Q Okay. Thank you. And at one point in your
24 testimony you were describing the monitoring system that

1 was being put in after 2015, I believe, and you were
2 talking about how the groundwater monitoring system was
3 very comprehensive. How would you describe the
4 assessment with the wells that were installed in the
5 2009/2010 time frame?

6 A I think that was all part of that evolution of
7 watching the groundwater, so I would describe it as the
8 -- remember, the 2004 to 2008 time frame USWAG voluntary
9 wells go in, and that is somewhat of a detection concept.
10 And as you get into the 2009/'10 time frame, that data is
11 being shared and reviewed with DEQ. And that's where DEQ
12 is working with the Attorney General's Office on some
13 specific interpretations of the 2L Rule and there's some
14 back and forth going on with respect to interpretations.
15 But in parallel, DEC is adding additional wells at that
16 time and working with the State on where they go, and
17 that added a whole 'nother set of wells and moved a lot
18 of the monitoring to the compliance boundary.

19 Prior to that, the monitoring was inside the
20 compliance boundary, and that was a big move to evaluate
21 the status of the plume and whether or not it was moving
22 beyond the compliance boundary. So that was a big -- you
23 know, a next sort of iterative and comprehensive step, to
24 understand the status of the area of impact.

1 And then that moved even further, you know, as
2 you saw the '09/'10 data and the '11 data develop
3 additional work with DEQ to establish further assessment,
4 and all of that was memorialized, that process is what
5 was memorialized in the DEQ Policy Memorandum of 2011
6 that I was referring to.

7 Q Okay. Thank you. And then I think the last
8 question for you is you also testified maybe once or
9 twice that you stated "If we see a risk to public health,
10 we take action." So what specific actions in the past
11 can you name to support that statement?

12 A Well, with respect to DEC, Duke Energy
13 Carolinas, Belews Creek is, I think, a very good example,
14 early '80s, where there was monitoring of the fishery
15 going on to detect what, if any, impacts we would be
16 having, similar to surface water monitoring that was
17 going on elsewhere. And when that was detected, then the
18 Company moved to evaluate how it could minimize that
19 risk. And it looked at wastewater treatment concepts.
20 You know, they investigated, determined it was a selenium
21 issue, looked at wastewater treatment, looked at moving
22 the outfall, and looked at -- and ended up moving toward
23 dry fly on that project, now, based in part on the
24 environmental, but also the economics, based on the

1 market of the ability -- other factors that came into
2 play.

3 But that was an instance where the Company
4 detected an issue and moved based on a risk to the
5 surface water, to the ecosystem, and if -- if they had
6 also seen an issue elsewhere like that, then that would
7 have been an appropriate type step.

8 The other issue is evaluating the risk to
9 receptors, meaning an offsite well or a well that someone
10 may be drinking, a private well, and there the Company,
11 if you look as early as the '80s, you see an analysis of
12 the groundwater direction of what's going on and an
13 understanding of the groundwater flow in these areas and
14 how it's flowing. Never -- there was never an indication
15 that that risk was being realized, that there was a risk
16 to the public health.

17 Now, when we moved into the 2014 monitoring,
18 additional steps pursuant to the 2011 policy, we did
19 additional evaluations at that time for further
20 verification with respect to offsite wells and then did
21 follow-up sampling, even, at all of those wells. And
22 those wells -- I mean, the result was there was no
23 evidence of impact from site operations, so no action
24 needed to be taken. But that's an example of the type of

1 analysis that would have been done -- is done. If there
2 was an issue, we would have made -- taken action to
3 address it.

4 There are examples elsewhere outside of DEC
5 where we did see that. And, for instance, I'm familiar
6 with actions we've taken in the Midwest. I'm familiar
7 with actions we've taken in Ohio and Indiana where some
8 of those risks were realized. I'm familiar with where
9 steps were taken in Progress Energy where we put in water
10 lines proactively, voluntarily, in order to address what
11 we viewed as a potential issue before there was an
12 impact.

13 But those are some examples of what -- if there
14 was a risk that warranted it, the Company would have
15 taken action. I saw that in Progress Energy sites. I
16 saw it in the Midwest sites. And with respect to DEC, we
17 didn't have indications that those were -- outside --
18 Belews Creek is an example of where we saw it, but we
19 weren't seeing that from the monitoring that was ongoing,
20 the additional wells that were going in in the '90s, the
21 additional wells that went in in the 2000s, the
22 additional monitoring that went in in 2010, the
23 additional monitoring that's going on in 2014. Again,
24 it's not presenting that risk to the public health in

1 terms of surface water impacts, ecosystem, or the public
2 wells. So the action is not there, the analysis to
3 verify it's not there -- to verify it's not there has
4 been done.

5 Q Okay. Thank you, Mr. Wells. And then Mrs.
6 Williams, you test--- good morning.

7 A (Williams) Good morning.

8 Q I know it's early for you. So you testified
9 twice yesterday that Duke was ahead of the industry with
10 regard to groundwater monitoring. And can you provide
11 specific facts that support that statement?

12 A Well, again, the facts that I rely on for that
13 are a lot of the national surveys that EPA did over time
14 that talked about how many locations had groundwater
15 monitoring. So I tried to go through some of them
16 yesterday. I have a number of them in my testimony.
17 But, for example, in the 1988 Report to Congress on coal
18 ash EPA talked about it, but more importantly, EPA did a
19 very broad and complete study of how many sites had
20 groundwater monitoring in 1986 for all types of surface
21 impoundments. And included in that were coal ash ponds,
22 but it was much broader than just coal ash ponds. So I
23 used those statistics, okay? And those statistics,
24 again, consistently, from the '80s all the way through to

1 the time frame when EPA was doing its proposed rule, you
2 were seeing numbers like 33 -- 32 percent, 33 percent, 35
3 percent of these facilities had groundwater monitoring
4 installed, and so I think it really is noteworthy that by
5 the time you get to 2008, you know, when Duke had
6 completed installing initial well systems at all of its
7 facilities that hadn't already installed them due to a
8 requirement in an NPDES permit, they installed it at the
9 rest of the facilities by 2008.

10 And so they had already started to generate
11 this groundwater data at all these sites, and it is
12 iterative, as we've talked about. So, of course, after
13 the first system went in, additional wells would be added
14 to begin to answer more questions. As Mr. Wells said,
15 the groundwater system wells were moved out further to
16 the compliance boundary, additional compounds were added
17 to the analysis, additional -- I guess I would say you
18 had a better sense of groundwater flow once you put a
19 system in, so you may find out you need additional
20 upgradient wells or additional downgradient wells.

21 So that's what was happening then post 2008,
22 and that was not happening, as I say, at a very large
23 number of coal ash facilities, both landfills and ponds.
24 But speaking of ponds, you know, it wasn't happening at

1 70 percent of the ponds.

2 Now, it was happening more at newly constructed
3 ash ponds. There weren't a lot of newly constructed ash
4 ponds, but it was happening more, but even with the newly
5 constructed ash ponds I believe that something like 80
6 percent of them may have put monitoring in and 20 percent
7 hadn't put monitoring in.

8 So the statistics that I'm sharing with you are
9 coming either out of EPA's coal ash documents, the
10 proposed rule, the final rule, some information that EPA
11 has published in additional proposed rules post 2015, or
12 they're coming from studies that EPA did back in 1977,
13 studies EPA did and published in 1983, 1986, 1991, all of
14 which looked at ponds, industrial ponds, across the
15 country, and all of which found that there were very --
16 reasonably limited groundwater monitoring at those
17 facilities.

18 Q And you just -- there are a lot of documents
19 filed in this case. You mentioned, though, in your
20 testimony that -- and I guess this was probably -- I just
21 want to confirm that it was around the 2009 time frame --
22 you mentioned that Duke had groundwater monitoring at all
23 of its ash basins compared to industry which only had
24 groundwater monitoring in 42 percent of its basins. Can

1 you direct me to where you obtained that statistic?

2 A Yes. That would be from EPA's June 2010
3 proposed rulemaking for this final CCR Rule, but it was
4 the proposed rule.

5 Q Okay. Thank you.

6 COMMISSIONER DUFFLEY: Those are all of my
7 questions, Chair Mitchell. Thank you.

8 CHAIR MITCHELL: All right. Commissioner
9 Hughes?

10 COMMISSIONER HUGHES: Yes. I've got a few
11 questions about closure-in-place.

12 EXAMINATION BY COMMISSIONER HUGHES:

13 Q And feel free, either one of the Panel -- you
14 know, I'm assuming Ms. Williams, you would give me the
15 national perspective, but also to the extent that you're
16 aware of what Duke was going through, please, Mr. Wells,
17 chime in. I know Duke didn't close a lot of ash ponds
18 prior to when a lot of this stuff that we've been talking
19 about started to transpire, but I think there were a few,
20 if I'm not mistaken, Allen maybe in 1973, and then maybe
21 one or two in the '80s. Could you tell me what was
22 happening with the closure-in-place regime going back as
23 long as you can, but at least for sure starting in the
24 '80s, '90s, 2000s? What was happening with closure-in-

1 place? You had said, I think, Ms. Williams, there's an
2 order of magnitude between closure-in-place and excavate.
3 Was closure-in-place getting any more stringent? Was a
4 closure in place in 1980 looking anything different than
5 1973, 1990, 2000? Do they look different?

6 A (Williams) Well, I think from a -- let me give
7 a national response and Mr. Wells can tailor it. But the
8 -- you know, the typical closure for ash ponds in the
9 '70s, the '80s, wasn't really changing. I mean, first of
10 all, you have to realize that even if an ash pond was no
11 longer accepting, let's say, new or additional fly ash,
12 it often was continuing to accept stormwater or other
13 waste streams from the site. But once it was no longer
14 receiving waste streams, typically it would be dewatered
15 either naturally or aggressively, and it would be
16 revegetated, and that was generally what was going on.
17 And I think there is a picture of sort of that in the
18 1988 EPA Report to Congress that sort of showed that was
19 really the national practice for closure at that time.

20 And I think even if you look at the -- one of
21 those early EPRI manuals, it talks about revegetation,
22 you know, after a pond is no longer in operation. So it
23 wasn't the kind of capping that started to be discussed
24 in the -- in the post-2000 time frame. And so I think

1 nationally the primary closure at that point was
2 dewatering and putting a different kind of cap. You
3 know, not just soil vegetation, but a different kind of
4 cap.

5 But that was largely in the time frame when
6 you're talking post-2010 when people are starting to
7 think about what kind of a protective regime could exist
8 for closure of these ponds. And in my response to
9 Commissioner Brown-Bland, I tried to suggest, you know, I
10 think EPA clearly allowed for the concept of excavation
11 as a site-specific closure requirement, but the general
12 thought is that these ponds would, for the most part,
13 dewater, close in place with a cap system that was more
14 of a clay based and possibly a synthetic clay based cap
15 system. Excavation was available, but not what EPA
16 believed was likely to be done at a high percentage of
17 the ponds.

18 And I guess the cost figure I had given out
19 previously when I said at least an order of magnitude
20 difference was really a choice about whether EPA had
21 chosen to regulate these ponds under its hazardous waste
22 framework versus its solid waste framework, so that's --
23 it wasn't strictly just closure. It was the entire set
24 of regulations that would apply if you were doing it

1 under its hazardous waste framework, which would have
2 been extremely -- much more expensive because not only
3 the closure requirements would have been different, but
4 the permitting requirements would have been different and
5 there would have been a requirement to treat all ash in a
6 different way before it could be even put into a land
7 disposal unit to start with.

8 So the requirements that EPA was considering,
9 both for the closure design and for the ongoing
10 management of ash in either a landfill or a pond, would
11 have been dramatically different if EPA had chosen a
12 hazardous waste framework for these CCR units than where
13 they ultimately came out, which was a solid waste
14 framework.

15 And, in fact, the other big difference between
16 EPA's choices in 2010 was under one of the frameworks EPA
17 would have allowed federally these ponds to continue to
18 operate for the remainder of their useful life, whereas
19 in the selection and the framework that they did select,
20 they had a more limited operation allowance under certain
21 conditions for existing ponds.

22 So that's why there was so much uncertainty
23 between what was going on in 2010 and what was known
24 after EPA finalized its CCR Rule, and certainly was

1 dramatic because EPA hadn't yet signaled where it was
2 going. And I think while that's a national role and
3 North Carolina had its options under State rules to do
4 what it wanted, I think North Carolina, like many states,
5 really was interested in understanding where EPA was
6 going to come out because North Carolina clearly didn't
7 want to come out in a position that it would be
8 inconsistent where the federal rules would come out.

9 Q Well, I appreciate that. Just a couple of
10 follow ups, but really, I'm just really focused on the
11 closure-in-place, so all of the, you know, all of the
12 other parts are what we've already, I think, talked a lot
13 about -- about that. The 2004 or '05 EPRI closure manual
14 has a comment that closure surface impoundments will
15 probably be the most expensive task undertaken during a
16 commission process. Is that -- would that be true even
17 if there had been closure-in-place to the standards that
18 you're talking about in 2004 or was it still going to be
19 -- and this might be a question for Mr. Wells -- was it
20 still a very expensive, maybe the most significant, most
21 expensive part of decommissioning of the dewatering and
22 the capping as of, say, 2003, '04, '05?

23 A Let me -- I mean, first of all, I think the
24 type of decommissioning that's being discussed in the

1 2004 EPRI manual is sites that are decommissioning. In
2 other words, it's not just the -- it's not ash pond
3 closure solely. It's decommission of -- decommissioning
4 of a utility station. So that's what it was looking at,
5 and that document makes the very strong point that how
6 expensive it is, in part, depends on how you want to
7 reuse this property.

8 So one of the examples that they gave in that
9 manual involved reusing the property, you know, trying to
10 essentially reuse the property for something entirely
11 different than what it was currently being used for. So
12 that drives, to a large extent, what the cost will be of
13 closure and decommissioning of the whole facility.

14 I think there's another EPRI manual that came
15 out, I think, in around 2001 that actually did discuss
16 specifically closure of ash basins and talked about the
17 fact that the closure of ash basins, it wasn't clear that
18 any kind of capping beyond just vegetation was really
19 going to -- and dewatering was actually going to
20 accomplish any additional protection. So I think this
21 concept of a capping the way we're talking about in the
22 final CCR Rule, a closure-in-place with a more
23 significant cap, really wasn't what was being thought
24 about in the 2000 to 2006 time frame.

1 Q So Mr. Wells, just a quick question. So what
2 was likely to be being thought about by your colleagues
3 back then, this last extensive capping, was that still
4 going to be one of the most expensive tasks undertaken
5 during a decommissioning process?

6 A (Wells) Right. I think --

7 Q And I know we're rushing for time, so maybe a
8 quicker answer.

9 A You got it. I think it very much was unknown.
10 I mean, I think it was highly speculative as to what the
11 appropriate closure requirements were going to be at that
12 time and --

13 Q If it was -- if it was a cap-in-place, so if --

14 A It would be -- it'd be --

15 Q -- like what was the -- you know, on the left
16 side of the spectrum of the cost, so you don't have --

17 A I think on the left side --

18 Q I know lots of people are asking you to imagine
19 the future.

20 A I understand.

21 Q I don't want you to imagine the future; just
22 imagine the so-called, I guess, best-case scenario from a
23 cost standpoint. What did that look like?

24 A Okay. And I can tell you what the practice was

1 at that point with respect to Duke, at least what I've
2 seen. And I think you mentioned a couple of the ponds,
3 you know, what were they doing, were they closed?

4 So the practice at that point was what was
5 described, what Ms. Williams described almost nationally,
6 the basins that had been deactivated or inactivated, they
7 were closed in place, in essence, just no longer
8 sluicing, allowed dewatering, soil cap, and reestablish
9 vegetation. That's what I've seen in the various ponds
10 that were -- that went inactive over the period, and
11 that's with respect to both what I saw with Progress, I
12 saw with Carolinas, and what I also saw up in some of the
13 ponds in the Midwest. So that seemed to be sort of where
14 things were.

15 Now, there's -- I think what you're asking, to
16 me, I mean, there's one question I think certainly in
17 that time period, is that enough? And then if that's the
18 case, then, you know, what is the additional cost? And
19 it would be very minimal. On the other hand, and I do
20 think this is the time when there's a lot of discu--- I
21 mean, not the time, but this is representative of the
22 ongoing sort of evolution of discussion of what is the
23 pond future, and there is some planning going on with
24 respect to that. And I believe what you're seeing in

1 that type of comment is where the ponds end up in terms
2 of cost is a large -- it can be -- it can vary
3 significantly based on what it ends up being, this future
4 closure, what's adequate under the regs, what are the
5 needs of the facility for reuse or how that might be
6 viewed. It could be significant.

7 But, again, on the left side of the spectrum,
8 it could also be relatively consistent with what was
9 being done at that time, perhaps with some additional
10 review or verification that whatever is installed meets
11 what -- a cap standard that may be established or that an
12 additional cap could be added. I mean, there is a lot --
13 at that point a lot of uncertainty or instability in what
14 that would look like. That's my sense of it. And I
15 think --

16 Q If I ask you in 2002 if the decommissioning of
17 some of your facilities was closure going to be
18 significant or insignificant, if you only had to choose
19 those two words, would you say -- well, you can say
20 relatively if you want, relatively insignificant,
21 relatively significant. I'm just trying to get an idea
22 of where it was in the world of planning.

23 A I think that's a tough -- would be very
24 difficult for me to estimate. I don't think they saw it

1 as significant if it did not involve the need for re---
2 it depended on the reuse of the property and the need to
3 have that closure be a piece -- need -- meet the needs
4 for future reuse of the property. If it was just a basin
5 that was sitting retired at the time, additional actions
6 potentially necessary for closure, my view at that time
7 would have been, I believe, that it wasn't -- it could be
8 significant if driven to some of the higher end
9 discussion of what may be required, but if it was
10 consistent with status quo or something close, then that
11 would be more -- that would be insignificant. Not
12 insignificant, but less significant.

13 Q Okay. Thank you.

14 COMMISSIONER HUGHES: No more questions.

15 CHAIR MITCHELL: All right. Commissioner
16 Hughes? I mean, I'm sorry. Commissioner McKissick?

17 COMMISSIONER MCKISSICK: Just one or two
18 questions. I appreciate the testimony these witnesses
19 have provided over the last day or so and it's certainly
20 been exhaustive and they've covered things very
21 thoroughly, so I think I pretty well understand the scope
22 of their testimony and the issues in terms of their
23 perspective, the way they -- the way they believe things
24 occurred during this entire time frame.

1 EXAMINATION BY COMMISSIONER McKISSICK:

2 Q A couple of quick questions, though, and I
3 guess the first one would be of Ms. Williams. I know you
4 were at the EPA and you were there from 1970 up to
5 February of '88; is that correct, ma'am?

6 A Yes. I actually started at what's now EPA a
7 little bit before EPA was formed, and then it got folded
8 into EPA, and I left at the end of Feb--- I actually left
9 the last day of February of '88.

10 Q Okay. And you were Director of the Office of
11 Solid Waste from, I guess, September of '85 up through
12 February '88, so I guess that was your title during that
13 entire window of time?

14 A During the window of September of '85 through
15 the end of February of '88, yes.

16 Q And from what I gather, there were like 250
17 people that were -- fell under that unit; is that
18 correct?

19 A Yes. That's correct. And, of course, we had
20 lots of other support from our research office and other
21 places, but those are the people that were directly in
22 the Office of Solid Waste.

23 Q Now, the Report to Congress that was entitled
24 Waste from the Combustion of Coal by the, you know,

1 electric utility power plants, what date was that
2 actually released? Do you recall?

3 A I believe it was released in February of 1988.

4 Q So it was right as you were leaving; is that
5 correct?

6 A I was there through February, but that's -- I
7 mean, and the work for the report was clearly done for a
8 period of time before that time in order for it to be
9 released on that date, but I was there, as I recall, for
10 the release date.

11 Q Did you actually participate in work that was
12 in that report? I mean, who was actually delegated
13 responsibility for, I guess, doing the, I guess the
14 research and what was required that went into the
15 drafting of the report? Were you involved with that, and
16 if you were, to what extent?

17 A Well, I was responsible for everything that
18 left my office. I mean, I managed that office. And
19 while I wasn't doing drafting, I was doing reviews of the
20 document asking questions of, at the time, things I felt
21 weren't thoroughly vetted or discussed and trying to make
22 sure that we were producing the best report we could to
23 Congress. I mean, I was -- in my position I was meeting
24 with congressional staff on a pretty regular basis

1 because during this whole period of time, from really
2 when I took over that position until when I left, we had
3 been implementing a whole set of requirements that
4 Congress had put on the Agency in late 1984, and so I was
5 constantly at The Hill trying to answer all the questions
6 about when is this going to be done, and where are you on
7 this, and how are you doing on this, and where are all
8 the facilities in their performance? So the answer is I
9 was involved. I did not draft the report, but I did
10 review the report more than once.

11 Q Were there members of staff that did not concur
12 with the recommendations set forth in the report?

13 A As I'm sitting here today, I do not have a
14 recollection of that. I'm not saying there weren't
15 because there were always staff that potentially could
16 raise concerns, and I certainly can think of one or two
17 issues that came out of my office where staff did raise
18 concerns, but I don't have a recollection of any
19 disagreement on the results of this report from the
20 people that were working on it.

21 Q Were there any recommendations and findings
22 that came forth from staff that you revised or -- you
23 know, in any respect before the final report was
24 released?

1 A I just don't have a recollection of that today,
2 Commissioner. I mean, I'm -- it's possible, I suppose,
3 because those things would happen and they were vetted
4 carefully, you know, while people had different opinions,
5 but I don't have a recollection of that as I'm sitting
6 here right now.

7 Q Okay. Thank you. And, of course, Mr. Wells,
8 one or two quick questions of you. I know there was a
9 report that was dated September 27th, 2012, that Duke
10 Energy prepared beginning with guidance on developing
11 closure plans for ash basins. Are you familiar with
12 that?

13 A (Wells) I'm somewhat familiar with that.

14 Q You're somewhat familiar with it?

15 A I don't remember specifics.

16 Q Because among the things that it talked about
17 was closure plans, particular -- you know, potential
18 regulatory issue requirements, planning consideration,
19 development of closure plans, environmental
20 characterizations, and selection of closure options, and
21 it even went as far as dealing with some cost. Do you
22 remember any of that?

23 A It sounds familiar. I believe I have seen
24 that; I just don't remember the specifics.

1 Q Okay. Well, if you don't remember the
2 specifics, it would be difficult to ask you questions
3 about it. Perhaps what I'll -- I'm going to go back and
4 review a number of the exhibits which have been referred
5 to during the course of this hearing, and there may be a
6 request for a late-filed exhibit to get some additional
7 explanations and clarity. The thing that I'm concerned
8 about or interested in knowing, I should say, is --

9 A Uh-huh.

10 Q -- if this report was prepared in 2012,
11 granted, it was late in the game, but what actions were
12 taken as a direct result of the recommendations that it
13 suggested and the scope of issues that it covered that
14 could have perhaps resulted in actions being taken before
15 we had CCR approved and before CAMA?

16 A I could speak generally. I'm familiar with
17 the time frame.

18 Q Okay. Well, go ahead and speak generally, if
19 you could.

20 A Okay. So in that time frame there was no
21 guidance on closure at either the federal or the state
22 level, yet the Company is pushing toward that and pushing
23 toward closure. There is -- and, you know, starting to
24 try to move that in terms of what are -- what are the

1 specifications, what are the -- what's the criteria with
2 respect to closure, what are the options, what needs to
3 be proven, all those type things, what will be the
4 design. So those details are important for purposes of
5 planning and execution. And those were in a state of
6 flux at that time, meaning there was no State standard,
7 there was no federal standard. There was a recognition
8 that the federal standards were -- was a draft rule in
9 anticipation that a final was coming, but it had options
10 that cover a very broad spectrum. That's what's in the
11 draft rule, but not yet finalized.

12 On the other hand, on the State level, this
13 document and the interaction that was going on with the
14 State was to drive some State standards with respect to
15 closure, while recognizing also that the federal rule was
16 out there, too, so they will have to marry up at some
17 time. And the Company is moving this in that direction,
18 while also recognizing there's this uncertainty, and --
19 but it is also working with the State on important
20 criteria with respect to closure, which is protection of
21 the environment and stability, all the things that are
22 important. So that's all being developed sort of in
23 parallel, recognizing that we will move toward a point
24 where we'll have that clarity and then be able to execute

1 on closure.

2 Q And that draft CCR Rule, when was that first
3 released? Refresh my recollection.

4 A That -- the draft rule, I believe, was 2010.

5 Q That's what I thought.

6 A Ms. Williams, is that -- could you confirm?

7 A (Williams) Yes. It was mid-year 2010 when the
8 proposed rule came out.

9 Q And perhaps, Mr. Wells, you can tell me, what
10 was Duke's response to the proposed rule going back to
11 2010? I mean, what actions did they take when that rule
12 was first published to make comment publicly or,
13 likewise, what it might have done that was not public?

14 A So first, we would have certainly reviewed the
15 rule, all of that. I mean, normal course is to
16 understand what might be the movements in the regulatory
17 front for purposes of assisting with planning and
18 ensuring we're making the right decisions moving forward.
19 With respect to that rule, it would have -- it was
20 anticipated, I think, around that time that there were
21 some continued developments that EPA would be coming out
22 with, and so it would have been an important rule. We
23 would have reviewed it. And I believe the Company may
24 have submitted comments, but I don't know, but there

1 would have been interaction also with our utility peers,
2 how they were viewing it, you know, some benchmark
3 potentially. These are the -- I think those are the type
4 of actions that are typical for us to do to understand
5 what we think, is that the rule is headed where we think
6 it's headed and what the timing might be.

7 Q And what were the most significant differences
8 between the proposed rule and the final adopted rule?

9 A I'll speak generally, and then Ms. Williams may
10 be able help. She's very familiar with EPA regs, of
11 course, and process. The proposed rule, my recollection,
12 and it is in Ms. Williams' testimony, there -- it had
13 several options, but one was a hazardous waste Subtitle C
14 that you hear referred to, and a Subtitle D, and then a
15 Subtitle D Prime. So, in part, what the federal
16 government was doing is saying we are looking at and we
17 want comment on these type options.

18 The implication, from my perspective, of those
19 three options is very, very extreme, meaning if it goes
20 Subtitle C, that is a very big deal. I mean, it's all
21 good regulatory, important, the way it was developed and
22 founded, but the Subtitle C would be the most -- the
23 highest level of control in a hazardous waste level, a
24 regime, so that's very -- I think very stringent, very

1 costly, a whole lot of unknowns of what that would really
2 mean on a scale. I don't know if -- I mean, there were a
3 lot of -- there was a lot of discussion about what that
4 would mean because that's a very big -- hard to even
5 understand how you'd implement that level of detail in
6 something of this -- ash ponds of the scale that we were
7 working with.

8 The other one, Subtitle D, which was more like
9 a solid waste, what you would see for a -- a municipal
10 solid waste, it developed over time similar to this in
11 the sense of how it's managed, a traditional solid waste
12 facility.

13 And then Subtitle D Prime, which I'll let Ms.
14 Williams build on a little bit, but that was, I believe,
15 just allowing continued operations of basins under
16 certain conditions, in other words, as is, continued ops
17 would be acceptable under the reg, but perhaps some
18 additional regulations to manage that.

19 Those were the three in my mind, the big
20 difference. And then the final rule is where some of
21 that was resolved, but then it also added some additional
22 requirements that were in there and performance criteria
23 and other things that we ultimately are implementing.

24 And Ms. Williams, I'd welcome if you could add

1 any detail to that that's relevant.

2 A (Williams) Thanks, Mr. Wells. Just a couple
3 things that I would add. I certainly agree with all the
4 examples that Mr. Wells provided. I think one of the
5 other significant differences besides the fact there was
6 just so much uncertainty and which regulatory scheme EPA
7 would base the final rule on is dealing with addressing
8 ponds that had not yet closed. In other words, perhaps
9 they were taking stormwater, but they hadn't fully closed
10 and there was still liquid in the ponds. So that, EPA
11 was very -- was completely silent on that under Subtitle
12 D solid waste framework when they did the proposed rule,
13 but they clarified and covered in the final rule that
14 inactive ponds that still had liquid in them would be
15 subject to the closure requirements under the final rule.
16 So that was a pretty significant change and one that I
17 think people had not really been able to fully evaluate
18 because they hadn't fully understood what EPA's position
19 was at the time of the proposed rule.

20 Another one is some of the location standards
21 changed. So I know Ms. Bednarcik discussed the final
22 location standards that said if a pond wasn't five foot
23 sep--- five feet separated from the aquifer that it would
24 have to close. Well, in the proposed rule that was two

1 feet, so it was a significant change, for example, in
2 that provision. And there was also a change in which of
3 the low-volume waste streams were allowed to be managed
4 in ponds between the proposed rule and the final rule.
5 So those are just some other examples. There were quite
6 a few changes, really.

7 And certainly, the most important change is
8 there was now certainty, or at least EPA thought there
9 was certainty until there was all the litigation that
10 occurred after the rule and the changes are continuing.

11 Q Let me ask you this. I mean, considering the
12 range that EPA was examining between the proposed rule up
13 until the rule -- the final was adopted in the way that,
14 you know, coal ash residuals and the impoundments could
15 have been treated, do you think that there was more that
16 Duke could have done to have mitigated the impact of the
17 impoundments based upon the knowledge that was available
18 at that time?

19 A It's my opinion that Duke was actively
20 investigating the groundwater at that time, and that -- I
21 alluded to this, but that is not a quick process. That
22 is a long process. EPA's experience and North Carolina's
23 experience on hazardous waste facilities is the time,
24 first, to get a fully adequate system in, and then to use

1 that system to evaluate what is an appropriate corrective
2 action, which could include closure, it could include
3 excavation, it could not include those things and just
4 include some type of a groundwater pump and treat or a
5 slurry wall or something else, okay, but the time frame
6 to get that process done is really, on average, 20 years.
7 It is not quick, okay? And it's not quick because you're
8 trying to understand a subsurface environment that is not
9 easy to understand.

10 So I believe in my review what Duke was doing,
11 starting by 2008 when it had all the wells in, was -- all
12 the initial wells in -- was working with DEQ in an
13 iterative fashion to improve that system to begin to
14 answer the question of what was appropriate and
15 protective and necessary. And I don't know what else
16 would have been appropriate because you have to do that
17 work before you can come to a final determination as to
18 what the right remedy is.

19 So in my opinion, Duke was doing precisely the
20 kind of work -- they weren't just sitting there waiting
21 for the rule to be final. They were working with DEQ to
22 investigate the full range of the impacts and what would
23 be the appropriate action based on that, and ultimately,
24 even though the final rule that EPA put out provided

1 flexibility in the closure method, North Carolina used
2 all the data that it had and made a determination that it
3 thought it was more appropriate to excavate, but they
4 couldn't have gotten to the right decision if Duke hadn't
5 been doing all the work that had started back in the 2008
6 time -- and, really, it started before, but it started
7 aggressively in the post 2008 time frame. So that would
8 -- that's my opinion.

9 Q Okay. And I understand what occurred 2007/2008
10 in terms of actions that were taken, but let me ask you
11 this hypothetically. Let's say that CCR hadn't been
12 adopted till 2019. Would it have still been reasonable,
13 based upon information that was known, just to continue
14 waiting and waiting and waiting until EPA made a
15 decision? I mean, is that what I'm essentially hearing?
16 I mean, and I don't --

17 A No. I hope you're not hearing that from me,
18 Commissioner, because what I'm saying --

19 Q Well, at some point you said 20 years was what
20 you thought might be reasonable, but --

21 A No. I'm saying that --

22 Q -- just clarify what you stated because I don't
23 want to -- you know, maybe I misheard what you stated,
24 yeah.

1 A I'm saying that from the time -- from the time
2 what EPA has determined, that even once you know that
3 there is some contamination in groundwater -- and I'm
4 giving EPA's experience, but I've looked at the North
5 Carolina hazardous waste sites that have been doing these
6 same kinds of investigations -- and to stay with North
7 Carolina sites, hazardous waste sites, from the time that
8 they were told if there's groundwater -- by regulation,
9 if there's groundwater contamination, you need to figure
10 out what's appropriate to do at your site. And if you
11 look at North Carolina's data, it took, on average, until
12 2020 for most of these facilities to get to a place that
13 they could fully -- that they could begin to implement
14 the requirements, and that's because it isn't that they
15 were doing nothing; it's that they were investigating
16 with the State what action would address and solve the
17 problem. And different actions are selected for
18 different facilities, and I'm just applying that same
19 thing and saying I think once Duke was working with the
20 State which is -- whether you say 2008, 2010, developing
21 -- putting in more wells as needed, developing the
22 models, understanding exactly what was going on in the
23 subsurface, then whether EPA had finalized its rule or
24 not, there would be a time where sufficient information

1 was available to the State of North Carolina to make its
2 decision with regard to what should happen at those
3 ponds.

4 But I don't think it would have been before the
5 time the final rule finalized, just out of practical,
6 looking at the nature of iterative evaluation to get your
7 system right and to get your groundwater modeling right,
8 which is the way decisions are being made today. They're
9 being made based on very sophisticated groundwater models
10 that are site specific and that evaluate not only what
11 the groundwater looks like today, but what the
12 groundwater will look like if you take various corrective
13 actions, including closure in place, closure by
14 excavation, not closure, but other types of potential
15 remedies.

16 So Duke was in that process, and I think they
17 would have reached the end of that process with North
18 Carolina even if EPA hadn't finalized its rule, but I
19 don't think they would have been able to finalize it
20 before the date of finalization of the rule.

21 Q Thank you for that clarity.

22 COMMISSIONER McKISSICK: Madam Chair, I don't
23 have any further questions at this time. Thank you.

24 CHAIR MITCHELL: All right. Commissioner

1 Brown-Bland?

2 COMMISSIONER BROWN-BLAND: Yes. Thank you.

3 FURTHER EXAMINATION BY COMMISSIONER BROWN-BLAND:

4 Q I just have one sort of follow up to what
5 Commissioner McKissick was just asking. So as opposed to
6 closing an existing facility, is it your testimony that
7 you find it was prudent up through the final rule for the
8 Company to continue to add CCR content to existing
9 facilities as opposed to, at some point along the
10 continuum of evolution that we've been discussing, start
11 to put the current -- the current waste in a lined
12 facility?

13 A (Williams) Commissioner, are you asking that
14 question to me or to both of us or --

15 Q Both, both.

16 A Okay. Well, maybe I'll start and let Mr. Wells
17 finish. My opinion is, again, I think in some of these
18 sites they may not have been adding additional slurry
19 material -- slurry coal ash in the window of time between
20 2010 and 2015, but I think what was important is they
21 were very closely working with the State agency, and I
22 think to the extent that they were -- sorry (phone
23 interruption) -- to the extent that they were finding
24 that ceasing sluicing would have made a difference, I

1 think the State would have requested that at that point.
2 They were working extremely closely together. So I don't
3 think that at that point one can second guess the
4 discussions that were going on between the regulatory
5 agency and DEC at that point in time. So I believe that
6 what they were doing, starting in 2010, was appropriate
7 and prudent.

8 Q And even prior -- you know, we talk about the
9 continuum. I assume that -- and maybe I'm wrong -- you
10 can go ahead and correct me if I am -- that the continuum
11 of discussion going back from '81 forward as it moved,
12 even though that might be considered by some to be at a
13 slow pace, but as it moved, the continuum was going in --
14 in some direction, some fathomable direction that -- that
15 was giving some clues away from the use of -- or the way
16 we were storing our coal ash or our CCRs. So over that
17 continuum, though, you don't think that it was prudent to
18 consider or to take steps to lessen what was going on in
19 the existing basins, to lessen the materials that were
20 being added?

21 A I believe that if you look at the -- and I
22 don't want to repeat all the things that we've said, so I
23 believe if you look at the steps that DEC took in the
24 1980s to evaluate whether there was a potential risk,

1 that those studies reasonably demonstrated to the Company
2 in that time frame that its current practices would not
3 have resulted in a reasonable risk of environmental
4 problems.

5 I think, as Mr. Wells stated, and I looked at
6 it as well, where they did see something, like at the
7 Belews Creek facility in surface water, they did take
8 action. And in my review of the documents I also saw
9 that they were proactively looking at receptors once you
10 got into the time frame of the 2008 and later kind of
11 time frame and checking out that information.

12 So I believe in light of that, in light of the
13 fact that they had installed groundwater monitoring
14 systems before many of the industry had done it at all
15 their facilities and were then improving them and working
16 with them, I believe they did what you would reasonably
17 expect a prudent utility to do. And so I guess that's
18 the answer -- my answer to your question.

19 Q And the receptors, that's not the only measure,
20 or is it, that you would be looking at, because it was my
21 understanding that, you know, the Company bought a lot of
22 property around, trying to create some type of buffer
23 between them and the next property owner, so that would
24 eliminate receptors. Wasn't it important to look, you

1 know, at more than just receptors?

2 A Well, again, first, we use -- I'm using
3 receptors broadly. It's not just humans. It's
4 ecological and so on. And in the framework that I guess
5 I've spent my 50-year career with, the goal is to protect
6 human health and the environment. You know, that's the
7 goal of regulations. It's not to do more than that.
8 It's to do that. And so it is my view that there are
9 times where it is appropriate to buy additional property
10 and allow monitored natural attenuation to occur because
11 you will achieve environmental protection at less cost,
12 and if you can achieve environmental protection with less
13 cost, that's a good thing. So I -- that's my view on
14 sort of that type of corrective action.

15 A (Wells) Right.

16 Q All right. Thank you. Mr. Wells, you got
17 anything? You heard that part of our discussion.
18 Anything you want to add to --

19 A No. I -- thank you. I agree that, you know,
20 the Company did -- as you referenced, the continuum. In
21 my review, I do -- my -- what I saw was the Company
22 operated consistent with that evolution of the science,
23 the regulatory requirements, regulatory priorities, you
24 know, public policy, public commentary on these issues

1 because you're right, there is a -- there is a continuum,
2 and if you look at the actions of the Company, it is
3 consistent with that continuum or in some instances, you
4 know, exceeding, for instance, industry standards where
5 they're very practically doing things.

6 But -- and, you know, and I base that on, you
7 know, the documents that you see. You see studies. You
8 see analysis. You see conclusions. You see the
9 monitoring ramping up. You know, we -- starting with
10 Allen and you see Marshall and Belews in the late '80s
11 and some Cliffside work and W.S. Lee, Dan River in the
12 '90s. You know, by the time you get into the mid '90s,
13 late '90s, there's been groundwater monitoring at all
14 facilities with the exception of Buck. And then in the
15 mid 2000s even more monitoring goes in on a voluntary
16 basis. And then, of course, additional wells in 2010 and
17 all those things.

18 And the important things that are always being
19 looked at were the things that I think you -- you're
20 looking at or you mentioned, which was receptors in the
21 sense of wells, but also the public -- or the water, the
22 receiving waterways and the monitoring that's ongoing
23 with all of those, and continuing with all of that data
24 telling us there's no -- there's no flag that is saying

1 there is this risk presenting itself. It's verification
2 that that risk is not there or that it's not being
3 realized.

4 But then that's getting more and more rigorous
5 with time along that continuum, and I found it consistent
6 with what I viewed as all of the, you know, the science,
7 the regulatory priorities, the regulations themselves, as
8 well as the public movement in this direction.

9 Q All right. And I just wanted to clarify, Mr.
10 Wells, from our previous discussion, when I was asking
11 about had existing caps had to be moved post CCR Rule and
12 CAMA, and you mentioned that, yes, CAMA had required the
13 excavation of basins of pond -- unlined basins of ponds
14 that were capped, but were you -- you were referring to a
15 soil cap, right? Soil caps? You're not aware --

16 A Correct.

17 Q Okay. And you're not aware of any that were a
18 synthetic cap that had to be removed, were you, as a
19 result of CAMA or the CCR Rule?

20 A The only thing I think might be relevant there
21 is the Allen. There is a -- the retired ash basin at
22 Allen.

23 Q Had a synthetic cap?

24 A Well, it had the landfill built on top of it

1 which had a cap, so that was kind of a unique situation,
2 it was being viewed as a cap, but that was moving towards
3 excavation. And originally the -- we have other basins
4 that look like that, and originally those were all
5 required to be excavated under the original Order, but
6 the ultimate settlement didn't require that for all.

7 Q All right. Thank you very much.

8 COMMISSIONER BROWN-BLAND: That's all.

9 CHAIR MITCHELL: All right. Mr. Wells, I'd
10 like to just follow up with you on one comment you made
11 in response to one of the Commissioners. You indicated
12 that you didn't know if the Company or Duke Energy had
13 submitted comments on the proposed CCR Rule, so I'd like
14 for you to dig into y'all's records and see if you can
15 determine whether the Company did submit comments during
16 the rulemaking process and provide those comments as a
17 late-filed exhibit, please.

18 THE WITNESS: Yes, ma'am.

19 CHAIR MITCHELL: All right. At this point we
20 will take questions on the Commissioner's questions,
21 beginning with intervening parties. Public Staff, you
22 may proceed if you have any.

23 MS. LUHR: Thank you. This is Nadia Luhr. I
24 just have a couple of questions for Mr. Wells.

1 EXAMINATION BY MS. LUHR:

2 Q Good morning, Mr. Wells.

3 A (Wells) Good morning.

4 Q So Commissioner Brown-Bland yesterday asked you
5 questions regarding the selection of the Allen plant for
6 both Duke's internal evaluation and participation in the
7 EPA and Arthur D. Little studies. Do you remember that
8 question?

9 A I do, yes.

10 Q And so the Allen site consists of the retired
11 ash basin and the active ash basin; is that correct?

12 A Today, yes.

13 Q Okay.

14 A And the -- and the landfill.

15 Q Correct. And the retired ash basin stopped
16 receiving sluiced ash and was filled and basically
17 stopped operating in the 1972 to 1973 time frame; is that
18 correct? And we can refer to documents if we need to or
19 we can go off your recollection.

20 A If you let me take a quick look at something, I
21 can -- I do not have the date in front of me of when the
22 retired ash basin no longer received ash.

23 Q Okay. Do you have Junis Exhibit 4?

24 A I can look. Yes. I have that.

1 Q Okay. So if you -- I guess there's only one
2 page to this exhibit, and you'll see on the left-hand
3 side the table is broken out by facility, and Allen is
4 the first one there. And it lists the retired ash basin
5 and then years during which CCR storage area was in
6 operation, receiving or storing CCR, and do you see the
7 dates there?

8 A I do see it. My -- I'm having trouble,
9 honestly. The doc -- the type -- the font is very small.

10 Q I think it's a lot easier to see on a screen
11 when you can blow it up, but I apologize for that. But
12 I'll --

13 A If you want to tell me what it is, I would
14 concur, subject to check.

15 Q Absolutely. So it's 1957 to 1973.

16 A Okay.

17 Q Okay. And so turning to the active ash basin,
18 that impoundment began receiving sluiced ash in 1972,
19 and, again, that's on the spreadsheet, but if you want to
20 confirm, subject to check.

21 A Okay. Subject to check, I would agree.

22 Q Okay. And is it correct that the groundwater
23 data at Allen that was used for the Allen study and the
24 Arthur D. Little study was collected between 1979 and

1 1982? I believe you're muted, Mr. Wells.

2 A I believe the -- I think my understanding is
3 that the initial Allen study that was done by --
4 performed by -- that culminated in the Duke '84 report,
5 that those wells went in -- I think those wells were
6 installed in '78, so I think they began in '78.

7 Q Okay. So the active ash basin had been
8 receiving coal ash for approximately 10 years when the
9 groundwater monitoring was done; is that right?

10 A When -- I don't remember the date in the report
11 when the -- the back end of the monitoring period for the
12 -- that supported the study.

13 Q And by comparison, if you look at, for example,
14 Riverbend, which I believe was discussed yesterday as
15 well, the two ash basins at Riverbend had been receiving
16 sluiced coal ash since 1957; isn't that right?

17 A I believe that is correct. I believe it went
18 into operation in 1957.

19 Q Okay.

20 MS. LUHR: And that's all my questions.

21 THE WITNESS: Very good. Thank you.

22 CHAIR MITCHELL: All right. Attorney General's
23 Office?

24 MS. TOWNSEND: No questions, Chair Mitchell.

1 CHAIR MITCHELL: Okay. Sierra Club?

2 MS. CRALLE JONES: No questions, Chair

3 Mitchell.

4 CHAIR MITCHELL: All right. Any other
5 Intervenors, questions on Commissioner's questions?

6 (No response.)

7 CHAIR MITCHELL: All right. Mr. Marzo?

8 MR. MARZO: Chair Mitchell, no redirect. I
9 would ask at the appropriate time that the witnesses'
10 exhibits be moved into the record.

11

12

13

14

15

16

17

18

19

20

21

22

23

24

1 MR. MARZO: I'd also ask that the cross
2 examination exhibits admitted during the live
3 testimony be moved into the record. Those are
4 identified as Public Staff Wells/Williams Rebuttal
5 Cross Exhibit Numbers 1 through 6.

6 COMMISSIONER CLODFELTER: You've heard
7 the motion --

8 MR. MARZO: If you want me to do both of
9 them, I've got one more.

10 COMMISSIONER CLODFELTER: No, go ahead,
11 I thought you were at the end.

12 MR. MARZO: AGO Wells/Williams Rebuttal
13 Cross Examination Exhibit 1 through 2 as well.

14 COMMISSIONER CLODFELTER: All right.
15 You heard the motion from Mr. Marzo. Any
16 objection?

17 (No response.)

18 COMMISSIONER CLODFELTER: Hearing none,
19 the motion is allowed.

20 (Public Staff Wells/Williams Rebuttal
21 Cross Exhibit Numbers 1 through 6, and
22 AGO Wells/Williams Rebuttal Cross
23 Examination Exhibit 1 through 2 from
24 Docket Number E-7, Sub 1214, were

1 admitted into evidence.)

2 MR. MARZO: Commissioner Clodfelter, the
3 witnesses are now available for cross examination.

4 COMMISSIONER CLODFELTER: All right.
5 Cross examination, Ms. Luhr and Ms. Jost? Which of
6 you is going first?

7 MS. LUHR: Thank you.

8 CROSS EXAMINATION BY MS. LUHR:

9 Q. Yes, this is Nadia Luhr. And, Mr. Wells, my
10 questions are for you this afternoon.

11 Looking at page 33 of your testimony.

12 A. (James Wells) Okay. I am there.

13 Q. And on lines 4 through 8, you state that:

14 "While the Company may have been aware in the
15 1980s that unlined impoundments, in general, could
16 potentially impact groundwater, there was no
17 substantial evidence showing that there were
18 significant impacts resulting from DE Progress'
19 facilities."

20 And, Mr. Wells, there was no groundwater
21 monitoring at Asheville, Cape Fear, Mayo, or H.F. Lee
22 until the 2000s, correct?

23 A. Right. So I think if we're referring to this
24 time frame, right, it would have been Sutton, Roxboro,

1 Robinson, Weatherspoon. Those, I think, are the
2 facilities where we would have initiated monitoring up
3 through the 2000 time period, and that's when the rest
4 of the facilities initiated groundwater monitoring;
5 that's correct.

6 Q. Okay. So your assertion that in the 1980s
7 there was no substantial evidence showing significant
8 impacts resulting from DEP's facilities, that's based
9 on -- that's not based on groundwater monitoring from
10 all of the facilities; isn't that right?

11 A. So I think with this -- let me just make sure
12 I'm looking at the correct line. You're on 3
13 through -- is that 3 through 7?

14 Q. Yes. Through 8.

15 A. Okay. So at that time, the -- we had done
16 studies at Roxboro in 1978, so there was some
17 groundwater monitoring that had been done that was
18 voluntary, and that was well above anything that was
19 required or above what was being done with the industry
20 as a whole. But it was at least a chance, at one
21 facility, to begin evaluating what, if any, impact is
22 being realized from this potential that is being
23 discussed in some of the historic- -- some of those
24 historical documents we've been citing.

1 Following that, you see the Mayo study. It
2 relies on the rock study. And then following that, you
3 see monitoring going in at Sutton, groundwater
4 monitoring wells. And additional groundwater
5 monitoring wells going in in the '80s, additional wells
6 going in in Sutton in '86, additional in '88, '90 time
7 frame. So the sites are beginning to -- they are --
8 there is some groundwater monitoring going on as early
9 as '78 and then where you slowly are seeing more
10 facilities incorporating groundwater monitoring.

11 In addition to that, there are other factors
12 that are relevant to this. So one of the big concerns
13 with groundwater monitoring as the whole, particularly
14 in the early '80s and in this early time period, is the
15 impact to surface water or to receptors. So that also,
16 in addition to just wells in the ground, there is also
17 surface water monitoring going on. That is going on
18 both for purposes of the NPDES monitoring, meaning the
19 permit monitoring that was -- you know, all the
20 facilities were permitted under the Clean Water Act and
21 monitoring was being done associated with that. But
22 also surface water studies on that -- on that -- on
23 that receiving water body.

24 So that would have captured, if you were

1 beginning to see some impacts to groundwater and to
2 surface water, which is a lot of what the thinking was
3 at the time. It would have captured that. So that
4 looked at typically -- it varied by facility when it
5 was implemented and what was studied, but often it
6 included fishery studies, looking for impacts to the
7 fishery. Water quality studies, looking for impacts
8 upstream, downstream-type samples for understanding if
9 there was impacts to the river. So there are a number
10 of factors that come into play.

11 The other piece of that is, sort of, even if
12 it's not monitoring, geological considerations come
13 into play. So things like, you know, if there is a
14 study that's relevant in a particular region, that that
15 can also be at least a data point that's informed of
16 that type analysis. So as we're aware, the Allen study
17 associated with the Piedmont and the conclusions in the
18 Piedmont region, some of the facilities within that you
19 recited to that didn't have the early monitoring, which
20 were Weatherspoon, Cape Fear, H.F. Lee, those are in
21 that Piedmont. So that data point is still relevant,
22 particularly in the early '80s as that risk is trying
23 to be analyzed.

24 Q. Thank you. And I'd like to discuss the

1 Roxboro study briefly. And do you know how many
2 downgradient wells were tested for the Roxboro study?

3 A. I don't recall. I know it's cited in the
4 Mayo study, but I don't know if you have that number.

5 Q. Yeah. So I -- the Mayo study discusses the
6 Roxboro study, and it says there were two downgradient
7 wells. And I'm happy to go there if you would like.

8 A. I think it was -- if I recall, I think there
9 was some upgradient monitoring, downgradient. I
10 couldn't remember, but I think that sounds right, two
11 or three wells. And then I think there was also some
12 off-site monitoring. Beyond that, like a drinking
13 water well, or a personal residence, or something to
14 that effect. But I agree, that's referenced in the
15 Mayo study.

16 Q. Okay. Thank you.

17 A. And I will tell you -- I mean -- and again,
18 '70s -- late '70s time frame, that's what the wells
19 were installed. If you look at the 2015 CCR ruling, to
20 the extent we're judging whether the 40-plus years ago
21 someone had an adequate well network. 2015 CCR rule
22 minimum requirement is, I believe, one upgradient, two
23 downgradient, or one upgradient and three downgradient.
24 It's in that -- but it's in the -- it's similar-type

1 setup as to what we --

2 A. (Marcia E. Williams) If I could just add one
3 quick thing. The information on the 1988 report to
4 Congress that EPA put out did look at groundwater
5 monitoring at roughly somewhere between 75 and 100
6 facilities, most of which were unlined, and found from
7 that analysis that there was only 5 percent where they
8 were seeing exceedances of standards at that time. And
9 most of those exceedances were quite limited in extent.
10 So I do think that was a reasonable additional piece of
11 information that Progress would have had available to
12 it in the 1980s.

13 Q. Thank you. And, Mr. Wells, in 1978 when the
14 testing was conducted at Roxboro, how long had the east
15 ash pond at that site been in operation?

16 A. (James Wells) I don't recall. I would have
17 to -- I would have to look at that study again. I
18 think that is cited in the Mayo study as well where the
19 wells are discussed.

20 Q. Okay.

21 A. I just don't remember.

22 Q. That's fine. I can direct you to Lucas
23 Exhibit 4, if you have that with you. It's -- it might
24 be a little small to read, but we can take a look at

1 i t.

2 A. Okay. Just give me just a minute.

3 Q. Sure.

4 A. (Witness peruses document.)

5 Okay. I do have Lucas 4.

6 Q. Okay. Great. So this is a spreadsheet
7 showing when each ash basin was -- began operation.
8 And in the left-hand column, you can see Roxboro, and
9 then in the fourth column next to that, you see east
10 ash pond. And then I don't know if you're able, on a
11 printout, to read the date next to the east ash pond.
12 That might be fairly small.

13 A. It is small. Can you read it in your
14 version?

15 Q. Sure. So this says 1966 through 1986. So it
16 began operation in 1966; does that sound correct?

17 A. I think that looks right here, yeah.

18 Q. Okay. So the testing began in 1978. The
19 east ash -- the east ash pond would have been in
20 operation for 12 years; is that right?

21 A. I think that is correct, yes.

22 Q. Okay. Thank you. And we can refer again to
23 this exhibit.

24 Do you know how long the west ash pond had

1 been in operation? And I can read this for you again.
2 The chart says that the west ash pond was -- or began
3 operation in 1973?

4 A. (Witness peruses document.)

5 I believe that's correct. I am struggling
6 with that.

7 Q. Yeah. I apologize for that.

8 A. The font is very small.

9 Q. It's very small.

10 A. I think that's consistent with what I think
11 it says.

12 Q. Okay. So it would have been in operation
13 approximately five years; is that correct?

14 A. That is correct.

15 Q. Okay. And let's see. On page 23 of your
16 testimony, lines 10 through 13 -- just let me know when
17 you're there.

18 A. I'm there.

19 Q. Okay. You state that:

20 "The results of the Roxboro study reinforced
21 that the naturally occurring clay soils in the region
22 can give essentially complete protection against the
23 trace elements that occur in ash pond sludge."

24 And, Mr. Wells, when you -- when you say

1 "clay soils," what percentage of the soil is clay?

2 A. I don't recall what it's referring -- what
3 the percentage of clay is.

4 Q. Okay. Could the percentage of clay vary
5 within one site within the Roxboro site; do you know?

6 A. I don't know that.

7 Q. Okay. Let's move on and discuss the Mayo
8 study.

9 A. Okay.

10 Q. And if we need to refer to it -- I don't know
11 if you have the Mayo report in front of you. I've been
12 referring to Hart Exhibit 24A. I think it's in the
13 record in several places.

14 A. Okay. Let me see if I can get a copy of
15 that. Hart 24A?

16 Q. That's right.

17 A. (Witness peruses document.)

18 Okay. I'm there.

19 Q. Okay. All right. So are you aware that the
20 report stated that 12 test holes at Mayo were finished
21 as observation wells in order that periodic sampling of
22 the groundwater could take place?

23 A. Can you point me to that page?

24 Q. Yes. So if you refer to page 13, and that's

1 based on the bottom of the pages of paper would be --

2 A. All right.

3 (Witness peruses document.)

4 Okay. I am at page 13.

5 Q. Okay. And it's that first full paragraph.

6 A. (Witness peruses document.)

7 Yes, I see that.

8 Q. Okay. And it also states there that:

9 "This was to allow for the detection of trace
10 elements in the groundwater if contamination should
11 occur in the future"; is that correct?

12 A. It speaks to -- I think it's referring to
13 water level measurements and the ability to also sample
14 for trace elements if that analysis is needed for trace
15 elements.

16 Q. Okay. And are you -- do you know if this
17 periodic sampling took place once the ash pond was
18 constructed?

19 A. I'm aware that at least additional sampling
20 occurred for purposes of the water level measurements,
21 I'm aware of that. For purposes of confirming flow
22 direction, I think the sampling was continued for the
23 purposes of evaluating flow direction and confirming
24 that the groundwater flow direction was consistent with

1 what they anticipated post construction. Meaning that
2 it was -- and I think what they confirmed was that it
3 was actually flowing back in towards the basin; that's
4 what the results were showing.

5 Q. Okay. And do you know if the testing was
6 done to test for the trace elements?

7 A. I don't know. Subsequent to construction,
8 the permit that was issued required additional sampling
9 to -- of the Crutchfield Branch for the purposes of
10 confirming. The concern that is discussed in the EIS,
11 and I actually ultimately evaluated Mayo, was whether
12 or not there is a potential for risk at Crutchfield
13 Branch through groundwater potentially moving under the
14 dam and up into Crutchfield.

15 So there was an analysis done per the Mayo
16 report, which is a report you have me looking at. It
17 draws very strong conclusions that says that that's
18 not -- it wouldn't be anticipated because of the
19 surrounding geology that that filtration that would
20 occur for any water that went through there, that it
21 wouldn't reach to the point that it could impact water
22 quality in Crutchfield Branch. So that was the
23 discussion that was going on in the Mayo study, that
24 was the conclusion.

1 Once the Mayo study is submitted to the
2 agency and permits issued, through the agency,
3 additional monitoring was placed on Crutchfield Branch
4 to confirm that any potential groundwater wasn't being
5 realized as an impact to water quality standards at
6 Crutchfield. And that -- that sampling was ongoing.
7 That occurred as required under the permit since 1982.

8 Q. Okay.

9 A. And I would add, no -- there's never -- we --
10 I have no belief that there's been any exceedance of a
11 water quality standard in Crutchfield Branch since that
12 was initiated.

13 Q. Okay. But you don't know if periodic
14 sampling of the groundwater took place in those 12
15 observation wells after this report was issued?

16 A. What I've seen through my review of the
17 records has been the water levels have been monitored
18 in those observation wells for the purpose of
19 confirming the groundwater.

20 Q. Understood. And groundwater monitoring at
21 Mayo began in the 2000s; is that correct? Is that your
22 understanding?

23 A. That is correct.

24 Q. And if I could have you turn to page 6 of

1 this report.

2 A. (Witness peruses document.)

3 Okay. I'm there.

4 Q. And if I could have you -- well, I'll go
5 ahead and read the language. So I'm looking at the
6 first full paragraph, and I'm going to read the second
7 sentence, which states:

8 "The water levels reflect late summer dry
9 season and are at or very near their yearly lowest
10 levels. Seasonal fluctuations are probably within the
11 range of 5 to 15 feet in upland areas and 2 to 5 feet
12 in the valleys."

13 So, Mr. Wells, this means that, when testing
14 was conducted to determine where the water table was,
15 the water table would have been at its lowest or near
16 its lowest levels of the year; is that right?

17 A. I don't know. I mean, it could -- I'm sure
18 it would vary by year.

19 Q. With respect to your -- this statement that
20 the water levels reflect the late summer dry season and
21 are at or very near the yearly lowest levels, that
22 would mean that, during other times of the year, the
23 water table would have been higher and therefore closer
24 to the sluiced coal ash in the impoundments; is that

1 correct?

2 A. I don't know that.

3 Q. Okay.

4 MS. LUHR: And those are all my
5 questions, Commissioner Clodfelter. I don't
6 believe my colleague, Ms. Jost, has any questions
7 for this panel.

8 COMMISSIONER CLODFELTER: Okay.

9 Ms. Jost; is that correct?

10 MS. JOST: That's correct. Thank you.

11 COMMISSIONER CLODFELTER: Okay. Thank
12 you, then. We'll move to Ms. Townsend.

13 MS. TOWNSEND: Thank you,
14 Commissioner Clodfelter. Based on the amended
15 joint stipulation and the questions posed from the
16 Public Staff, the Attorney General would waive any
17 cross examination of this panel at this time.

18 COMMISSIONER CLODFELTER: All right.
19 That takes us to the Sierra Club. Ms. Lee?

20 MS. LEE: Yes. Thank you,
21 Commissioner Clodfelter, and good afternoon
22 Commissioners.

23 CROSS EXAMINATION BY MS. LEE:

24 Q. Good afternoon, Mr. Wells, good to see you

1 again. I have just a few question for you today.

2 You've testified that when the basins were
3 constructed, they were consistent with industry
4 standards and governing law; is that correct?

5 A. (James Wells) That is correct, yes.

6 Q. And is it right that you've based that
7 opinion on a review of historical documents?

8 A. It's based on my review of historical
9 documents and current knowledge of the status of the
10 basins.

11 Q. Understood. Thank you. And would those
12 historical documents include the history of
13 construction reports that were prepared on behalf of
14 the Company pursuant to the requirements of the 2015
15 federal CCR rule? I'm sorry, I think you're on mute.

16 A. I have reviewed the history of construction
17 documents at some level of detail as well, correct.

18 Q. Okay. And those are all posted on the
19 Company's CCR rule compliance and information website;
20 is that right?

21 A. That is correct.

22 Q. Okay. Did you review, Mr. Wells, the
23 underlying documents that are cited in those history of
24 construction reports?

1 A. I have seen some of those, and I would have
2 reviewed the documents on the whole, generally.

3 Q. Okay. And with respect to the construction
4 at the Mayo site, was the ash basin there constructed
5 in a stream valley area?

6 A. Based on my review of the document -- and
7 this is where I'm going to refer to the EIS, because I
8 think that the environmental impact statement, that's
9 important that there's some -- there are some
10 statements in there that I think are relevant, so I'd
11 like to bring that into the discussion. But the
12 environmental impact statement is -- just for
13 additional context, of course, this was a document that
14 was performed by the Corps of Engineers for the
15 purposes of determining if it could issue a 404 permit,
16 which is a Clean Water Act permit, that would speak to
17 the issue that I think you're referring, that is
18 whether or not you can have fill in a water of the U.S.
19 So you're asking would that have been lawful
20 construction, basically.

21 Q. I guess -- sorry, just to interrupt real
22 quick. My question is a little different. Not whether
23 it's lawful or not, but just physically is that what
24 happened?

1 A. It is not. And I'll refer to the EIS again
2 for the purpose -- for my -- the basis of my view of
3 this. Within the EIS, the Corps is evaluating the
4 environmental impacts on a whole, whether that's air,
5 water, health. And it's charged, as part of that EIS,
6 to evaluate the various alternatives available for the
7 operation or even to build the plant, even a no-action
8 alternative, whether it benefits versus burdens and
9 environmental impacts. So they go through the analysis
10 and issue their draft environmental impact statement.
11 One of the issues in there was the potential risk to
12 Crutchfield Branch, both as it was currently
13 constructed and future operations. So that's what the
14 discussion is about.

15 And the EPA commented on the draft EIS, which
16 is the letter that I believe was part of the discussion
17 that was had with Ms. Bednarcik. The draft EIS, of
18 course, the next step would be for the Corps to go
19 back, resolve comments for all commenters, which they
20 did. Elsewhere in the document, they speak to that.
21 And with respect to the discussion on the Crutchfield
22 Branch where the ash basin was to be located, the Corps
23 indicated that that was not -- the Corps had not
24 determined that to be waters of the U.S.

1 And elsewhere within the document you can
2 find that there had been some relocation of the stream
3 within the area of where the basin was to -- was going
4 in, and that was -- I believe that was tied to the
5 reasoning of the Corps indicating.

6 So point is, I think your question is whether
7 or not it's -- the ash basin was placed in Crutchfield.
8 And what I was understanding through my review of that
9 document is that it had been rerouted for the purposes
10 of supporting the ash basin construction.

11 Q. Okay. Are you aware that the history of
12 construction report states that, quote, it appears that
13 the ash basin was constructed in a valley area with a
14 natural contours in place, close quotes?

15 A. I'm not specifically aware of that statement.

16 Q. Do you disagree with that statement?

17 A. Excuse me?

18 Q. Do you disagree with that statement?

19 A. What I was referring to is it indicates that
20 that -- well, reread the statement, if you would, just
21 so I'm clear.

22 Q. Yeah, sure.

23 "It appears that the ash basin was
24 constructed in a valley area with the natural contours

1 in place."

2 A. What I understand, again, from my -- I don't
3 think -- I don't think that is answering the question
4 you asked, though, and that is with the basin built in
5 Crutchfield. The -- what I was referring to is the
6 rerouting of the stream. If you read the document that
7 I'm referring to, it discusses the -- in essence,
8 upland of the area where the stream would otherwise
9 flow, that there was a diked area that redirected the
10 stream. So --

11 Q. Okay.

12 A. You understand?

13 Q. Yeah. I've got what you're saying. Thank
14 you. We can move on from that.

15 Mr. Wells, the Company upgraded the fly ash
16 handling system at the Mayo plant including the
17 development of an on-site landfill in 2009, correct?

18 A. So as part of the -- so make sure we
19 understand what we mean by upgraded the fly ash. So as
20 part of the construction of the Mayo -- and this was
21 tied in with the environmental impact statement as
22 well, the EIS -- the Mayo facility originally was
23 constructed with the ability to operate dry fly. Dry
24 fly ash, as well as wet sluice ash, full capacity ash.

1 In the environmental impact statement, there was an
2 analysis, that was referred to, a cost-benefit
3 analysis, that indicated in order to operate dry fly at
4 Mayo, it would be twice -- it would be over two times
5 the cost with respect to the sluicing.

6 So where the plant ended up was the ability
7 to operate and store fly ash dry, or wet sluice it.
8 And if they did it dry, then they would use it for
9 purposes of the market, if they were able to market.
10 And then with time, that there ultimately was a
11 monofill that was built at the site, and I believe it
12 was in that time frame, it was 2010 or '11 that you
13 referred to. And with that, then the dry fly ash could
14 continue to be landfilled as well. And -- but if you
15 look back at the early '80s, there was still a need --
16 even when dry fly could be utilized, there was still a
17 need to have a wastewater treatment in the form of the
18 basin for purposes of handling the bottom ash, which
19 there wasn't the capability to go dry bottom, as well
20 as other traditional waste streams that are managed via
21 the basin under the NPDES permit program.

22 Q. Okay. For that monofill you mentioned, just
23 given the lead time needed for permitting, and
24 engineering, and design, and construction, do you know

1 when the decision would have been made to switch to the
2 dry handling that was available at Mayo and to
3 construct that monofill?

4 A. I don't recall the specific timing on that.
5 I'm aware that it was -- you know, it was tied to move
6 to zero liquid discharge, you know, moving into the
7 ZLD, and I think all of that was part of the last case.

8 Q. Okay.

9 A. Last rate case.

10 Q. Understood.

11 A. 2017.

12 Q. And in 2013, the Company converted from wet
13 to dry handling of bottom ash at Mayo; is that right?

14 A. I don't remember the exact year.

15 Q. Okay.

16 A. The time frame. I just don't know if '13, at
17 some point in there we converted to bottom -- dry
18 bottom ash.

19 Q. Yeah. Looking at your rebuttal page 53
20 but --

21 A. Okay.

22 Q. -- the bottom.

23 A. If I can look through that for verification.

24 Q. Sure.

1 A. Page 53?

2 Q. Yeah. I think it's lines 1 through 7.

3 A. (Witness peruses document.)

4 Yes.

5 Q. On line 3 there.

6 A. I see it refers to 2013 for bottom dry ash --
7 bottom ash -- dry bottom.

8 Q. So if the conversion was ready to go in 2013,
9 do you know when that decision would have been made to
10 convert to dry handling bottom ash?

11 A. I don't know.

12 Q. Okay. But it would have had to have been
13 made before the passage of CAMA and the adoption of the
14 CCR rule; is that right?

15 A. In 2013, that is correct, that would precede
16 all of the -- and again, I would point that the Mayo
17 system was tied to the zero liquid discharge upgrade
18 that the facility was implementing at the site.

19 Q. Understood. Mr. Wells, do you know whether
20 the Company was able to recover the costs of converting
21 to dry fly ash handling at the Roxboro site? I think
22 that conversion was back in the 1980s?

23 A. I don't know. I just I wasn't involved with
24 that. I don't know.

1 Q. Okay. And --

2 A. I would point -- I mean, I would point out at
3 Roxboro, I think is a good example of an issue that had
4 developed. And so I had indicated that, as part of the
5 operations that I've seen through my historical review,
6 is that when issues did develop, the Company took
7 action. And when it was a strong basis to move and
8 manage things differently, just to manage that risk.
9 And I think Roxboro was an example of that. And so
10 there was a very -- based on what they were seeing at
11 Hyco Lake, Company had discovered fishery impacts there
12 and a need to make some adjustments based on the
13 potential selenium impacts as the cause, which it
14 ultimately was believed that that was the cause. And
15 that converted -- that served as a strong basis to
16 adjust operations there to support -- to manage that
17 risk to the ecosystem.

18 Q. If there had been more robust monitoring of
19 the groundwater around that basin, might those impacts
20 to fisheries have been avoided?

21 A. No. The issue was impacts to surface water,
22 and it wasn't impacts to surface water from
23 groundwater. That was not the cause. It was a direct
24 discharge into --

1 Q. I understand.

2 A. -- via the pipe, the permitted -- we were
3 permitted to discharge X amount of selenium in
4 concentration, right, under the state permitting rules.
5 And over time, you know, you can see in what we learned
6 and have adjusted to and, you know, been in a position
7 to be able to manage this more effectively. But back
8 then, '80s, we didn't realize until it was revealed
9 through the fishery studies that the selenium could
10 cycle up, bioaccumulate within the fisheries.

11 Q. Understood.

12 A. And it takes some time before you see that,
13 but once we saw it, then we made the adjustments at the
14 facilities where that was a risk point for us.

15 Q. Okay. Mr. Wells, just switching gears a
16 little bit. Were you able to watch the cross
17 examination of your colleague, Ms. Bednarci k, during
18 this hearing?

19 A. I saw -- I was observing most of it. I
20 didn't see everything.

21 Q. Okay. I believe a number of questions about
22 groundwater that were posed to Ms. Bednarci k, she
23 indicate that you might be better suited to answer
24 those; do you recall that?

1 A. I do.

2 Q. Okay. And so I'll ask this again
3 specifically of you, Mr. Wells.

4 Has an exceedance of a 2L standard ever been
5 recorded beyond the compliance boundary at Mayo? And
6 just to make sure I'm clear, I'm not asking if there
7 has been a violation of the rules, I'm asking if
8 there's any coal ash constituent at a concentration
9 that is above 2L standard has ever been recorded beyond
10 a compliance boundary at Mayo.

11 A. Well, there's been a great deal of monitoring
12 outside the compliance boundary at Mayo, and there is a
13 data set that we've produced that reflects all of that.
14 Of course, we don't -- we're continuing to do that
15 monitoring to date. There have been detections outside
16 the compliance boundary that would be above the
17 published number in the 2L rule. So, for instance,
18 iron, pH, manganese, they've been detected. So now
19 let's follow that line of thinking. So now you've got
20 pH that's above the published standard. And then you
21 have to next ask -- you have to ask the next question:
22 Is there another -- is there -- what is background?
23 That's the first question.

24 So then you have to -- where you have

1 naturally -- under the 2L rule, where you have
2 naturally occurring constituents, which is all the
3 above. And DEQ establishes the background, and if
4 you're above -- and if that's above that published
5 number, then the legal standard is the background.

6 So with respect to iron, and manganese, and
7 pH, that's where you're at. So now you would have to
8 ask are you above background outside the compliance
9 boundary. Then if you look at the pH hit, you got pH
10 outside of the range and it was low, meaning it was
11 below the band. It's got a band of -- I don't remember
12 the number, but let's say it's between 6 and 9, it
13 would be have below 6. Very common to see that
14 naturally, one; but two, we also bear -- and this is --
15 I would say first, but this is a very good example of
16 why you can't take a single well result and cherry-pick
17 it and make bright, broad conclusions from it. And
18 this is why, with respect to groundwater monitoring,
19 it's important to look at the network as a whole and
20 the data as a whole.

21 So for pH what was determined is we had a
22 ground impact inside that well post construction, and
23 following development of the well. So the pH was
24 spiking and then it ultimately curved, and then once

1 the well stabilized, pH fell back within the background
2 range for the site.

3 With respect to iron, we had an iron
4 background number early on that was later adjusted.
5 And manganese, the same. So the iron and manganese
6 numbers, all the numbers we've seen to date are below
7 what has been the latest determination of background by
8 DEQ for those two parameters.

9 We also at the site had strontium that we had
10 seen, I think there was an antimony that we had seen.
11 So with respect to those two, again, you got to look at
12 those and say what is the -- what is this. And both of
13 those were determined to be within the range of normal
14 background. And the state has since removed those from
15 the constituent of interest list for those wells going
16 forward for purposes of developing or evaluating
17 corrective action.

18 Q. Okay. How about boron, or cobalt, or
19 vanadium?

20 A. So boron has never been above standard
21 outside the compliance boundary at Mayo. The vanadium,
22 I don't remember, specifically. Cobalt, if I remember,
23 that one fell -- ultimately fell under the approved
24 background with respect to cobalt. But I can tell you

1 there's not, at this point, an indication to us that
2 there is an exceedance above background outside a
3 compliance boundary. Above what would be the 2L
4 standard, which in most of those -- in those instances
5 would be the background number established by DEQ for
6 those parameters.

7 Q. Okay. And at the Mayo site, there are toe
8 drains at the dam; is that right?

9 A. That is correct. They were installed at the
10 time of construction.

11 Q. Okay. And did the Company ever -- did the
12 Company ever redirect outflows from those toe drains?

13 A. Yes.

14 Q. Okay. And at what point in the history of
15 the dam? Is that sort of an ongoing set of actions
16 taken?

17 A. The -- so we had -- so the toe drains at
18 Mayo, this is consistent with kind of what we've talked
19 about before. These are obviously built into the dam,
20 part of the engineering, they were designed to relieve
21 any water pressure that might build up in the dam to
22 ensure the dam safety. And these were obviously part
23 of the regulatory requirement, as far as how we monitor
24 for dam safety, we would monitor these toe drains

1 for -- make sure they're operating properly, and those
2 reports were provided to the state and other regulatory
3 bodies.

4 And then this was consistent with what I've
5 referred to, and I've referred to it in the DEC case.
6 There was a good bit of testimony, the Duke Energy
7 Carolinas case regarding seeps and toe drains, and this
8 is in that category where, in 2010, under the Hanlon
9 memo from EPA, there was reference to -- it was to the
10 states to begin evaluating permitting or whether these
11 toe drains' seeps should be captured under a permitting
12 scheme or whether or not -- to evaluate whether or not
13 they -- what's the regulatory treatment of these,
14 what's the proper treatment for these.

15 And that's when the Company and Progress
16 did -- similar to I testified with respect to Duke
17 Energy Carolinas, Progress had approached the state
18 about permitting these types of -- at all of its
19 facilities. And that was -- of course, DEQ had
20 indicated, as I indicated in my prior testimony in the
21 '17 case, what I referred to there is that the states
22 had indicated it was a low priority, it was de minimus.

23 So they were not moving forward with
24 permitting those. And in -- beginning in 2014, we did

1 an even broader outlook to have all of those seeps and
2 toe drains permitted. In that time frame -- and of
3 course now we've got resolutions through SOC's and
4 permits -- but in that window between that era where we
5 were trying to get them permitted in, DEQ wasn't moving
6 forward with the permits, we did take action where
7 feasible to collect some of these toe drains. And in
8 most instances, would pump them back to the basin until
9 we could get some sort of clarity on their regulatory
10 status and the need to either permit them or other
11 action, and that action was implemented in Mayo.

12 Q. Okay. Mr. Wells, earlier in your testimony
13 you mentioned a 2015 settlement between the Company and
14 DEQ regarding the coal ash site; is that correct?

15 A. Can you restate?

16 Q. Sure. Just -- yeah, I'll restate that.

17 Do you recall mentioning a 2015 settlement
18 between the Company and DEQ? I think you referred to
19 it as the Sutton settlement?

20 A. Oh, yes, I am familiar with the Sutton
21 settlement.

22 Q. Okay. And just to make sure we're talking
23 about the same thing, that settlement was finalized
24 initially on September 29, 2015, with the entry of an

1 order of dismissal by the Office of Administrative
2 Hearings; is that right?

3 A. I do see that the document is signed on -- I
4 think you said September 29, 2015. Yes.

5 Q. Okay.

6 A. Wasn't familiar about the order of dismissal,
7 but that makes sense.

8 Q. Sure. Okay. Are you aware that, on
9 February 23, 2016, the Company sought to amend that
10 order of dismissal to exclude the language that
11 referred to the settlement of claims at any site other
12 than Sutton, and that the administrative law judge
13 issued the amended order to do just that?

14 A. Can you restate again? I'm sorry.

15 Q. Sure. Are you aware that, on
16 February 23, 2016, so a few months later, the Company
17 came back before the A0J and sought to amend the order
18 of dismissal that had accepted the settlement, and they
19 sought to amend that order in a way that would exclude
20 language referring to the settlement of claims, other
21 than the claims that specifically related to the Sutton
22 site?

23 A. I don't -- I recall a follow-up, that's about
24 it. I would have to look at the document.

1 Q. Okay. Those are all my questions. Thank you
2 so much for your time, Mr. Wells.

3 A. Okay. Thank you.

4 COMMISSIONER CLODFELTER: All right. Is
5 there any other party desiring cross examination
6 for this panel?

7 (No response.)

8 COMMISSIONER CLODFELTER: If not,
9 Mr. Marzo, we're back to you on redirect.

10 MR. MARZO: Thank you,
11 Commissioner Clodfelter. I just have a few
12 questions.

13 REDIRECT EXAMINATION BY MR. MARZO:

14 Q. Starting off backwards with Ms. Lee's line of
15 cross, there was a discussion a moment ago between
16 Ms. Lee and Mr. Wells regarding the environmental
17 impact statement for Mayo raised several times
18 yesterday as well. And there were some comments made
19 yesterday regarding EPA's view of the project within
20 the EIS. And I was going to ask Ms. Williams, were you
21 aware of that?

22 A. (Marcia E. Williams) Yes, I did review that
23 material.

24 Q. Okay. And so you're familiar with that

1 document as well?

2 A. Yes.

3 Q. Okay. And briefly for me, you have -- as a
4 former EPA regulator, could you tell me your thoughts
5 and comments on the position that was taken yesterday
6 regarding EPA's position on the document?

7 A. Well, I think what's important is this is a
8 500-page document, and the discussions that were
9 occurring when Ms. Bednarcik was on the stand had to do
10 with comments that EPA had provided to a draft
11 environmental impact statement. And if you go through
12 the final environmental impact statement, the issues
13 that were raised by EPA were addressed in the final
14 environmental impact statement. And one of the key
15 aspects about the final statement is that it said the
16 final EIS had looked at all of the issues that had been
17 raised with regard to groundwater and the ability of
18 groundwater potentially to impact Crutchfield Branch.
19 And the solution to that, which was laid out in the
20 final EIS, was that it would be addressed through the
21 NPDES permit, the Clean Water Act permit that addressed
22 Section 402 of the Clean Water Act.

23 And, in fact, that's what happened. So one
24 of those conditions was, in fact, the question of the

1 need for a groundwater study, which was the study that
2 Mr. Wells talked about this morning performed by
3 Mr. Floyd. But other aspects of that dealt directly
4 with the question of what were the appropriate
5 standards for the NPDES permit with regard to the
6 effluent guideline standards. And EPA had raised some
7 comments in their draft comment -- in their response to
8 the draft about the status of the effluent guideline
9 standards.

10 But, in fact, the effluent guideline
11 standards were developed by headquarters, not by EPA
12 Region 4. And EPA headquarters had not finalized its
13 standards for dry fly ash handling until 1982. So,
14 effectively, what the final EIS said is, we will look
15 to the NPDES permit to address all concerns, and we
16 believe they are addressed. And in the 1982 permit,
17 put into the permit both the requirement to construct
18 the pond according to the recommendations in the Floyd
19 study, which included using clay and bentonite in the
20 areas of the pond where there were rock outcroppings or
21 stream channels.

22 And I think Mr. Wells covered that in his
23 rebuttal, demonstrating that that had been done. And
24 it did require monitoring in Crutchfield Branch in the

1 permit, as suggested in the final EIS. So I think
2 EPA's comments were actively resolved and considered in
3 the North Carolina NPDES permit. And I would point out
4 that EPA does have authority that if they felt that
5 that NPDES permit, which was issued by the state, was
6 not protective, they could have required additional
7 provisions in the NPDES permit. But it appears there
8 was no need for that, because the provisions in the
9 permit were deemed protective both by the state of
10 North Carolina and by EPA.

11 Q. Thank you, Ms. Williams. And you mentioned
12 the NPDES permit for Mayo.

13 Do you have Potential Redirect Exhibit 79
14 with you?

15 A. I think I can find it. Let me see.

16 MR. MARZO: Commissioner Clodfelter,
17 this is the 1982 Mayo NPDES permit filed as a
18 potential redirect exhibit this morning.

19 THE WITNESS: I believe I -- I believe I
20 have a copy of it. It's not marked as that
21 exhibit, but I have a copy in front of me.

22 MR. MARZO: And for the record, I would
23 ask that that NPDES permit be marked as
24 Williams/Wells Redirect Exhibit 1.

1 COMMISSIONER CLODFELTER: It will be so
2 marked.

3 (Williams/Wells Redirect Exhibit 1 was
4 marked for identification.)

5 MR. MARZO: Thank you.

6 Q. What does this permit tell us about how the
7 issues raised by EPA were resolved at Mayo,
8 Ms. Williams?

9 A. If you go to the next to the last page of the
10 permit, I think it's -- on my version it's page 18 of
11 19, there's a section, Roman numeral I, and that
12 section discusses the way in which the permit resolves
13 the issues, which is that there should be no direct
14 discharge of wastewater from the ash pond to
15 Crutchfield Branch. And then it talks about the need
16 for the study and incorporating the results of that
17 study.

18 So unless you want me to read it into the
19 record, it is addressed in Section I in the permit.
20 And that picks up all the requirements that were
21 actually discussed in the final EIS in, I think,
22 Section 2.2.2 of the final EIS.

23 Q. Ms. Williams, there was a characterization of
24 EPA's comments on the draft EIS as the state of

1 knowledge broadly as to ash handling. Do you agree
2 with that characterization?

3 A. No, I don't agree with it as that was stated
4 for two reasons. One, I think Mr. Wells actually
5 referred to the fact that the EIS, itself, provided
6 specific cost information at the Mayo plant with regard
7 to dry ash handling, dry fly ash handling, and that is
8 inconsistent with some of the comments that EPA had
9 made generally based on its national look at that time.
10 Obviously, EPA continued to review this and finalize
11 that requirement in 1982.

12 But secondly, and I think really importantly,
13 the EPA office of solid waste continued to look at this
14 whole issue of whether or not unlined ponds were
15 protective throughout the 1980s, as I had mentioned
16 earlier today, and also looked at the question of
17 groundwater monitoring, and continued to find both
18 unlined ash ponds and the need for groundwater
19 monitoring to be site specific, and did not find them
20 to be -- and found them to be the industry standard and
21 not unreasonable with respect to impacts on groundwater
22 through the 1980s. And you can even take it beyond
23 that, because EPA did not really make its determination
24 until it finalized the CCR rule in 2015.

1 Q. Thank you, Ms. Williams. Similarly, earlier
2 this week, witness Quarles talked about groundwater
3 monitoring ash ponds industry standards and what the
4 EPA knew in the 1980s time frame. Were you here when
5 he testified; were you listening to that?

6 A. Yes, I was.

7 Q. Do you have any comments about his testimony
8 as to those issues similar to what you've just talked
9 about now?

10 A. Yes. I was really somewhat disturbed by his
11 comments. He -- I was at EPA throughout this whole
12 time frame. I started in 1970. I left in 1988. He
13 made -- expressed his opinions that he disagreed with
14 what I had to say about the state of groundwater
15 monitoring. He also stated that it --

16 MS. LUHR: Objection.

17 Commissioner Clodfelter, Ms. Williams' opinion on
18 the testimony of Mr. Quarles is not appropriate for
19 redirect.

20 (Reporter interruption due to feedback.)

21 MS. LUHR: Is that better?

22 COMMISSIONER CLODFELTER: It's better.

23 MS. LUHR: Okay. Ms. Williams' opinion
24 on the testimony of Mr. Quarles is not appropriate

1 for redirect.

2 MR. MARZO: Commissioner -- I'm sorry,
3 Commissioner, go ahead.

4 COMMISSIONER CLODFELTER: Go ahead,
5 Mr. Marzo.

6 MR. MARZO: Commissioner Clodfel ter,
7 one, I tied that opinion exactly to what was asked
8 during the cross, but I also would let the
9 Commissioner know, as I know he's well aware, that
10 earlier this week and part of last week, I think,
11 with Mr. Robinson -- not this week but last week,
12 Mr. Robinson, was a discussion about allowing a
13 broader redirect should issues that we believed
14 should have been raised during cross were not
15 raised. This is in line with that. I only have a
16 few more issues, Commissioner Clodfel ter. I
17 promise to be efficient on that.

18 COMMISSIONER CLODFELTER: Mr. Marzo, I'm
19 going to allow you to continue, because you are
20 indeed correct. We had a conversation about that
21 last week, and it was an understanding that
22 redirect would be a little bit broader so that
23 there wasn't areas that were left unexplored
24 through the cross examination. I'm going to allow

1 you to continue.

2 Let me check in with you, though, given
3 the time. I do not know how many questions my
4 colleagues may have for this panel. So let's put
5 that to one side, because I can't predict that.
6 But if we were to push on to 5:00, do you think we
7 might be able to wrap up today, or do we need to
8 come back tomorrow?

9 MR. MARZO: It's -- I may be able to get
10 done, Commissioner Clodfelter, but I can't make a
11 promise to that.

12 COMMISSIONER CLODFELTER: All right.
13 Let's try to go until 5:00. I've got our court
14 reporter with us until 5:00. She could stay a
15 little later. And we know Ms. Williams is on the
16 West Coast, and that means a late start in the
17 morning. So if we can't get done by 5:00, we'll
18 push on 'til 5:00 and see where we are at that
19 point. Okay?

20 MR. MARZO: Yes, sir. And I will try my
21 best to be really efficient.

22 COMMISSIONER CLODFELTER: Please
23 continue.

24 Q. Ms. Williams, if you would continue your

1 response.

2 A. Okay. I think what I was saying is that he
3 also expressed the opinions strongly about the state of
4 groundwater monitoring and whether that monitoring was
5 required by EPA. He didn't cite references in his
6 response, nor were there supporting references in his
7 testimony on that. And I would just say, again, I
8 lived this for a very long time at EPA. And I will
9 tell you that groundwater monitoring was very different
10 in terms of the knowledge level in the 1980s than what
11 it is today.

12 And that included things like the definition
13 of what a perched aquifer was that was defined as part
14 of the uppermost aquifer. But it also included whether
15 or not groundwater monitoring on a site-specific basis
16 was deemed to be high priority and appropriate. And it
17 was specifically deferred to the state to make those
18 determinations.

19 So I would just say, if you want to compare
20 both to what EPA knew and to what industry practices
21 were, I'm not going to repeat all the statistics that I
22 put on the record in the DEC case, but unlined ponds
23 were the most prevalent and common type of pond that
24 was in use throughout the 1980s, well into the 2000s at

1 the time of the CCR final rule. And that DEP was ahead
2 of the curve, in terms of industry standards, of
3 starting its groundwater monitoring, before it was
4 required, before the majority of the industry had it at
5 all sites. And DEP did begin undertaking coordination
6 with DEQ to react to the results of the groundwater
7 monitoring. I think they were a leader in this
8 particular situation.

9 Q. Thank you, Ms. Williams. Is there still an
10 echo? Can you hear me clearer? Okay.

11 Ms. Williams and Mr. Wells, did you hear the
12 testimony of Doss/Spanos/Riley panel earlier this week
13 on Friday? Last week, I'm sorry. I keep thinking this
14 week, but last week on Friday?

15 A. I think I heard most of it.

16 Q. Okay. I'm just going to ask you one or two
17 questions about this. But Ms. Force had introduced AGO
18 Cross Exhibit 1, which is a 2004 decommissioning
19 handbook for coal-fired power plants to Mr. Doss, and
20 asked him to read a particular sentence in that
21 document. At that point in time, I conferred with her
22 and told her that this panel would be a panel that
23 could give more context to that paper.

24 Can you provide your understanding of that

1 report and its purpose?

2 A. Well, if I start -- it's my -- I mean, that
3 report was definitely focused on full facility
4 decommissioning. And it did look at ash pond closure
5 as one item in decommissioning. What I do think is
6 important is to trace sort of the knowledge as to what
7 was appropriate with regard to ash pond
8 decommissioning. The report to Congress did -- the '88
9 report to Congress, EPA discussed that, and I think I
10 generally referenced it, but it is Exhibit 4-2 of the
11 EPA report to Congress.

12 But I also think it's important that, in
13 2001, there was an explicit report put out by EPRI on
14 ash pond closure, and that report focused on the
15 importance of dewatering of the basin. And really it
16 was dewatering of the basin as opposed to any other
17 aspect, including caps of it, that would be the most
18 important in terms of appropriate closure of the basin
19 for protectiveness reasons.

20 So I'm sure Mr. Wells might want to
21 supplement, but that's a few comments I would have.

22 A. (James Wells) I think the only thing -- I
23 agree with that. The only thing I would add, one of
24 the sites that was studied there was the Arkwright

1 facility, and I had looked at that just to understand a
2 little bit more, and also tied a little bit to one of
3 the questions that had been asked of me with respect
4 to -- I think Arkwright -- you know, one of the focuses
5 of the 2004 report is that this is kind of the
6 beginning of some decommissioning of coal facilities.
7 And it's referencing several different facilities. But
8 the Arkwright facility, in particular, they had moved
9 toward closure. And I've done some follow-up to
10 understand what they -- under the current standards,
11 whether that closure was adequate, and understand that
12 it's being re- -- that has now been -- although it had
13 been closed under prior rule, under the state rule,
14 under the current rule it's being reworked and found
15 that ash as being excavated and put into a smaller
16 footprint and closed in a different manner. So there's
17 additional -- at first additional closure wasn't
18 adequate to meet today's standard, so it's being
19 reworked is what I had noted.

20 Q. And is -- and was that closed in accordance
21 with -- at the time, accordance with the state rules;
22 is that your understanding?

23 A. That is my understanding, that I think
24 we're -- I believe it was Georgia. The state had its

1 rules there. They had clarity on -- they had a
2 requirement with respect to what the closure
3 requirements were, and -- so the initial closure was
4 pursuant to state rules, and then follow-up closure was
5 pursuant to the state CCR rule.

6 Q. Okay. And when we talk about closure, just
7 one last set of questions on this. We talk about
8 closure and what was understood and expected during the
9 time.

10 Are you both -- I believe, Ms. Williams,
11 Mr. Wells, you both are familiar with the 1988 EPA
12 report to Congress?

13 A. Yes.

14 A. (Marcia E. Williams) Yes.

15 Q. Is there a -- there is a diagram that's been
16 talked about in this case in that report, and I believe
17 it's referred to as Diagram 4-3; are you familiar with
18 that?

19 A. I think it's Exhibit 4-2.

20 Q. 4-2, that's right. And do you have that,
21 Ms. Williams?

22 A. I don't have it in front of me, but I can get
23 it. It's out of the joint exhibits, I believe.

24 Q. That's right. In fact, it is Joint

1 Exhibit 13.

2 A. (Witness peruses document.)

3 I have it.

4 Q. Now, before we go to the actual exhibit,
5 could you turn to page 411 of that report?

6 A. Yes.

7 Q. And would you mind -- to give context to the
8 discussion we're about to have, could you read the
9 paragraph starting at the bottom with the word
10 "historically," and just read up to the 45 percent,
11 last sentence, it's like a sentence and a half.

12 A. It says:

13 "Historically, wet ponding has been one of
14 the most widely used disposal methods for coal ash and
15 FGD waste because it is simple and easily implemented.
16 In 1983, about 80 percent of the waste management
17 facilities used by utilities employed some type of
18 sedimentation treatment pond. Most of these treatment
19 ponds were used directly as final disposal impoundments
20 (about 45 percent of all facilities. See Section
21 4.2.1.2.)"

22 Q. Now, if you look at the diagram which is, as
23 you pointed out, Exhibit 4.2, can you describe for me
24 what that depicts?

1 A. It just shows essentially the typical stages
2 in the life of a pond. So it starts out with a pond
3 that's active, and then a closed storage with the waste
4 removed, which is one scenario, and then the last
5 picture is a closed disposal pond with waste remaining
6 in it. And it just shows that, essentially, you end up
7 with soil over the filled solids and then some type of
8 vegetation that ends up growing.

9 Q. And that was a widely accepted approach?

10 A. That was the standard -- pretty much the
11 standard approach at that time.

12 Q. Okay. And, Mr. Wells, maybe one final
13 question to you.

14 Is it your perspective that Duke Energy
15 Progress was adhering to the standards throughout the
16 time it was operating its coal ash ponds in regards to
17 closure and treatment of those ponds over time?

18 A. (James Wells) Yes.

19 Q. Okay.

20 MR. MARZO: Commissioner Clodfelter, I
21 think I'm able to trim it down to that -- to those
22 questions.

23 COMMISSIONER CLODFELTER: Okay. Thank
24 you, Mr. Marzo. Let's see if we have questions

1 from Commissioners.

2 Commissioner Brown-Bland?

3 COMMISSIONER BROWN-BLAND: Yes.

4 EXAMINATION BY COMMISSIONER BROWN-BLAND:

5 Q. For Ms. Williams. In your opinion, would DEP
6 have been prudent to wait until 1992 to perform
7 groundwater monitoring at its CCR basins? And I ask
8 1992, because you've testified in a previous proceeding
9 that it was 1992 before EPA had groundwater monitoring
10 standards, clear -- clear ones.

11 A. (Marcia E. Williams) I think what I said
12 previously, Commissioner, was that it was 1992 when EPA
13 issued its most expansive guidance document about how
14 to go about doing groundwater monitoring. Its focus
15 was really hazardous waste facilities, not ash ponds.
16 But it had much applicable information in it.

17 So -- but the answer to your question is yes,
18 it would have been prudent in -- to wait absent either
19 a decision by DEQ that it was necessary to put
20 groundwater monitoring in prior to that time frame, or
21 absent any information that came to light about a
22 specific situation at one of the Duke facilities.

23 I think, as Mr. Wells pointed out and I
24 believe I have in my testimony as well, there was

1 groundwater monitoring at four of the sites, DEP sites,
2 by 1995, I think. And the remainder went in in post
3 2000. But all of it went in before it was required to
4 go in either by North Carolina or by EPA.

5 Q. So, in your opinion, waiting until 1992 would
6 have been prudent?

7 A. On a case-by-case basis, yes.

8 Q. All right. And I think you also testified
9 that EPA had attempted to define the perch zone from
10 1978 until 1986, and that they ended up advising the
11 utility to, quote, work with your agency on the issue,
12 end quote.

13 Was there no definition of perch water or
14 perch zone prior to '78?

15 A. There was a definition, but it's a very
16 general definition. In 1978 there was a definition
17 that talked about a particular volume of water that
18 would have to be able to be -- come out of a perch zone
19 for it to be part of an uppermost aquifer. And that
20 got rescinded. That did not stay in effect. And EPA
21 put a definition in that basically said there needs to
22 be sufficient water in order to -- sufficient water,
23 and then -- but it couldn't define any number. So
24 again -- and it was in that context that they said that

1 you should work with your regulatory agency on whether
2 any particular perch zone would qualify.

3 And I think particularly we spent a lot of
4 time talking about this in light of the Allen facility,
5 and I realize that's DEC. But the reason that I think
6 that's important is, if you look at the report that was
7 being cited with regard to Allen, it was quite clear
8 that they couldn't get water out of that perch zone,
9 and it's why they went below that perch zone in order
10 to get a monitoring well where they could get water.
11 And EPA certainly looked at the Allen data in detail
12 when the A.D. Little report was completed, and felt
13 that it had been done appropriately.

14 So I think it's very hard to sit here today
15 and try and determine that there was something improper
16 about the selection of the uppermost aquifer in the
17 particular case of the Allen facility.

18 A. (James Wells) If I could add to that.

19 Q. Yes.

20 A. Because I had looked at that as well and had
21 seen the perched water discussion was getting a lot
22 more weight than when I was evaluating when was perched
23 water being referenced in the prior reports. There
24 were really two reports that were relevant during that

1 discussion. It was the A.D. Little study as well as
2 the internal Allen study. And between those two
3 reports, there were 25 wells installed. The reference
4 to perched water only occurred in 5 out of the 25. Two
5 of those five were background wells. So they're
6 upgradient of the basin, so there's -- and there seems
7 to be implied that we should have put it deeper to be
8 closer. But two of those were background wells. The
9 other three, the first out of those three, the first
10 time it's referenced it does have in it the parentheses
11 that specifically calls out that it went below that
12 perch zone for the purposes of ensuring adequate sample
13 volume.

14 So point is, you know, you put in a well. If
15 you can't pull a sample out of it, it's not adding any
16 value. The other thing I'd mention is there are times,
17 I mean, even today, when it could be perfectly -- you
18 should install into the aquifer for purposes of getting
19 an adequate sample to ensure you're getting results
20 reflective of what you're -- the question you're
21 asking. So, for instance, here if you're doing a
22 downgradient sample to understand if potential
23 contaminants are migrating beyond the basin, then it's
24 possible -- and again it's all site specific, but it's

1 possible if you put that well in in a perch zone, which
2 isn't seeing that lateral aquifer flow necessarily,
3 then you may miss exactly what you're sampling for.

4 And I say that only because I'm not -- I'm
5 not asking -- with respect to those studies, they are
6 what they are, but we're doing a 35-year -- plus-year
7 look-back on that expertise. And I think that's -- I
8 just think it's very, very difficult to do this
9 accurately. And some of the things I've heard in the
10 prior testimony, to me, are just not fully technically
11 accurate in all instances, or at least accurately
12 representation of the issue as a whole.

13 Q. So, Mr. Wells, in your opinion, back in 1978,
14 would a reasonably competent engineer or hydrologist
15 been able to -- been capable of designing an effective
16 groundwater monitoring system for a CCR basin?

17 A. Well, I think they did that at those basins
18 where they did it. They did what was consistent with
19 their understanding and the science that had developed
20 to that point and the groundwater that they put in. I
21 believe it was consistent with the technical standards
22 at the time. And it was relied on by a lot of folks
23 who were -- had expertise to do it. So they were the
24 experts at the time.

1 Q. Ms. Williams, that same question. Would a
2 reasonably competent engineer or hydrologist would have
3 been capable of designing an effective groundwater
4 monitoring system for a CCR basin?

5 A. (Marcia E. Williams) Well, I guess the way I
6 would answer it is they did the best they could to put
7 in a system based upon the knowledge at the time. If
8 you're going to do 20/20 hindsight and look back at
9 that, you probably will be able to conclude that that
10 wasn't, certainly by more recent standards, an
11 acceptable or good system. But it was, if you evaluate
12 it against what was known at the time.

13 And I think, in particular, it really was
14 believed at that time that a relatively limited number
15 of wells, groundwater wells, could help you understand
16 the system. And it was not until many decades later,
17 really, that we understand that it takes a very large
18 number of wells to truly understand the complexity of
19 what's going on in the subsurface adequately. And
20 that -- you know, so you have to evaluate the 1978
21 system with what was done at the time. And against
22 that system, I agree with Mr. Wells, it would have been
23 considered adequate.

24 Q. And so back on the perched water or perch

1 zone; in your opinion, would it have been prudent for
2 DEP to wait to perform groundwater monitoring at its
3 CCR basins until someday after DEQ had defined perch
4 water or perch zone?

5 A. No. I'm not saying that. What I'm saying is
6 that, if it was determined that there was an important
7 reason, based on site-specific characteristics, to put
8 a well system in, you would have done the best job you
9 could to put a well system in. Whether that would have
10 been a particularly effective well system is a
11 different issue. But if, based on site-specific
12 parameters, it seemed important, you would have put one
13 in, like was done at Sutton. But -- but it may not be
14 fully accurate by what you might know 10 years or
15 20 years later.

16 Q. And same question I asked with respect to
17 DEC.

18 Based on your knowledge and professional
19 judgment, on what date did DEP become -- did it become
20 reasonably known that it would be prudent for DEP to
21 dispose of CCR by some means other than an unlined
22 basin?

23 A. Well, I think the way, Commissioner, that I
24 would answer your question is DEP clearly determined by

1 2006, '07, '08 that it wanted to do groundwater
2 monitoring at all its facilities so it could answer
3 that question. And so it put well systems in --
4 initial well systems at all of its -- all the DEP
5 facilities. So four had already had the systems in,
6 the rest of them put the systems in. And so in order
7 to answer that question, you have to begin to collect
8 data, and that's what happened starting in 2009. And
9 as a result of collecting data, additional wells
10 were -- had to be placed in both upgradient,
11 downgradient, sometimes cross-gradient, and so DEP was
12 in that process starting in 2009, '10 working with DEQ.
13 And that's what was going on aggressively in this whole
14 window of time prior to the time that EPA issued the
15 CCR rule and specified that this was required.

16 So DEP had its systems, was improving its
17 systems, was developing sophisticated faith and
18 transport models to predict what was going on, and that
19 is pretty much what you had to do before you could
20 answer the question of whether it was necessary to move
21 to either an active corrective action scenario or to
22 close the ponds to be protective.

23 Q. All right. Thank you. Mr. Wells, what were
24 the facts that led DEP to decide, in 1986, to install a

1 clay liner at the basin -- CCR basin at Sutton?

2 A. (James Wells) So I think that was actually
3 1984, I believe. The '84 basin at Sutton did receive a
4 clay liner. The facts there surrounded an elevated
5 chloride, it actually originated from an elevated
6 chloride that was being detected at the adjacent
7 facility, which was the Hercofina site. And I don't
8 know if it was actually detected at Hercofina, but
9 certainly in the vicinity of that facility there was
10 concerns of chloride impacts to Hercofina. That was --
11 Hercofina was an industrial facility. It had large
12 pumping wells. I don't remember what their practice
13 was. It was something that required large extraction
14 wells. So they were pulling groundwater fairly
15 aggressively from our -- from the Sutton site, and they
16 were receiving some chloride -- there was some concern
17 with chloride impacts there.

18 The ultimate -- ultimately the source was
19 believed to be the cooling pond, not the ash pond.
20 There was already an ash pond there, not the new '84
21 ash pond, it was the historical ash pond. But the
22 cooling pond at that time had its intake in the Cape
23 Fear River that had a very large tidal influence. In
24 fact, if you speak to the folks historically, Sutton

1 cooling lake had -- at times they saw a saltwater-type
2 influence. In terms of the fishery, they would see
3 fish that were representative of that as well.

4 So this chloride impact was from the Sutton
5 cooling pond, not the ash pond. That was an important
6 point. And that was largely because of the saltwater
7 where the intake was in the Cape Fear. In time, and as
8 the Company began to work through that, they were
9 looking at putting in a new basin. '84 basin was
10 permitted unlined by DEQ at the time, but in
11 discussions, as I understand it, discussions between
12 the Company and Hercofina, they wanted to address that
13 risk, and they recognized that in the future that would
14 be a risk mitigation was to ensure the new basin,
15 lining it would mitigate any potential risk of that
16 being a contributing factor and any concerns for that
17 neighbor.

18 So the Company installed a lined facility.
19 That also ultimately -- I mean, just to finish the
20 story, that ultimately the Company moved that intake
21 off of the Cape Fear, or actually moved it several
22 miles upstream of Cape Fear. So we had fresher water
23 then feeding the Sutton cooling pond. And then that
24 chloride issue, in time, did, in fact, dissipate.

1 Q. So the time that it was decided to go with
2 the clay liner, was there an assessment by the Company
3 of using a synthetic liner?

4 A. I don't know that -- I don't know that --
5 whether that was evaluated or not. I do know, at the
6 time -- and I think Ms. Williams can speak better to
7 this just given her knowledge of the time -- you know,
8 direct knowledge of the time -- but certainly clay --
9 liners, at the time, I think, were evolving. And clay
10 liners certainly were at that point.

11 Q. But you don't know about the synthetic liner?

12 A. I don't know that there was an analysis or
13 the -- Ms. Williams may be able to speak to the -- how
14 prevalent the synthetic liners were in that -- at
15 that -- that pond would have been designed and
16 constructed.

17 Q. Well, I was just looking as to whether DEP
18 did anything with a synthetic liner. Go ahead,
19 Ms. Williams.

20 A. (Marcia E. Williams) Sorry. I was just
21 going to say they were not particularly prevalent in
22 that time frame at any -- not only coal ash ponds.
23 They weren't prevalent in any industrial surface
24 impoundments. And I think EPA in a recent -- in

1 March of 2020, in a federal register notice, I noted
2 this, because EPA said even where they looked at the
3 ponds that were lined today, 2020, very few had
4 composite synthetic -- again, there's a synthetic liner
5 and then there's a composite liner. And EPA feels the
6 composite liner, which is a combination of clay and a
7 synthetic liner, is the most protective. But very few
8 ponds, including new ponds, have been built with
9 composite liners.

10 So I think -- I don't know whether -- I
11 haven't seen anything to go to the issue of whether DEP
12 considered putting in a synthetic liner, but I can tell
13 you that EPA was still doing a tremendous amount of
14 research in our office of research and development in
15 the early 1980s as to the best kinds of liners,
16 synthetic liners that could be used with different
17 types of waste streams.

18 Because you have a couple of problems with
19 synthetic liners. One problem you have is just
20 installation issues, and if you get a tear or something
21 as you're trying to put in a massive synthetic liner.
22 But the second issue you have was whether or not there
23 would be interactions between the waste and the liner
24 material. So a lot of research was still going on that

1 in the early 1980s.

2 Q. All right. Mr. Wells, based on your
3 knowledge and professional judgment, on what date did
4 it become reasonable that it would be prudent for DEP
5 to dispose of CCRs by some means other than an unlined
6 basin, specific to DEP?

7 A. (James Wells) Specific to DEP. I would
8 agree with Ms. Williams and her discussion on that
9 point.

10 Q. And so what is your judgment -- what
11 knowledge is your judgment based on, on that time
12 frame?

13 A. I would base it on what the Company was
14 seeing if we evaluate over time. And they weren't
15 seeing these risk. And when they did see a potential
16 impact, they were dealing with that specific risk and
17 addressing it in a positive way. So over history,
18 appropriate actions were taken. And then groundwater
19 is -- you see, you know, along -- again, you know, that
20 you see some actions being taken. With groundwater
21 monitoring going in early studies in the '70s,
22 groundwater monitoring going in in the '80s, additional
23 wells going in, and it's based on what we're seeing,
24 development of additional groundwater monitoring in the

1 '90s, all sites monitored in the 2000s. And because
2 nothing -- there is no risk being realized through that
3 groundwater impact that it otherwise being managed
4 separately.

5 Those items -- then there's nothing
6 suggesting an action of that nature. Now, you get up
7 into the 2000s, the Company's getting more aggressive
8 with the groundwater monitoring, they're beginning to
9 evaluate their results with the state up in the 2010 to
10 2013 time frame. 2015, the rule actually comes out
11 that begins to get more prescriptive as to what you
12 see, what drives closure, and the same with CAMA. So I
13 think you're in that -- again, you're --

14 Q. In terms of the data collection -- in terms
15 of data collection are you saying 2009 or after?

16 A. No. I'm saying the data collection is the
17 beginning of an analysis of what is going on. You
18 know, and additional wells are going in. So again,
19 remember groundwater detection assessment, corrective
20 action, that's the traditional approach. So you're in
21 that detection mode early. Then you move toward
22 assessment, and that means you do more wells. You
23 begin to really understand the horizontal and vertical
24 extent of the impacted area. And then based on all

1 that, you're using all that to inform what might be the
2 right next steps with respect to closure, or toward
3 managing the source.

4 So all of that data is what's going on in
5 that time frame. The data. And so you're -- you know,
6 based on where we're at today, we're still evaluating
7 that corrective action, although CAMA and CCR have now
8 driven the closures.

9 Q. And, Mr. Wells, can you help me delineate in
10 your testimony how much or what part of your testimony
11 is based on your review of historical documents versus
12 your direct personal knowledge?

13 A. So I started with the Company in 2009.

14 Q. So for anything before, your knowledge and
15 testimony is based on historical --

16 A. Historical review of documents. And, I mean,
17 I don't want to cut that short. That means I've
18 reviewed, for instance, our monitoring database, our
19 well network, our permit compliance, our permit
20 requirements, past permits. I've reviewed all the
21 historical documents that have been cited to in this
22 record. I've reviewed all the exhibits that have been
23 cited to in this record. And I've looked at, you know,
24 even more than that. I've also had discussions with

1 various people to ensure I've got accurate information
2 representative to the issue.

3 What I found -- what I found through this is
4 that there are multiple issues, multiple sites,
5 multiple years, there are a lot of detail that goes
6 around a lot of these things. For instance, just the
7 issues you've asked me here, each of those is very
8 detailed in terms of what would have been personal
9 knowledge of those issues. So I do believe I'm the
10 best witness to speak to all of this, having done the
11 level of research that I did to compile all that
12 together.

13 Q. Mr. Wells, could you provide --

14 COMMISSIONER CLODFELTER:

15 Commissioner Brown-Bland, we're going to need to
16 break so we can let our court reporter go. We are
17 not going to finish today, and I need to do -- if
18 you'll hold your question, and we'll resume with
19 you in the morning.

20 Mr. McCoy? Mr. McCoy, are you around?

21 MR. MCCOY: Yes, sir.

22 COMMISSIONER CLODFELTER: You've issued
23 the notices for tomorrow at 9 a.m. Since we've got
24 Ms. Williams up, and she's on the West Coast, I

1 think we may need to reissue calendar invitations
2 to start at 10:00. And can you get that done? Do
3 you think that's doable?

4 MR. MCCOY: Yes, sir. That's no
5 problem.

6 COMMISSIONER CLODFELTER: Okay. Great.
7 So we will reissue calendar invitations, take a
8 look, be sure you catch the right one. We will
9 resume again at 10:00 tomorrow morning.
10 Ms. Williams, that's what we've done for you
11 before, so I'm just assuming that's going to be
12 okay for you this time.

13 THE WITNESS: (Marcia E. Williams) I
14 appreciate it, but I will tell you, Commissioner,
15 if you would rather start at 9:00, I'm prepared to
16 do that if that helps the Commission. Seriously, I
17 will do that.

18 COMMISSIONER CLODFELTER: That's a
19 dangerous option. Are you sure you want to offer
20 it?

21 THE WITNESS: Yeah. I will offer it,
22 because I know you guys are trying to get finished,
23 so --

24 COMMISSIONER CLODFELTER: I'm going to

1 take you up on it.

2 THE WITNESS: Okay.

3 COMMISSIONER CLODFELTER: John McCoy?

4 John McCoy?

5 MR. McCOY: Yes, sir.

6 COMMISSIONER CLODFELTER: Do not reissue
7 the invitations. Let them stand.

8 MR. McCOY: No problem. No problem.

9 COMMISSIONER CLODFELTER: All right. We
10 will resume again with Commissioner Brown-Blair at
11 9:00 tomorrow. And I want to thank you, Joann, for
12 staying late with us today. Appreciate it. See
13 everybody tomorrow at 9:00.

14 (The hearing was adjourned at 4:59 p.m.
15 and set to reconvene at 9:00 a.m. on
16 Tuesday, October 6, 2020.)

17

18

19

20

21

22

23

24

1 CERTIFICATE OF REPORTER

2
3 STATE OF NORTH CAROLINA)

4 COUNTY OF WAKE)

5
6 I, Joann Bunze, RPR, the officer before
7 whom the foregoing hearing was taken, do hereby certify
8 that the witnesses whose testimony appear in the
9 foregoing hearing were duly affirmed; that the
10 testimony of said witnesses were taken by me to the
11 best of my ability and thereafter reduced to
12 typewriting under my direction; that I am neither
13 counsel for, related to, nor employed by any of the
14 parties to the action in which this hearing was taken,
15 and further that I am not a relative or employee of any
16 attorney or counsel employed by the parties thereto,
17 nor financially or otherwise interested in the outcome
18 of the action.

19 This is the 9th day of October, 2020.

20
21 
22

23 JOANN BUNZE, RPR

24 Notary Public #200707300112