NORTH CAROLINA DEPARTMENT OF INSURANCE
RALEIGH, NORTH CAROLINA

STATE OF NORTH CAROLINA   **COPY**
COUNTY OF WAKE

                                 BEFORE THE
                                 COMMISSIONER OF
                                 INSURANCE

IN THE MATTER OF:

THE FILING DATED JANUARY 3,   )
2024, BY NORTH CAROLINA RATE   )
BUREAU FOR THE REVISION OF   ) Docket No. 2157
HOMEOWNERS INSURANCE RATES   )
_____)

BEFORE: AMY FUNDERBURK, HEARING OFFICER

TRANSCRIPT

OF

HEARING

VOLUME XIX - A.M. SESSION

Raleigh, North Carolina

December 6, 2024

9:05 a.m.

A P P E A R A N C E S

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1   P R O C E E D I N G S
2   MS. FUNDERBURK: Are there any
3   administrative or preliminary matters we need to
4   address this morning before we resume?
5   MR. FRIEDMAN: Yes, your Honor.
6   I need to put on the record now a fair
7   number of serious concerns I have already about the
8   way this rebuttal case is heading if there aren't some
9   strict limitations placed on it soon.
10   Mr. Spivey has mentioned the established
11   procedures in place at other hearings. One of those
12   established procedures by Commissioner Long was that
13   on rebuttal, every new exhibit had to be provided to
14   opposing counsel 24 hours before.
15   Another of those procedures was that every
16   single rebuttal question had to be preceded by an
17   identification of exactly what was being rebutted and
18   its original source. This was exactly so that counsel
19   did not have to go back to their offices and spend the
20   evening trying to figure -- determine if the rebuttal
21   testimony was even really rebuttal testimony.
22   Now, about the brand-new exhibits I've
23   gotten over the past 24 hours -- hasn't even been a
24   real 24 hours -- from opposing counsel: I received
25   nine of them 30 minutes before the hearing resumed

1   yesterday, and that was -- then there was an hour and

2   a half, then we were with Mr. Schwartz for an hour,

3   and then they began their rebuttal at 3:00, and that

4   was 1.5 hours before I got the -- after I got the

5   exhibits.

6   Then last night, at 10:50 p.m., I received a

7   new version of one of those nine documents that

8   changed an entire formula that had been used in the

9   document, as well as other resulting numbers, and

10   added a description of what a column meant that was

11   not apparent before. And plus, it seems apparent to

12   me that there are going to be even more exhibits

13   rolling in, at some point, for Mr. Anderson and

14   Dr. Zanjani.

15   Now, as to Ms. Mao alone, I won't be able to

16   prepare a full cross about all of the exhibits and all

17   of her testimony until after we end today. I could

18   probably go for a couple of hours, but it is clear

19   that there is so much new stuff, I'm not going to be

20   able to go through it by the end of the day -- or

21   prepare to go through it.

22   One of the reasons is because I think there

23   are things Ms. Mao has said yesterday already that are

24   inconsistent with her prior days of testimony, and

25   there may yet be more this morning. It takes time to

1   go back and -- after hearing her out and determine all

2   of the relevant past transcript cites that I have to

3   search for.

4   Second of all, I only had the time to begin

5   reviewing these nine new exhibits with one of my

6   experts last night, and that was before I received the

7   revised exhibit at 10:30 p.m. I won't have time to

8   fully review the nine new experts with both of my

9   experts until after the end of the trial today.

10   Third, I can already see that for some of

11   these exhibits I'm going to ask the NCRB to supplement

12   source detail so that the DOI can evaluate the

13   exhibits. For example, I'm probably going to need to

14   ask the Rate Bureau to provide some Excels underlying

15   their new calculations so that we can see the formulas

16   they're using. Additionally, because I dispute that

17   some of these are actually true rebuttals, I'm going

18   to be asking for some metadata to determine exactly

19   how long the -- they've been working on these supposed

20   rebuttals.

21   Fourth, I've already indicated, in my direct

22   of Ms. Cavanaugh yesterday, a number of discovery and

23   data requests that I believe required -- that required

24   responses earlier and are directly relevant to what

25   we're being provided now. And I've got other

1 discovery requests that I believe would have required

2 these be produced earlier; it's just that I have not

3 had the time to go through my four rounds of discovery

4 plus our data requests. So I'm going to need time to

5 really lay out that argument.

6   And then I suspect the most effective way to

7 do that would be in writing to show the authority that

8 would have required disclosing these earlier. That,

9 too, takes time.

10   And I already know at least two of the

11 exhibits I plan to move to strike, but I haven't

12 written out all of the arguments to strike them. And

13 needless to say, I'd be wanting to strike all of the

14 testimony that is derived from it.

15   Fifth, I think this whole cycle is going to

16 be repeated with their next three witnesses. They're

17 going to testify to new analyses with data that they

18 hadn't, in response to discovery, said they were using

19 in their analyses, and now they're using them in the

20 new exhibits.

21   And then finally, another problem here is

22 that my experts take seriously their obligations to

23 supplement their reports whenever they learn of new

24 analyses or, for example -- or new data, or, for

25 example, a contrary law, and they won't even be able

1   to evaluate any need to supplement their reports, and

2   what effect those supplements may have on their

3   conclusions, until after there are rulings on the

4   admissibility of all of these new exhibits and new

5   testimony.

6   So at this point -- sorry for the length of

7   that -- I think the Court should already impose some

8   strict limitations on what the parties can do on

9   rebuttal. The problem is, with all of these new

10   exhibits pouring in, I haven't had time to consider

11   all what those limitations should be.

12   MS. FUNDERBURK: Response, Mr. Spivey?

13   MR. SPIVEY: Can I have just one

14   moment?

15   MS. FUNDERBURK: Yes.

16   MR. SPIVEY: Your Honor, just a few

17   comments in response.

18   There was reference to established

19   procedures. I know yesterday we spoke in terms of

20   something about rebuttal processes and that sort of

21   thing. Commissioner Long may well have directed us to

22   get exhibits in 24 hours ahead. That was some kind of

23   ad hoc situation in one hearing, most likely.

24   I would also note, in that respect, it was

25   certainly rare in the past, at least as I'm recalling

1   it, that we didn't -- that we had to start rebuttal

2   literally immediately following the completion of the

3   Department's case, and, as you well know, we had a

4   number of delays getting to that point, so...

5   And then again, between the closing of the

6   Department -- well, not even the closing -- between

7   Ms. Cavanaugh finishing and then trying to start our

8   rebuttal case, we ended up spending hours the other

9   night with Mr. Schwartz's revisions that were dropped

10   in, as we've noted, you know, over a month after he

11   completed his testimony. All taking time.

12   Certainly Mr. Friedman's concerns are noted,

13   but I think we're fully within proper management of

14   rebuttal testimony and that sort of thing. Exhibits

15   that are being provided to him in rebuttal are

16   rebuttal exhibits, and literally we have just been

17   able to prepare rebuttal since they completed their

18   case -- rested their case yesterday.

19   So I'd certainly like to -- we have the

20   witness here -- I'd like to go ahead and proceed to

21   get this witness in, the evidence completed. We can

22   deal with whatever other things he wants to talk about

23   in due course.

24   MS. FUNDERBURK: Thank you.

25   Yeah, I think the most important thing today

1   is we've got to get past your presentation with

2   Ms. Mao. I'm not insensitive to the idea it takes

3   time to review materials, just as I was cognizant

4   I didn't want the Rate Bureau to not have sufficient

5   time. I think you still probably only had about --

6   you had less than 24 hours -- you might have had in

7   the range of 18 hours -- and some of that was

8   overnight -- to review changes to -- the changes to

9   Mr. Schwartz's report --

10   MR. FRIEDMAN: Yeah, I'm sensitive of

11   that.

12   MS. FUNDERBURK: Yeah. So as I was

13   concerned with you having enough time to make sure you

14   had reviewed -- and I think you turned it around very

15   quickly -- I am concerned with Mr. Friedman having

16   enough time.

17   As to Commissioner Long, we have a

18   prehearing order in place. I don't believe anything

19   about presentation of -- I haven't looked at it in

20   quite some time. I don't think anything about ad hoc

21   rules that former-Commissioner Long may have put into

22   place were addressed. I'm not aware of those -- any

23   procedures he put into place having been codified in

24   the Administrative Code.

25   Am I incorrect on those two assumptions?

1   MR. FRIEDMAN: I don't believe these

2   were. I think they were the established practice of

3   the parties in more than one hearing, and that those

4   were -- those were the norms that I had assumed were

5   going to be following.

6   MS. FUNDERBURK: And for future

7   reference, other hearing officers will feel

8   differently, but if there's an expectation of norms or

9   procedures, they need to be addressed in the

10   prehearing order so that everyone is clear what those

11   are.

12   When did you receive -- when did you receive

13   the documents you're concerned about?

14   MR. FRIEDMAN: First ones -- well, nine

15   I received at 1:30 yesterday; and then one

16   I completely -- or a significantly redone version of

17   one of them I received at 10:30 last night. And

18   I believe, again, that at least some of these are

19   responsive to data that we requested long ago.

20   And I want to explain something also about

21   Rule 26. Your Honor expressed some questions about

22   whether that was applicable to the prefile testimony

23   here.

24   One, these have all been designated as

25   experts under that civil rule. And that civil rule

1   has very specific requirements, above and beyond

2   discovery, about what the obligation to produce all

3   documents that have been reviewed by the expert along

4   with the expert's report.

5   In this case, certainly we received some

6   documents that they had reviewed. Other documents

7   they had reviewed, such as the Rule 38 attestation

8   itself, weren't provided with the filing, and we had

9   to ask for them.

10   The -- also there's law -- not federal

11 law -- state law but federal law, in that same

12 language review, or considered, that makes clear that

13 that means stuff you looked at and decided "I don't

14 need to use it" and the stuff you looked at or may not

15 need to use now.

16   I'm going to have some real discovery about

17 when Ms. Mao, who seems awfully familiar with this

18 article, first knew of it --

19   MS. FUNDERBURK: And you're free to ask

20 her about that in your cross.

21   MR. FRIEDMAN: Yes. So -- but I guess

22 what I'm getting to is, at this point, though, I do

23 need to formally move to strike 36 and 35 and 46. And

24 I can point you to those discovery requests,

25 I believe, right now --

1   MS. FUNDERBURK: Those have not

2   actually been introduced yet.

3   MR. FRIEDMAN: Okay.

4   MS. FUNDERBURK: They have not been

5   presented.   We haven't made any arguments about their

6   admissibility or applicability.   I've only become

7   aware of what they are I've been handed them.   So

8   there's been no foundation.   I don't know anything

9   before we on those exhibits.   I'm not going to make a

10   ruling on excluding those.

11   MR. FRIEDMAN: Okay.

12   MS. FUNDERBURK: As to scope of

13   rebuttal, at this point, we are still within what

14   I deem to be the appropriate scope of rebuttal.   You

15   are free to raise objections as we proceed through the

16   case if you feel like there is a string from

17   presentation of evidence that is intended to cast

18   doubt to the information that you presented and the

19   evidence that you presented, but at this point, it

20   appears to me that we have remained within the

21   appropriate scope of rebuttal.

22   Unless there's something else we need to

23   address, we need to proceed with Ms. Mao's testimony

24   to conclude that.   As we discussed yesterday, we can

25   further evaluate whether -- evaluate the scheduling of

1   her cross-examination by Mr. Friedman, including

2   taking a potentially longer lunch break to review some

3   materials, if we -- you know.

4   And, Mr. Friedman, you're free to make

5   additional arguments after the close of her testimony

6   about needing additional time, but at this point we

7   have got to get at least through her direct.

8   Is there anything else we need to address

9   before we begin?

10   MR. SPIVEY: Not from the Rate Bureau.

11   MS. FUNDERBURK: Anything from you,

12 Mr. Friedman.

13   MR. FRIEDMAN: No, ma'am.

14   MS. FUNDERBURK: Okay. Ms. Mao,

15 I'll remind you do continue to be under oath. Thank

16 you.

17   Please proceed, Mr. Spivey.

18   MR. SPIVEY: Thank you, your Honor.

19   CONTINUED DIRECT EXAMINATION BY COUNSEL FOR THE

20   NORTH CAROLINA RATE BUREAU

21 BY MR. SPIVEY:

22   Q. Ms. Mao, when we broke yesterday, I believe

23 you had testified regarding the article by Dr. Pielke

24 that has been labeled and admitted into evidence as

25 Exhibit RB-34. Do you recall -- do you have that

1 before you? And I don't know that we need it, but --

2   A. I don't -- I don't think I have that.

3   MS. FUNDERBURK: Just one moment. I'm

4 going to retrieve the book that I have with that

5 article in it.

6   Thank you, Mr. Spivey. Please proceed.

7   MR. SPIVEY: Your Honor, I don't know

8 that she needs it, but I'm going to put a copy of that

9 exhibit in front of the witness, please.

10   (Document was handed to the witness.)

11 BY MR. SPIVEY:

12   Q. And I believe when we broke, Ms. Mao, I was

13 starting to ask you, and I'll ask you now again, have

14 you prepared an exhibit using the methodology

15 described by Dr. Pielke that presents the distribution

16 of normalized actual hurricane damages by

17 Saffir-Simpson intensity for comparison to the display

18 of the AIR and RMS model outputs that Ms. Cavanaugh

19 presented in her Table 14?

20   A. Yes.

21   (Exhibit No. RB-35 was marked for identification.)

22   Q. And do you have in front of you the exhibit

23 that is marked Exhibit RB-35?

24   A. Yes.

25   Q. Can you identify that exhibit?

1   A.   Yes.

2   Q.   Is that the exhibit that you have prepared

3 that I just described in my question?

4   A.   Yes, that's an exhibit I prepared.

5   Q.   All right. Can you please explain --

6   MR. FRIEDMAN: Your Honor, at this

7 point, when her explanation comes out, that is going

8 to, we think, because we think this data -- this whole

9 exhibit should not be allowed in -- once she gives the

10 explanation, it triggers the responsibility of our

11 experts to have to -- if it's allowed in and her new

12 analysis is allowed in that we asked for repeatedly

13 on -- in our data request and our discovery request --

14 is allowed in, then our experts -- that triggers it;

15 and that triggers both their potential need to revise

16 their testimony, because there's a whole new analysis

17 with whole new data being allowed in and being allowed

18 to be testified. And they need to figure out whether

19 that's going to have a result -- an effect on their

20 underlying numbers, because, like I say, they take

21 very seriously the fact that, at any time, if they

22 become aware of new data that is being ruled relevant

23 or allowed in, they've got to go back and evaluate

24 what changes it has -- it makes to their profile

25 testimony.

1   So at this -- I'm moving to strike this now

2   before the sub- -- they begin getting into the

3   substance.

4   MS. FUNDERBURK: I'm not going to

5   strike the exhibit before I've heard the foundation

6   and the description of it.

7   You're free to make a subsequent objection,

8   but as of right now, your objection is overruled,

9   subject to -- you're free to object after we actually

10 have a foundation and I've been able to hear some

11 information of what this is.

12   Please proceed, Mr. Spivey.

13 BY MR. SPIVEY:

14   Q.   Ms. Mao, would you please explain what you

15 have done in preparing Exhibit RB-35, and explain what

16 this exhibit shows.

17   A.   Sure. On Exhibit RB-35 there are two tables

18 on the exhibit. The top table has two portions. The

19 first portion is Ms. Cavanaugh's Table 14 in her

20 testimony where she showed the damage by category

21 between -- I don't remember the -- I have to reference

22 back to her Table 14 to show the number of years she

23 used.

24   But basically, she showed -- oh, I'm sorry.

25 She calculated AIR and the RMS, the damage or the loss

1   by category. And then in the last column, she

2   calculated the major hurricanes -- that is

3   Category III through V -- their percentage of the

4   overall loss.

5   MR. FRIEDMAN: Your Honor, at this

6   point, I'm going to move to strike. I think that's

7   enough foundation because she's now gone well into the

8   substance of what's in there. And I'm going to, if

9   you would allow me, go through the discovery requests

10   and data requests that we think this was directly

11   responsive to.

12   MR. SPIVEY: Your Honor, we're simply

13   presenting a rebuttal exhibit to material presented to

14   Ms. Cavanaugh in her testimony which we received in

15   September of this year. But she just finished her

16   testimony on -- whatever day it was -- Wednesday or

17   Thursday now, so -- we were just asking her questions

18   about this very stuff --

19   MR. FRIEDMAN: She's already gone

20   into --

21   MR. SPIVEY: -- a couple of days ago.

22   MR. FRIEDMAN: Excuse me. I'm sorry.

23   No, please.

24   MS. FUNDERBURK: Did you have another

25   comment, Mr. Friedman?

1   MR. FRIEDMAN: Yes. I'd like to read

2   into -- go to the discovery --

3   MS. FUNDERBURK: Please make sure

4   you're speaking in the microphone.

5   MR. FRIEDMAN: I'd like to go to the

6   discovery requests for your Honor to go over the ones

7   that I know of right now this would have been

8   responsive to, and I think they had a duty to reveal

9   it long ago.

10   I'm going to turn in our Exhibit 3 to data

11   requests. Let me find which exhibit.

12   MS. FUNDERBURK: So, Mr. Friedman,

13   you're objecting, at this point, not because it's

14   outside the scope of rebuttal, but because you believe

15   you asked for it previously and were not given the

16   information contained in the exhibit?

17   MR. FRIEDMAN: I haven't had time to

18   evaluate whether I have -- I haven't heard at all the

19   full scope of what they're talking to -- about, but

20   what I do --

21   MS. FUNDERBURK: Please speak into the

22   microphone.

23   MR. FRIEDMAN: I'm sorry.

24   I don't even know that I can evaluate the

25   full scope of whether this is rebuttal yet, but what

1   I do know is that this is exactly what we had asked

2   for, and I need to -- I would like to describe that

3   language and their answer. And our position is

4   this -- exactly this document and exactly -- whatever

5   interrog- -- and some interrogatories they were going

6   to argue they should have told us about four, five

7   months ago.

8   MS. FUNDERBURK: Any response,

9   Mr. Spivey?

10   MR. SPIVEY: I guess I need to know

11   what he's pointing at. I can't imagine that any

12   discovery that he's going to point to would properly

13   require us to present something that we have

14   represented in rebuttal this week.

15   MR. FRIEDMAN: So --

16   MS. FUNDERBURK: Can you quickly

17   reference --

18   MR. FRIEDMAN: I can.

19   MS. FUNDERBURK: -- what you're

20   referring to so that we can continue with the

21   examination of Ms. Mao?

22   MR. FRIEDMAN: I'm referring to -- I'm

23   in Exhibit 4 of the Department's Book 3. And Item 77

24   states -- this is a data request (as read):

25   "Provide a statistical analysis

1   comparing the historic loss data

2   with any simulated losses used to

3   support the rate filing."

4   The response -- and may I make clear, that's

5   exactly what 35 is. It's comparing the historic loss

6   data with their simulated loss data.

7   MR. SPIVEY: I'm sorry, which number

8   are you referring to?

9   MR. FRIEDMAN: I believe 35.

10   MR. SPIVEY: I'm talking about in the

11   data request.

12   MR. FRIEDMAN: Oh, I'm sorry. 77.

13   MR. SPIVEY: 76?

14   MR. FRIEDMAN: 77.

15   MS. FUNDERBURK: 77.

16   MR. FRIEDMAN: And the response was

17   (as read):

18   "Without waiving any objections,

19   the Rate Bureau responds further

20   as follows.

21   "Neither the Rate Bureau nor any

22   of its consultants have any such

23   requested analysis. Further, to

24   the extent this item requests that

25   the Rate Bureau prepare the

1   requested analysis, the Rate

2   Bureau objects that the request is

3   not a proper data request or a

4   proper discovery request, is

5   over-broad, and is unduly

6   burdensome."

7   And the equivalent of that data request was

8   repeated in a formal discovery request.

9   I can go on with other ones I think are --

10 would have called for this. And I -- before I do,

11 though, I want to emphasize that, again, this -- if

12 Ms. Mao knew about that article and wanted to make an

13 analysis based on it -- if she knew about it before,

14 heck, the Rule -- Rule 26 would have required her to

15 have revealed it when they filed their testimony. And

16 it wasn't. And we asked subsequent questions trying

17 to eke out exactly this question. And now a document

18 which is directly responsive to this question and

19 other discovery requests is about to be put in.

20   MS. FUNDERBURK: Mr. Spivey?

21   MR. SPIVEY: Your Honor, I want to

22 respond, at least briefly, here.

23   First of all, this type of claim that this

24 material should have been provided in discovery is new

25 to me. I've never experienced this kind of thing in a

1   rebuttal situation in my life.

2   But I will point out that the data request

3   that Mr. Friedman is pointing to specifically is made

4   in reference to pages in the filing, Exhibit RB-1,

5   pages F3 through F32. The statistical analysis that's

6   referred to there has a history, and it's very

7   pointedly requesting something that is mentioned in

8   the statutes. We have had issues -- discussions about

9   that previously, and our response was we don't have

10   it. That was true then; that is true today.

11   The material we're talking about in

12   Exhibit RB-35 in no way is responsive to what he's

13   pointing to in the data request. And for him to be

14   suggesting that we had some obligation to envision

15   what his witnesses were going to present in their

16   responsive testimony, which we received in September,

17   is ludicrous.

18   This exhibit is responding to

19   Ms. Cavanaugh's testimony that we just examined her on

20   this week.

21   MS. FUNDERBURK: The objection is

22   overruled.

23   Please proceed with your questioning.

24   BY MR. SPIVEY:

25   Q. Ms. Mao, I believe you were beginning to

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1 explain what you had done in preparing and now

2 presenting Exhibit RB-35, and I believe you were

3 pointing out what the top portion of your exhibit is

4 showing.

5   A.   Yes --

6   Q.   And I will just point out for your sake, as

7 well as everyone's, that the Table 14 that

8 Ms. Cavanaugh presented is on page 36 of her prefile

9 testimony.

10   A.   Yes, the top portion is Ms. Cavanaugh's

11 Table 14. And the bottom part of the first table,

12 I added two rows based on Dr. Pielke's paper, and the

13 source of those two rows are showed in the bottom

14 table. The bottom table is taken out of the Pielke

15 paper -- Pielke paper, Table 5.

16   So what I did is taking the row "Total" --

17 the column "Total damage" column in the Pielke table

18 and transpose the numbers into those two rows. For

19 example, Category 1, total damage: 55,172. So

20 I insert that table into -- under the column under

21 Category 1. So I did these -- transposed the

22 Categories 1 through 5 into the row "Pielke PL

23 Normalization." And then I did the same for "Pielke

24 CL Normalization." So the last column of the top

25 table, I calculated Pielke's percentage of major

1   hurricanes as a total loss.

2   So here, you may notice for both Pielke

3   methods it's 85 [sic] percent. That's slightly higher

4   than the 85 percent in the footnote. So that is

5   because, in the top table, Ms. Cavanaugh didn't

6   include the tropical/subtropical storms, so there's a

7   small portion of tropical and subtropical losses are

8   not included in the denominator; so therefore my

9   calculation of the major hurricanes is slightly higher

10   than Mr. Pielke's 85. My number is 87.

11   But when we compare AIR's major hurricane

12   damage percentage, which is 76 or 75, we show it's

13   much closer to Mr. Pielke's 87, and the one RMS is

14   much lower.

15   So I remember Ms. Cavanaugh was saying she

16   didn't have a benchmark to support why she gave AIR

17   zero; and here, I think I -- at least from the

18   comparison with the important benchmark, we feel AIR's

19   percentage is much closer to that benchmark. However,

20   that's not my ground to give RMS zero weight. In

21   fact, recognize volatility and uncertainties around

22   the model, I would still recommend a 50 percent weight

23   for RMS model.

24   Q.   Ms. Mao, just -- I'm just observing in this

25   exhibit, in the portion at the very top where you

 1 essentially recreated Ms. Cavanaugh's table, the

 2 Saffir-Simpson category numbers 1, 2, 3, 4, and 5 are

 3 a little bit offset to the right?

 4   A.   Correct. Yes. Sorry about that. Because 1

 5 is lined left, the bottom table was on the right, so

 6 they're mis- -- a little misaligned.

 7   Q.   Now, Ms. Mao, are you -- turning back to

 8 Ms. Cavanaugh's testimony at page 36, after her

 9 Table 14, there at the top of page 36, at line 2, she

10 describes and sets forth material regarding her fourth

11 test.

12   Are you generally familiar with the fourth

13 test where she presented a table on the frequencies of

14 storms there in her testimony from lines 2 through 4

15 on page 36?

16   A.   Sorry. Give me a -- page 36; right?

17   Q.   This is Ms. Cavanaugh's testimony, which is

18 Exhibit DOI-2.

19   A.   Okay. Yes. Yes, I'm there.

20   Q.   All right. So looking at the Table 15 she

21 presents there at line 4 --

22   A.   Yes.

23   Q.   -- this is the Table 15 that Ms. Cavanaugh

24 revised earlier in this hearing, after hearing your

25 testimony and before she gave her testimony; correct?

1   A.   Correct.

2   Q.   Have you reviewed Ms. Cavanaugh's Table 15-B,

3   which she provided as a revision and presented in --

4   during this hearing?

5   A.   Yes.

6   Q.   All right. Looking at Ms. Cavanaugh's

7   Table 15-B, do you have an opinion as to whether the

8   information she presents there supports her decision

9   to give the AIR model zero weight and the RMS weight

10 100 percent weight?

11   A.   I don't have Table 15-B in front of me.

12 I only have --

13   (Over-speaking.)

14   MR. SPIVEY: Just a moment.

15   THE WITNESS: Sure. Yes.

16   MR. SPIVEY: Mr. Friedman, does the

17 witness not have revised 15-B? I have an extra.

18   MR. FRIEDMAN: If you could hand that

19 up to her, that would be great. I'm only aware of

20 where my own is.

21   (Document was handed to the witness.)

22   THE WITNESS: Thank you.

23   Can you repeat your question?

24   MR. SPIVEY: I will.

25   THE WITNESS: Thanks.

1   MR. SPIVEY: Mr. Friedman, let me know

2   when you're ready.

3   MR. FRIEDMAN: Go ahead.

4   MR. SPIVEY: Thank you.

5   BY MR. SPIVEY:

6   Q.   Ms. Mao, do you now have before you a copy of

7   Ms. Cavanaugh's Table 15-B?

8   A.   Yes.

9   Q.   Do you have an opinion as to whether the

10   information she presented in Table 15-B supports her

11   decision to give the AIR model zero percent weight and

12   the RMS model 100 percent weight?

13   A.   I -- I don't support Ms. Cavanaugh's

14   selection of weight based on this table because, as

15   I recall, Ms. Cavanaugh discussed but she didn't

16   perform additional tests of these numbers. It looks

17   like she eyeballed a number, and as that consistent

18   with her other selection so she gives a weight.

19   Therefore, based on her Table 15-B, we feel additional

20   statistical testing will be needed to support the

21   weight selection.

22   Q.   Have you prepared an exhibit that presents

23   various statistical analyses related to the data in

24   Table 15-B?

25   A.   Yes, I have.

1   (Exhibit No. RB-36 was marked for identification.)

2 BY MR. SPIVEY:

3   Q. Do you have before you an exhibit that is

4 marked Exhibit RB-36?

5   A. Yes, I have.

6   Q. Is that the exhibit that you prepared?

7   A. Yes, this is, based on Ms. Cavanaugh's

8 Table 15-B.

9   MR. FRIEDMAN: Your Honor, I'd like to

10 move to strike -- excuse me -- 36. I can -- I don't

11 have the -- if you'd like, I can go through yet more

12 requests. We think this was responsive --

13   MS. FUNDERBURK: Please be sure you're

14 speaking into the microphone.

15   MR. FRIEDMAN: We can go through yet

16 more requests that I believe this would have been

17 responsive to. And it is absolutely the -- I mean,

18 it's including real data that they knew about and she

19 was drawing on as of three weeks before the hearing.

20 There was discovery pending asking for this months

21 before the hearing; and given that discovery, they had

22 an obligation to supplement, at some point, over

23 the -- they got the discov- -- they got our reports

24 on, I believe, September 11th or so, almost -- over

25 three and a half months they had a duty to supplement

1   this. It would have -- and had they supplemented

2   this, we would have been able to actually ask our own

3   witnesses on direct about it. We're now deprived of

4   that.

5   MR. SPIVEY: Once again, your Honor, I

6   think it's very obvious Ms. Cavanaugh's testimony is

7   where these data appear. We didn't have her testimony

8   until -- the original testimony -- until sometime

9   mid-September. We didn't have Table 15-B until after

10   this hearing began because she revised her testimony

11   to include it, and we just cross-examined her on this

12   material this week.

13   MR. FRIEDMAN: If I could explain what

14   this -- first, that's very true. Ms. Cavanaugh,

15   I believe, supplemented this for you the first --

16   I want to say the first week of November. And the

17   reason she had to supplement, as she testified, was

18   that, upon listening to Ms. Mao explain one -- what

19   one of her graphs was actually doing, it prompted

20   Ms. Cavanaugh to say, "Gee, I didn't understand how

21   she explained it the first time" and then to create

22   the new 15-B. We promptly provided it. And the --

23   again, the discovery obligations alone would have

24   required them to supplement this well before 1:30 p.m.

25   yesterday.

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1   MR. SPIVEY: Your Honor, I'll simply

2   say I'm not aware of any discovery that would properly

3   identify and point out anything about Exhibit RB-36

4   that we were under an obligation to provide to

5   counsel. This is rebuttal exhibit that's been

6   prepared this week.

7   MS. FUNDERBURK: The objection is

8   overruled.

9   Please proceed with your questioning.

10   BY MR. SPIVEY:

11   Q. Ms. Mao, can you please describe the various

12   statistical analyses that you present in Exhibit RB-36

13   and what the results of those analyses show?

14   A. Sure. In the first page of RB-36, we copied

15   three rows from Ms. Cavanaugh's RB-15-B: that's the

16   "Actual, 1980-2023," "AIR Projected," "RMS Projected."

17   And we also added a row under that that's "Average

18   Projected." So these are the testing we are -- we

19   will be performing.

20   So the first performed is a simple

21   statistical test that is the Sum of Errors analysis.

22   So the formula of the statistics is showed in the

23   first column. So under the "Sum of Errors analysis,"

24   the value on the right is simply AIR minus actual, and

25   also the RMS minus actual and the average minus

1 actual. So we show all those errors. And then "Sum,"

2 those are to the very right column.

3   So based on these first tests, AIR minus

4 actual, that is the smallest number. So in the sum of

5 error analysis, the smallest number means the best.

6 So this is the first test.

7   The second test we call "Sum of Squared

8 Errors Analysis." The formula of that analysis is AIR

9 minus actual to the power of two. So the sum of

10 errors is in the right -- the right column. And in

11 this analysis showed average minus actual is

12 performing the best, because these statistics simply

13 penalize -- if one value is very large, when you

14 square it, it penalizes the very large error. So the

15 second test showing the average performs the best.

16   And there's a third, when we turn to the

17 second page: it's a correlation coefficient. We just

18 used an Excel function to calculate the correlation of

19 the two sets of values: that's actual vs. AIR, actual

20 vs. RMS, actual vs. average, and RMS vs. AIR. So in

21 the statistical sense, anything beyond 80 percent

22 shows significant correlation.

23   So as we can see in the correlation

24 calculation, whether it's AIR, RMS, or average, they

25 all correlated well with actual. So these statistics

1   showing RMS while has the highest correlation, but AIR

2   also has significant correlation with the actual

3   number.

4   So the last test is "Least Square Fit

5   Analysis." It's showing how the -- how these two sets

6   of numbers linearly correlated. And R-squared -- one

7   R-squared close to 1, that means perfect correlation.

8   But anything one R-squared beyond 70 percent, that's

9   also a significant correlation.

10   So, yeah, based on these four testing, we

11   show sometimes AR performed the best, sometimes RMS

12   performed best, and sometimes average performed the

13   best. So there is -- based on these tests, there is

14   no justification to discredit -- to give any model

15   zero weight. In fact, it supported the 50/50 weight

16   we selected.

17   MS. FUNDERBURK: When you say a model

18   performed the best, what would cause you to believe,

19   like, this was a better result than this? What would

20   lead you to that conclusion?

21   THE WITNESS: When we talk about the

22   better -- performed the best, we mean this model -- so

23   the AIR is closest to the actual in this test. This

24   is what we mean. So we performed the four different

25   tests, and the sum shows AR performed the best, in

1   some statistical sense, and RMS performed better in

2   other statistical sense.

3   MS. FUNDERBURK: Thank you.

4   BY MR. SPIVEY:

5   Q.   So, then, Ms. Mao, what conclusions do you

6   draw from your analyses of the storm frequencies, as

7   projected by the AIR and RMS models, as compared to

8   the actual average number of storms by Saffir-Simpson

9   intensity?

10   A.   So based on my analysis, I believe both

11   models are credible. But I want to also comment that

12   from 19 -- by only looking at 1980 to 2023 -- that's a

13   44-years period -- that period is too short to

14   evaluate the whole spectrum of the frequency.

15   However, even we perform -- even we rely on

16   these numbers alone, it doesn't support

17   Ms. Cavanaugh's selection of zero weight to AIR model

18   and 100 percent to RMS model, because AIR performed

19   better in some tests and RMS performed in other tests;

20   so in that case, we believe the average of two models

21   is the right way.

22   Q.   Now, looking again at Ms. Cavanaugh's prefile

23   testimony, on page 36 there, she then goes from her

24   Table 15, or her substituted Table 15-B, directly into

25   her fifth test, which she describes beginning at

1 line 5 on page 36.

2   Are you familiar with her testimony

3 regarding that fifth test that she performed?

4   A. Yes. I have reviewed her exhibit that

5 derives these numbers.

6   Q. So looking at her Table 16 on page 36 there

7 at line 7, do you have any comments regarding the

8 number she displays there and the comparison she's

9 making to the actual severities as she has trended

10 them to 2023?

11   A. Yes, I have some observations.

12   By looking at these tables alone, the actual

13 in her table shows $428 million, and the average AIR

14 between the standard with and without demand search,

15 they are -- the severity of AIR model Cat I and Cat II

16 are around $390 million. That is 9 percent below the

17 actual in her table.

18   If I look at RMS historical, those are

19 500 -- around $570 million. That is 150 million

20 higher than actual, so it's actually 30 percent higher

21 than actual.

22   So by simply looking at these numbers,

23 I would say AIR is much closer to the actual than RMS.

24 So again, just based on these numbers alone, I would

25 not just draw the conclusion AIR deserves zero weight.

1   Q.   All right.   Immediately below her Table 16 on

2   page 36, Ms. Cavanaugh sets out her conclusions from

3   her five tests.   Are you familiar with her testimony

4   beginning there at line 8 and beginning with the

5   answer on line 9?

6   A.   Yes.

7   Q.   Ms. Cavanaugh [sic] and your Honor, I'm going

8   to read that.   Question on line 8:

9   "Question: What were your

10   conclusions?

11   "Answer: Based on my review of

12   this analysis, I find that while

13   there is a risk of a

14   high-intensity hurricane to occur

15   in North Carolina, the RMS model

16   more closely reflects the

17   historical frequencies by storm

18   intensity and that the AIR results

19   are not aligned with the

20   historical observations.   Further,

21   the severities using the RMS

22   model, while higher, are

23   reasonably aligned with historical

24   losses sustained given the

25   inherent volatility and the

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1   severity of these events.

2   Therefore, in my alternative

3   calculations, I place 100 percent

4   weight to the RMS historical model

5   and zero percent weight to the AIR

6   standard model."

7   Ms. Mao, do you have an opinion as to

8   whether Ms. Cavanaugh's conclusions, as she stated

9   them there, are reasonable or appropriate based on the

10   five tests that she had presented immediately prior to

11   stating those conclusions in her testimony?

12   A.   Again, I disagree with Ms. Cavanaugh's

13   conclusion. As we work through those five tests,

14   first of all, there's no -- there's no guidelines why

15   these five tests are the adequate tests to be based on

16   when selecting models.

17   And also, when we work through those five

18   tests, and one by one we actually find in each test,

19   while there's a different performance by different

20   models, there is really no clear justification to give

21   AIR model zero weight and give RMS model 100 percent

22   weight.

23   I find Ms. Cavanaugh's judgment is somewhat

24   inconsistent in different testing. Just one example:

25   On Table 12, in this, we believe -- we discuss the

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1   trended loss is in- -- is understated; but, however,

2   if you look at the difference between AIR and RMS

3   model, it's between 500 -- if we subtract the AIR --

4   the difference between AIR standard and the RMS

5   standard, it's about 180 million difference. And in

6   that case, she give AIR zero weight and RMS

7   100 percent weight.

8   While in another table -- that's Table 16 --

9   the difference between AIR and RMS is also about -- in

10   the same ballpark, 180, 190, if you subtract 392 from

11   579.

12   So we see the spread between AIR and RMS

13   model in two tables are about the same, but while in

14   one table AIR is closer to the actual, another table

15   AIR is -- RMS is closer to the actual, but in -- when

16   she makes a judgment, she just gives the same

17   weight -- that's zero -- to AIR model, regardless AIR

18   is better or worse for the test.

19   So for that reason, I disagree with

20   Ms. Cavanaugh's selection of weighting.

21   Q.   And through throughout these various tests,

22   Ms. Cavanaugh uses various time periods; but do you

23   view those time periods as being long enough to

24   provide -- or prepare a valid analysis to compare to

25   these models?

1   A.   In my opinion, that's not enough.   In some

2   tests, she used 20 years of loss, and in other tests,

3   she used 40 years of frequency or 60 years of

4   frequency; but none of that is a long enough period,

5   because in those periods it's well likely that we miss

6   a high return period loss.   And in 60-years period,

7   the probability of seeing a one-in-thousand event is

8   only about 6 percent.

9   Q.   So it's true that it's much more likely,

10   during this short period of time, that we would not

11   see those events than that we would see those events

12   occur?

13   A.   That's correct.   It's -- yeah.   For example,

14   in the 40-years period, there is about 4 percent of a

15   chance we see a one-in-thousand-year event, and there

16   is about 96 percent of chance we don't see that event.

17   Q.   And that means, if I'm understanding the

18   statistics correctly, that it's 24 times more likely

19   that you would not see that event occur during that

20   time period than that you would see it occur?

21   A.   That's correct.

22   Q.   Ms. Mao, would you now turn to page 50 in

23   Ms. Cavanaugh's prefile testimony.

24   A.   Yes.

25   Q.   All right.   There at line 8, she begins her

1 testimony regarding the methodology she used to

2 estimate the net cost of reinsurance. Do you see

3 that?

4   A. Yes.

5   Q. Are you familiar with Ms. Cavanaugh's

6 testimony to the effect that she used insurance-linked

7 securities data to approximate the net cost of

8 reinsurance?

9   A. Yes.

10   Q. And are you familiar with her testimony to

11 the effect that you used insurance-linked securities

12 data in your analysis of the compensation for

13 assessment risk?

14   A. Yes.

15   Q. Look, if you would, at line 18 on page 50 of

16 Ms. Cavanaugh's testimony. I'm going to read the

17 portion I want you to focus on, beginning at line 18

18 with "I note that..." (As read):

19   "I note that, while Ms. Mao relies

20   on this data for the determination

21   of the compensation for assessment

22   risk, she does not use it for

23   estimating the cost of

24   reinsurance. Given her statements

25   regarding the appropriateness of

1   this data, and that it is similar

2   to costs for reinsurance, it is

3   unclear why she does not use this

4   data in her analysis of the net

5   cost of reinsurance."

6   Do you see that testimony, Ms. Mao?

7   A.   Yes.

8   Q.   Could you please explain why you did not use

9   insurance-linked securities data in your analysis of

10   the net cost of reinsurance?

11   A.   Sure.   As I explained earlier, reinsurance

12   and CAT bond, they are two different products.   Even

13   though the payout of these two products are similar,

14   but the pricing of the reinsurance and the pricing of

15   the CAT bond are very different processes.

16   And the reinsurance accounts for the

17   majority of the risk transfer capital; so it accounts

18   for about 84/85 percent of global risk transfer

19   capital, while the CAT bond only accounts for

20   6 percent of the overall risk transfer capital.   So we

21   believe, for reinsurance pricing, when the data is

22   available, it's better to use the reinsurance data to

23   price reinsurance.

24   And I also want to describe the major

25   differences in the reinsurance pricing and the CAT

1   bond pricing.

2   Reinsurance pricing starts with loss: So we

3   look at the loss, the probability of the loss, and the

4   standard deviation of the loss, then we come up with a

5   pricing curve. So this is reinsurance pricing, it

6   starts from loss to the rate, while the CAT bond is

7   based on probability of the default. So the CAT bond

8   is structured to mimic a high-yield bond -- high-yield

9   bond in the marketplace.

10   So, for example, the CAT bond -- if the CAT

11   bond has five -- if the -- if the high-yield bond has

12   5 percent probability of default, and the CAT bond --

13   sorry, the high-yield bond pays 6 percent coupon, and

14   that is one which structures the CAT bond, we try to

15   make the event trigger the default at 5 percent of the

16   probability, and then we will price the CAT bond

17   similar to that high-yield bond as a 6 percent return.

18   That is -- CAT bond pricing is starting from

19   the probability of default, and the loss is only

20   loosely correlated to the final pricing.

21   So -- and there's a third major difference

22   in the reinsurance and the CAT bond, is reinsurance --

23   investors in reinsurance are the long-term investors,

24   and while the CAT bond investors are -- tend to be

25   those hedge fund/pension fund; those are more

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1   speculative investors. So after an event, they tend

2   to just flee from the -- from the market. So this is

3   why CAT bond is fluctuating more than the reinsurance.

4   So this is also the reason reinsurance and

5   the CAT bond, although they are moving to the same

6   direction, they are not always the same. And 2024

7   happened to be one year these two pricing are close,

8   but in other years, these two pricing -- these two

9   products could price at a very different rate. So

10   this is another reason we want to rely on reinsurance

11   data to price reinsurance.

12   Q.   And in your experience, does using

13   reinsurance data more accurately price the cost of the

14   reinsurance?

15   A.   That's correct. In -- yes. The reinsurance

16   data would price accurately of the reinsurance. And,

17   in fact, in rate filings -- in almost all rate filings

18   I see where reinsurance treaty is available, insurers

19   use the most current reinsurance pricing in their rate

20   filings.

21   Q.   Ms. Cavanaugh used the -- strike that.

22   Let me just note, insurance-linked

23   securities data are sometimes referred to as "ILS

24   data"; correct?

25   A.   Correct.

1   Q.   That's short acronym for that?

2   A.   Yes.

3   Q.   All right.   So Ms. Cavanaugh used ILS data

4   from a longer-term period, did she not?

5   A.   Yes, she did.

6   Q.   Do you recall what period of time she used?

7   A.   She used the period of time from 2010 to

8   2022: about 13 years of data.

9   Q.   And did she use the ILS data over that entire

10   historical period to fit a curve that she used to

11   determine the pricing in her net cost of reinsurance

12   analysis?

13   A.   Yes, she did.

14   Q.   Do you have an opinion on whether using

15   long-term ILS data in that manner, for the purpose of

16   determining the net cost of reinsurance for use in

17   this case, is appropriate?

18   A.   My opinion is it's not appropriate.

19   First of all, I think using the CAT bond

20   data to price reinsurance is inappropriate, given --

21   even given if we use the CAT bond data using the

22   long-term period weighted average is inappropriate.

23   Q.   And has the price of reinsurance fluctuated

24   over the time period that Ms. Cavanaugh utilized?

25   A.   Yes, the reinsurance price fluctuated

1   significantly in the past few years. And, in fact,

2   the period between 2020 to 2023 are the most volatile

3   reinsurance market I have experienced in my entire

4   career.

5   Q.   Now, Ms. Mao, is it also correct that in

6   determining her net cost of reinsurance provision,

7   Ms. Cavanaugh gave 100 percent weight to the RMS model

8   and zero percent weight to the AIR model for the same

9   reasons that she relied on the RMS model solely for

10 determining her model losses?

11   A.   That's correct.

12   Q.   Is it also correct, then, that Ms. Cavanaugh

13 made an additional change in determining her net cost

14 of reinsurance, which was to rely on the results from

15 the long-term catastrophe model -- the long-term RMS

16 model -- rather than the near-term model for RMS?

17   A.   That's correct.

18   Q.   And she states that at her testimony on

19 page 51, lines 11 through 14, does she not?

20   A.   Yes, she did.

21   Q.   Do you have an opinion on whether

22 Ms. Cavanaugh's decisions to give 100 percent weight

23 to the RMS model in developing her net cost of

24 reinsurance provision is appropriate, and to use the

25 RMS long-term model instead of the near-term model,

1   which she called the WSST model in her testimony -- to

2   make those two decisions in developing her net cost of

3   reinsurance provision -- do you have an opinion as to

4   whether those are appropriate?

5   A.   Sure.   My opinions are those are not

6   appropriate for two reasons.

7   First, her test doesn't justify those

8   weighting, as we already discussed.

9   Second, those are not models used to

10   determine price by reinsurers in the marketplace.   So

11   reinsurers use medium-term and the near-term model to

12   price reinsurance.   So, therefore, I feel her

13   selection of models are inappropriate.

14   Q.   And by using the longer-term period for the

15   net cost of -- I mean longer-term period for the ILS

16   data that she relied on in determining her net cost of

17   reinsurance provision, is that reflective of what

18   happens in the reinsurance market?

19   A.   No, that's not reflective of what happens in

20   the reinsurance market, because when you fit 15 --

21   13 years curve and derive the parameter from that

22   curve, that means the older years will carry some

23   weight in the selection of your parameter.   And the

24   reinsurance market is very reactive, so therefore the

25   current parameter is not -- is not equal to what she

1 selected based on her methodology.

2   MR. SPIVEY: May I have just a moment

3 to locate a transcript reference --

4   MS. FUNDERBURK: Yes.

5   Ms. Mao, you've been seated up there for

6 about an hour and 15 minutes. Are you still

7 comfortable? Do you need a break?

8   THE WITNESS: I'm good, thank you.

9   MS. FUNDERBURK: Okay. Thank you.

10   MR. SPIVEY: I want to point the

11 witness to a particular transcript reference. How are

12 we doing on the screen today?

13   I want to go to transcript XV, which was

14 December the 2nd, in the afternoon.

15   MS. FUNDERBURK: Are you able to pull

16 that up electronically? If you can pull it

17 electronically --

18   (Over-speaking.)

19   MR. SPIVEY: I'm just going to point to

20 one particular passage.

21   MS. FUNDERBURK: Oh, it looks like

22 Mr. Beverly has it.

23   MR. BEVERLY: I will have it soon, your

24 Honor.

25   MS. FUNDERBURK: Okay.

1   MR. SPIVEY: We're going in that

2   particular transcript to page 2310.

3   MR. FRIEDMAN: Is that going to be on

4   the --

5   MR. SPIVEY: We're getting it on the

6   screen.

7   MR. FRIEDMAN: Okay. Thank you.

8   BY MR. SPIVEY:

9   Q.   Ms. Mao, is the transcript on the screen

10   before you now --

11   A.   Yes.

12   Q.   -- showing page 2310?

13   A.   Mm-hmm.

14   Q.   Please look to line 2 -- beginning at line 2.

15   And I'm going to read. (As read):

16   "Question:Do you agree that the AIR

17   model" --

18   I'm sorry, let me stop. This was a question

19   that I asked Ms. Cavanaugh.

20   "Question:Do you agree that the AIR

21   model -- models -- and RMS models

22   are the two most widely used

23   catastrophe models for hurricane

24   exposure in the United States?

25   "Answer: Yes.

1   "Question:Do you have any basis for

2   believing that the reinsurance

3   companies rely solely on the RMS

4   models when they negotiate

5   reinsurance prices with companies

6   that write homeowners' insurance

7   in North Carolina?

8   "Answer: Yeah. I thought about

9   this is lot, you know, whether or

10   not to use a blend of AIR and RMS

11   because oftentimes that is what's

12   used by reinsurers. And,

13   ultimately, I thought about the

14   negotiation process between

15   insurers and reinsurers. And if

16   there was this fictitious -- you

17   know, this hypothetical one,

18   right, that was negotiating the

19   reinsurance, I would expect that,

20   you know, the -- that hypothetical

21   one to come to the reinsurers and

22   say, you know, basically, the --

23   the analysis -- some -- some

24   similar analysis probably way more

25   involved, but some similar

1   analysis that I had done, which

2   shows that, you know, RMS is -- is

3   kind of in the middle of the

4   different models and that -- that

5   it more closely is aligned with

6   historical losses."

7   Then continuing over to page 2311,

8 (as read):

9   "And so and this is what I've seen

10   in my experience of being on the

11   reinsurer side. Insurers will,

12   you know, really try to state

13   their case to why their, you know,

14   the expected losses are lower than

15   what reinsurer might come up with.

16   So in this case, you know, I --

17   I would expect the insurers to do

18   that, you know, if they were this

19   hypothetical one just writing

20   business in North Carolina and --

21   and that then, you know, they --

22   they'd be able to, you know, place

23   more reliance on RMS data."

24   Do you recall that testimony?

25 A.   Yes.

1   Q.   And you understand her testimony there to be

2   suggesting that a company could explain in its

3   reinsurance negotiations that the RMS long-term model

4   better shows that the company's expected losses are

5   lower than what the reinsurer might come up with?

6   A.   Yes, I saw that.

7   Q.   Have you had experience in the real-world

8   marketplace where insurers and reinsurers negotiate

9   the prices of reinsurance?

10   A.   Yes, I participated in those meetings, both

11   as a reinsurance buyer at State Farm and also as a

12   reinsurance broker, so in the room. Arranged meetings

13   for our clients to meet with reinsurer to discuss

14   technical and the pricing.

15   Q.   So what is your opinion of Ms. Cavanaugh's

16   suggestion that a company could convince a reinsurer

17   that the RMS long-term model is what they should rely

18   on in determining the price of reinsurance?

19   A.   First of all, that scenario never happened.

20   Ever since AIR Warm Sea Surface Temperature and the

21   RMS medium-term view model was introduced to the

22   marketplace in around 2006/2007, the reinsurance has

23   been consistently used the medium-term view and the

24   Warm Sea Surface Temperature view in their pricing.

25   Second, that is also -- for a size of this

1   hypothetical company -- it purchased about 14 billion

2   capacity in reinsurance -- based on my experience,

3   there will be about 40-50 different reinsurers

4   participate on this reinsurance panel; so it is

5   impossible to convince all 50 reinsurers to agree to

6   only use RMS long-term model in the reinsurance

7   pricing.

8   MR. BEVERLY: May we have one moment,

9   your Honor?

10   MS. FUNDERBURK: Yes.

11   BY MR. SPIVEY:

12   Q.   Ms. Mao, if you would look again at the

13   transcript of Ms. Cavanaugh's testimony there at

14   page 2311, at line 12, where I ask her about her

15   experience. The question I asked her there was

16   (as read):

17   "Question:So your testimony earlier

18   is that you've never been involved

19   in that particular process of that

20   negotiation, have you?"

21   And her answer:

22   "Answer: Not for a property cat,

23   but I have, you know, been

24   involved in reinsurance pricing

25   for other treaties."

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1   Given Ms. Cavanaugh's testimony there, do

2   you believe she properly understands what the

3   negotiation process is for property cat excess of loss

4   reinsurance?

5   A.   I don't believe so.   However, I am not

6   familiar with the pricing that she was talking about,

7   so I don't have enough knowledge to comment the

8   difference.   But based on my knowledge about how

9   property cat reinsurance negotiation process, her

10   discussion was incorrect.

11   Q.   Now, Ms. Mao, referring back to the questions

12   I was asking you just a few moments ago about

13   Ms. Cavanaugh's use of long-term ILS data for the

14   purpose of determining the net cost of reinsurance,

15   have you prepared an exhibit that will help

16   demonstrate your opinions about that matter?

17   A.   Yes, I have.

18   (Exhibit No. RB-37 was marked for identification.)

19   BY MR. SPIVEY:

20   Q.   Do you have there before you an exhibit

21   marked Exhibit RB-37?

22   A.   Yes.

23   Q.   Is that an exhibit that you have prepared to

24   help demonstrate your testimony?

25   A.   Yes.

1		Q.	Can you please explain what you are

2	presenting on Exhibit RB-37?

3		A.	Sure.	On the RB-37, the top of the exhibit

4	includes a graph that come out of Ms. Cavanaugh's data

5	source, the Artemis CAT bond pricing curve that she

6	listed this source in her testimony.

7			And this graph shows the average spread --

8	the average expected loss and the average spread of

9	the CAT bond by year since 1997.	And I calculated the

10	profit multiple.	So column 4 is profit multiple that

11	we used.	That is the most relevant metric in the

12	calculation of reinsurance and the car [verbatim].	So

13	basically, it is what is the profit margin divided by

14	the expected loss for that year.

15			So in that table, I calculated the data in

16	two groups.	One group is 2010 through 2022:	That's

17	the years that Ms. Cavanaugh used to calculate her net

18	cost of reinsurance.	And then I also looked at 2023

19	and 2024 and look at the average of those two years

20	because those are more reflective of the current

21	market condition.

22			So we can look at the last two numbers in

23	the bottom -- bottom two rows, the right two numbers.

24	We can see the average between 2010 and 2022, the

25	profit multiple is 1.91; while the average between

1   2023 and 2024 -- the average is 3.33. So we can --

2   just by looking at these two numbers, these will --

3   these -- the 2023 and the 2024 are almost 30 -- more

4   than 30 percent higher than Ms. Cavanaugh's number.

5   It's even more than -- it's 60 percent, actually.

6   Q.   Ms. Mao, does that indicate that the current

7   price of -- or even, using CAT bonds, the current

8   pricing of CAT bonds, in the most recent data, is that

9   30 or 40 percent number higher, that you just

10 mentioned, than the numbers that Ms. Cavanaugh

11 utilized in her testimony?

12   A.   That's correct. The -- yeah. It's just

13 showing the profit multiple in 2023 and 2024 is much

14 higher than the average of the 2010 through 2022.

15   However, I want to acknowledge here that the

16 1.91 is not what Ms. Cavanaugh used, because she used

17 the curve fitting. So she didn't use a simple

18 average. And there's a simple average here where just

19 is showing for demonstration purpose that -- just

20 showing the current year is much higher than the

21 long-term average.

22   Q.   Ms. Mao, have you prepared an exhibit that

23 will help demonstrate the effects of Ms. Cavanaugh's

24 decision to give the RMS model 100 percent weight and

25 to use the long-term ILS data to approximate the price

1   of reinsurance?

2   A. Yes, I have.

3   (Exhibit No. RB-38 was marked for identification.)

4   BY MR. SPIVEY:

5   Q. Do you have before you there an exhibit

6   marked Exhibit RB-38?

7   A. Yes.

8   Q. And is that the exhibit that you just

9   indicated you prepared?

10   A. Yes.

11   Q. Would you please explain what this exhibit

12 shows?

13   A. Sure. I want to focus on the graph on the

14 top of this page. So you see two black bars in that

15 chart. The left black bar is Ms. Cavanaugh's net cost

16 of reinsurance dollars, and the right bar -- the right

17 black bar, 1.159 billion, is NCRB's net cost of

18 reinsurance dollars in the filing.

19   And in this chart, I want to demonstrate the

20 difference between two methodologies, the CAT bond

21 versus reinsurance, and also the various assumptions

22 that drives the difference. So this is a wonderful

23 chart that quantifies what each component drives the

24 difference in our estimate.

25   So go to the "Model Selection." As I

1 discussed, Ms. Cavanaugh used the 100 percent RMS

2 long-term, and we used average of the medium-term Warm

3 Sea Surface Temperature; and that assumption will

4 result in 297 million additional net cost of

5 reinsurance. That's the first green bar in the chart.

6 So if we change that assumption to Rate Bureau's

7 assumption, that would result in 297 additional net

8 cost of reinsurance dollars.

9   Then we go to "Number of Years." So we

10 replace Ms. Cavanaugh's average profit multiple with

11 the most current year's profit multiple; and that

12 assumption drives $245 million of difference.

13   So you can see that really the difference

14 between our two calculations, if we look at the

15 methodology alone, that is the little blue bar. So

16 for 2024, the methodology really doesn't drive the

17 major difference between -- because the CAT bond

18 pricing and the reinsurance pricing are very similar.

19 However, the major drivers of our differences are the

20 selection of models and the number of years in the

21 calculation.

22   And the Bureau's selection of the

23 assumptions reflect the actual market condition, the

24 reinsurance selection of models and their use of the

25 current year data.

1   And the bottom of the chart are all the

2   calculations goes into this chart, and that also

3   included the source of our profit multiple. So when

4   you see the bottom table shows if we have the

5   consistent assumptions as the NCRB made, our

6   difference is actually within 5 percent.

7   MR. SPIVEY: Your Honor, I'm going to

8   go to a different topic now. If it would be

9   satisfactory, it might be a good time to take a short

10   morning break.

11   MS. FUNDERBURK: Okay. Thank you.

12   Let's go ahead and take a break.

13   Let's do ten minutes. It is currently 10:30

14   by the clock in the courtroom. We will be in recess

15   until 10:40 by the clock in the courtroom. Thank you,

16   Counsel, we're in recess.

17   (Recess taken from 10:30 a.m. to 10:41 a.m.)

18   MS. FUNDERBURK: Counsel, we're back on

19   the record. Is there anything we need to address

20   before Mr. Spivey's examination of Ms. Mao continues?

21   MR. FRIEDMAN: Just -- well, I'll just

22   say that Mr. Spivey informed me he will be through

23   with Ms. Mao within half an hour or so. We will not

24   be ready -- so the amount of data that has been -- or

25   the amount of testimony that's even been given in the

 1   last hour and a half will take days for me to figure

 2   out with my experts and come up with cross.

 3   And then also, there is going to be overlap

 4   data between what they have that's stated they're

 5   going to put in through Mr. Ericksen, and Mr. Ericksen

 6   is largely going to talk, as I understand it,

 7   additional analysis of hurricane losses. So I guess

 8   what I'm thinking is that we are -- it would be

 9   prejudicial to us to force us to begin cross of

10   Ms. Mao today, so my thought was that perhaps --

11   MS. FUNDERBURK: Are you saying you're

12   going to need days between each of their rebuttal

13   witnesses to prepare your cross-examination?

14   MR. FRIEDMAN: That's what I'm trying

15   to avoid. So my suggestion was perhaps that after

16   Ms. Mao, the -- Mr. Ericksen go ahead and be called,

17   because he's testifying about comparable things, so

18   then at least we would have two of their direct to

19   chew over and begin responding to by next Thursday.

20   But I'm told by DOI staff and by my outside

21   experts that even the stuff that's come in this

22   morning will take a great deal of reconsideration and

23   discussion.

24   So I don't know -- I was proposing that they

25   simply put on Mr. Ericksen, have him particularly --

1 we have -- their proposed Exhibit 40 is exactly

2 something he testified to on his direct that he had

3 done and was direct- -- that is a big comparison of

4 actual hurricane loss to modeled results. He

5 acknowledged that for the first time on direct -- on

6 cross, rather. It was directly responsive to our data

7 requests and other discovery requests. It's only

8 being provided for the first time now.

9   So I think putting on Dr. -- Mr. Ericksen

10 after Ms. Mao is the most efficient way to make sure

11 that we are able to, at least for those two, respond

12 to their direct on rebuttal.

13   MS. FUNDERBURK: Mr. Spivey, response?

14   MR. SPIVEY: First of all, your Honor,

15 we've got a witness on the stand we haven't finished,

16 and he's talking about another witness after that.

17 I think it's a little premature.

18   But we're in the rebuttal phase of this case

19 now, and in my mind, the thought that we're going to

20 break for days between direct and cross is certainly

21 not in accordance with any experience I've had in any

22 kind of matter, much less these rate cases.

23   We're responding to and rebutting the

24 material they presented. If it causes them to

25 question and need to reevaluate what they did, you

1   know, that's not something I can address. But I don't

2   know that it's appropriate to expect to delay this

3   proceeding in the manner which I'm hearing that

4   Mr. Friedman is suggesting for that purpose.

5   MR. FRIEDMAN: So, your Honor, first of

6   all, obviously, we've only got one day of hearings

7   scheduled next week, and I'm not suggesting delaying

8   it. What I am suggesting -- and perhaps this would be

9   best as to all four of their witnesses -- is that all

10   of their direct be given and then we be given

11   sufficient time -- and we'll be working on it as they

12   testify -- to prepare our cross of those four.

13   I know that's out of order, but there is

14   a lot. These are actuaries whose analyses completely

15   depend on data and perspective. In this case, their

16   obligation -- I think some of what they're talking

17   about should have been included in their original file

18   testimony ten months ago.

19   It's -- I don't -- there's so much packed in

20   to what she said this morning that we can't digest it.

21   And then the same thing is going to happen with

22   Mr. Ericksen and clearly Dr. Zanjani and most likely

23   Mr. Anderson.

24   So I suggest they put on -- be allowed to

25   put on all their direct witnesses in whatever time

1   that takes them, and we will, as every one them of

2   goes along and we get transcripts, be preparing the

3   cross.

4   MR. SPIVEY: It would be a highly

5   unusual process, in my experience, your Honor.

6   I don't know what an appropriate --

7   MR. FRIEDMAN: Given our --

8   MR. SPIVEY: -- procedure would be

9   there.

10   MS. FUNDERBURK: I'm going to take the

11   issue of how long you're going to need for preparation

12   under advisement. I'm not inclined to do three

13   directs and then three cross. It is an unusual step.

14   It's just not the typical process for a hearing. And

15   honestly, it's easier for me to hear cross-examination

16   when witness testimony is fresh, and I think that's

17   why it's the normal way of conducting a hearing.

18   We'll see where we get with Ms. Mao, and

19   we'll reevaluate the issue of when cross is going to

20   be. I anticipate we'll have at least an opportunity

21   for quite a substantial break today for preparation so

22   that cross-examination can at least commence.

23   I expected that we would have an order

24   finalized within the next couple of weeks. We are

25   significantly past where we originally anticipated we

1   would be.

2   Now, Mr. Spivey, the questions that I'm

3   going to have for Ms. Mao do relate a lot to

4   reinsurance. I don't want to break your flow. Would

5   you prefer that I go ahead and ask her some things

6   about reinsurance, or would you prefer that I wait

7   until you've concluded all of your questions?

8   MR. SPIVEY: Well, your Honor, I'm

9   going to -- I have a few more questions for her about

10 reinsurance, and what I'm going to do -- my thought,

11 perhaps, is that -- I mean, you can certainly ask them

12 when you choose to, but they won't be out of -- it

13 won't be changing the topics remarkably if I go first

14 and then you ask your questions.

15   MS. FUNDERBURK: I'm going to let you

16 go -- since you've got some more on reinsurance, I'm

17 going to go ahead and let you complete reinsurance,

18 because there's always the possibility that some of my

19 questions could get answered as you're doing rebuttal.

20 I just don't want to interrupt your flow on subjects

21 by interrupting.

22   So let's go ahead and resume. When you

23 complete, I anticipate I'll have a few questions for

24 Ms. Mao, and then we'll reevaluate the issue of

25 scheduling of cross-examination. Please proceed.

1   MR. SPIVEY: Okay. Thank you.

2   BY MR. SPIVEY:

3   Q. Ms. Mao, can you get you before you there --

4   I hope it's there before you -- Mr. Schwartz's prefile

5   testimony that is marked Exhibit DOI-1 in this case.

6   MS. FUNDERBURK: Are you referring to

7   the original or the updated?

8   MR. SPIVEY: Quite frankly, I'm working

9   from the original.

10   MS. FUNDERBURK: Okay.

11 BY MR. SPIVEY:

12   Q. Ms. Mao, Mr. Schwartz also used historical

13 data in determining the net cost of reinsurance that

14 he recommends, did he not?

15   A. Yes, he did.

16   Q. And I'll point you to his pretrial testimony,

17 which we just mentioned is Exhibit DOI-1. On page 76

18 in the original version, at line 41, he asked the

19 question (as read):

20   "Question: Can you explain the

21   method you used to calculate a

22   value for the net cost of

23   reinsurance?

24   "Answer: Yes. I reviewed the

25   actual historical net cost of

1   reinsurance for homeowners

2   insurance for the insurance

3   industry as a whole."

4   Do you recall that testimony?

5   A.   Yes.

6   Q.   He then goes on to describe the testimony he

7 used, continuing below there. Is it correct that he

8 used historical net cost of reinsurance data going all

9 the way back to 1980?

10   A.   Yes.

11   Q.   And what -- is that a period of 44 years?

12   A.   Yes.

13   Q.   Do you have an opinion regarding whether

14 using a long-term historical average for the net cost

15 of reinsurance, as Mr. Schwartz has done, is

16 appropriate for determining the net -- the appropriate

17 net cost of reinsurance in this case?

18   A.   My opinion is that this methodology is not

19 appropriate.

20   First of all, as we already discussed, the

21 long-term history is not proper for reinsurance

22 pricing because reinsurance pricing fluctuates a lot

23 over -- year after year.

24   And also, the period of time using the

25 actual is also not appropriate, because this is for

1   the same reason reinsurance protects a volatile

2   catastrophe, for the same reason catastrophe is using

3   model because of the underlying volatility, and

4   reinsurance, for the same reason, should not be based

5   on the actual ceded reinsurance loss.

6   Q.   All right.   So what is your understanding of

7   the actual historical data that Mr. Schwartz did use?

8   A.   He used the homeowner data for the entire

9   United States.

10   Q.   Do you have an opinion as to whether it is

11 appropriate to determine the net cost of reinsurance

12 provision for use in this case by relying on net cost

13 of reinsurance data for homeowners insurance for the

14 entire United States?

15   A.   I think it's inappropriate because his

16 methodology doesn't break by state, so his methodology

17 would result in the same net cost of reinsurance

18 provision for all the states in the United States.   So

19 whether it's a high-risk state like Florida, Texas,

20 North Carolina, or a low-risk state like North Dakota

21 or Wisconsin, so his methodology would give the same

22 net cost of reinsurance for all those states.   It's

23 not North Carolina-specific.

24   Q.   And how does North Carolina's risk for

25 catastrophe -- catastrophic events -- hurricanes --

1   compare to the risk across the United States?

2   A.   I believe North Carolina is not the highest,

3   it's not Florida; however, it's above the average of

4   the actual -- of the catastrophe level in the

5   United States.

6   MR. FRIEDMAN: Your Honor, I'm going to

7   object here. We asked her on cross repeatedly about

8   whether she had any actual data that she could reveal

9   about any cost of the net in North Carolina, and in

10 response to numerous questions she said, one, "Well,

11 we may have some regional data," but she could not

12 identify how much of those -- that regional data

13 represented Aon clients in North Carolina; she said,

14 two, that she didn't know about anybody's real

15 premiums in North Carolina besides these unidentified

16 Aon clients; and that, three, she could -- even if she

17 knew about the other costs for other -- for other

18 insurers in North Carolina, namely the member

19 companies, that she assumed that would be proprietary;

20 and then four, as to the Aon clients that she was only

21 certain were at least buying reinsurance in the

22 region, she could not tell me the names or the numbers

23 or the costs.

24   She's now, right -- as we begin, is

25 testifying about what the real costs for premiums are

1 in North Carolina, exactly what she refused to give us

2 and what we have asked for in discovery and never got.

3   MS. FUNDERBURK: Mr. Spivey?

4   MR. SPIVEY: First of all, I disagree a

5 great deal with the characterization that Mr. Friedman

6 just placed on Ms. Mao's previous testimony.

7   More importantly, I haven't asked her about

8 pricing. I asked her about the risk and the relative

9 risk of North Carolina compared to the entire

10 United States. That was what my question was about

11 there.

12   MR. FRIEDMAN: That certainly clarifies

13 some. I'm still concerned about her getting into the

14 actual costs, but I'll withdraw the objection.

15   MS. FUNDERBURK: Thank you.

16   Please proceed, Mr. Spivey.

17 BY MR. SPIVEY:

18   Q. Ms. Mao, is Mr. Schwartz's methodology for

19 determining the net cost of reinsurance specific to

20 North Carolina?

21   A. No, it's not. In my opinion, if a

22 methodology gives you the same net cost of reinsurance

23 for Florida and for Illinois, then that methodology is

24 not reliable.

25   It -- North Carolina's -- I want to clarify

1 also, NCRB -- the Bureau's methodology is based on

2 North Carolina's loss, so we will derive North

3 Carolina-specific reinsurance costs based on North

4 Carolina exposure and based on the market pricing

5 curve for the region.

6   MR. FRIEDMAN: She's talking again

7 about cost, your Honor. That is exactly what she

8 wouldn't tell us -- cost being the actual premium

9 dollars.

10   MS. FUNDERBURK: Response to,

11 I presume, an objection of Mr. Spivey?

12   MR. SPIVEY: Again, your Honor, I think

13 Ms. Mao's testimony as just given is completely

14 consistent with what she's testified to previously in

15 this case. Again, she didn't talk about -- I mean,

16 she's talking about how she priced it for North

17 Carolina using actual North Carolina pricing.

18   THE WITNESS: Yes. We --

19   MS. FUNDERBURK: Just --

20   THE WITNESS: I'm sorry.

21   MS. FUNDERBURK: Just a moment. Let me

22 complete with counsel.

23   Mr. Friedman, to the extent you have

24 concerns that Ms. Mao's testimony has not been

25 consistent, that would appear to me to be something

1 for you to raise later as to credibility of a witness,

2 if that is the argument that you're making, or the

3 reliability of things that you have been provided.

4   As to the extent of her testimony, today, in

5 providing her rebuttal testimony, I'm going to hear

6 the line of questioning that Mr. Spivey is presenting.

7   Your objection is overruled. Thank you.

8   Please proceed, Mr. Spivey.

9   MR. SPIVEY: Thank you.

10 BY MR. SPIVEY:

11   Q. Now, Ms. Mao, a couple of general questions.

12   Does the net cost of reinsurance analysis

13 and the resulting net cost of reinsurance provision

14 that the Rate Bureau included in this homeowners

15 insurance rate filing consider the amounts to be paid

16 to reinsurers?

17   A. Yes. Again, it derives from the actual

18 market pricing curve. So we use North

19 Carolina-specific loss, and based on that curve, we

20 derive what the market price would have been if we

21 have that hypothetical North Carolina aggregated

22 company.

23   Q. And does the analysis and the resulting net

24 cost of reinsurance provision in this case, that the

25 Rate Bureau included in its filing, consider the

1 ceding commissions paid or to be paid to insurers by

2 reinsurers?

3   A.   In our analysis, we have placeholder for

4 ceding commission.   However, for this specific

5 analysis, it's catastrophe reinsurance.   Excess of

6 reinsurance doesn't have ceding commission; so,

7 therefore, for this specific analysis, ceding

8 commission is assumed to be zero.

9   Q.   And is that because for the specific kind of

10 reinsurance that we're talking about here for

11 catastrophe reinsurance for the exposure to hurricane

12 loss in North Carolina, ceding commission is typically

13 not applicable in those treaties?

14   A.   That's correct.   Ceding commission is not

15 applicable in excess of loss reinsurance treaties.

16   Q.   Does the analysis that's been performed here

17 for the net cost of reinsurance by the Rate Bureau,

18 and the resulting provision in this filing, consider

19 the expected reinsurance recoveries?

20   A.   Yes, it does.

21   Q.   And does the analysis and the provision in

22 this filing consider North Carolina's exposure to

23 catastrophic events relative to other states'

24 exposure?

25   A.   It used the Bureau's -- North Carolina

1   Bureau's exposure to derive the catastrophe loss.

2   MR. SPIVEY: Your Honor, that concludes

3   my questions on redirect.

4   MS. FUNDERBURK: Thank you, Mr. Spivey.

5   Now, Ms. Mao, as I mentioned, I have some

6   questions for you.

7   I'm going to ask the Rate Bureau if you

8   could put one of your exhibits on the screen for me.

9   The questions I'm going to have for Ms. Mao relate to

10   Rate Bureau 13 and 14. If you could go ahead and put

11   13 on.

12   And, Madam Clerk, if you could circulate

13   that, I would appreciate it.

14   MR. SPIVEY: Your Honor just so I make

15   sure I'm in the right place, are you talking about

16   RB-13.

17   MS. FUNDERBURK: Correct. And I may

18   end up having some questions about RB-14 as well, but

19   I'd like to start with 13.

20   Thank you. And are both of you ready to

21   proceed?

22   MR. SPIVEY: Yes.

23   MS. FUNDERBURK: Good.

24

25

1   EXAMINATION BY THE HEARING OFFICER

2   BY MS. FUNDERBURK:

3   Q.   So, Ms. Mao, as I said, I'm going to have

4   some questions about reinsurance, some of them in

5   general. I apologize if I ask inartfully; my

6   background is in the law and not actuarial science.

7   As I review some of the materials,

8   particularly looking at calculations for reinsurance,

9   one of the questions I have is -- and you've done a

10   lot of work in determining what the recommended or

11   what the expected amount of reinsurance that would be

12   appropriate would be for the hypothetical one?

13   A.   Yes.

14   Q.   I'm curious how that translates to individual

15   insurers. Like, for instance, as a consumer, I make a

16   decision how much insurance I am going to purchase

17   individually, after consultation with my insurance

18   agent. As you can imagine, based on what I do,

19   I probably have a little too much. But how does --

20   how does the determination for an individual insurer

21   to make a purchase and incur the expense of

22   reinsurance -- how does that translate from the work

23   that you've done for the hypothetical one?

24   How are they making those determinations?

25   Are they purchasing insurance -- reinsurance to the

1 same amount that you would recommend the hypothetical

2 one would purchase that?

3   A.   Sure.   When we work with individual insurance

4 companies, so we want to understand how much surplus

5 they have and what is -- what is their internal risk

6 management, the risk appetite and the risk tolerance,

7 and also what is company's strategy to get a rating.

8 For example, if they want to be A.M. Best rated, that

9 means they need to buy more reinsurance because they

10 need to sustain the stress test by A.M. Best, which

11 is -- have a higher standard than mainly the Demotech

12 rating agency.

13   So when we -- when we suggest -- actually,

14 ultimately, the decision is based on insurance

15 company.   So based on how much surplus they have and

16 based on -- then we structure the reinsurance and we

17 conduct the rating agency test and tell them that

18 after those stress tests, how much reinsurance you

19 need to buy in order to maintain, for example, an

20 A-plus or A-minus rating, or how much reinsurance you

21 need to buy to maintain a Demotech rating.   So Aon

22 have these conversations and help determine what is

23 attaching and what is exhaustion of your reinsurance.

24   Then after that, we will -- because we will

25 break down the reinsurance into layers.   That's

1   because in -- you allocate -- reinsurers will not

2   participate if your insurance -- if your reinsurance

3   layer is one huge layer, because the top and the

4   bottom have very different risk profiles. So we need

5   to break down those layers for them. And this is how

6   the pricing optimization work come in.

7   Because as a reinsurance broker, we -- we

8   are the advocates for insurance companies, so we help

9   negotiate to reduce the pricing for our clients. So

10   we design -- we try to design a structure that has a

11   break that result in the minimum reinsurance premium

12   for our clients. So that is the same methodology we

13   use here. So we assume a five-layer structure.

14   So in theory, if -- you could have many more

15   layers, but administratively, it's very hard to

16   manage, so there is a balance on how many layers you

17   have. So we feel the five layers is a reasonable

18   layer -- assumption in North Carolina.

19   So for North Carolina work, basically, we

20   look at our company's composite data and look at on

21   average what are the regional companies' attaching

22   point, attaching probability, and their exhaustion

23   probability. So from there, we derive these --

24   these -- the top point and the bottom point.

25   Q. Okay. Can you -- that actually brings me to

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1 a good question.

2   Can you explain the layers shown in the

3 first column to a less technical audience? How would

4 you explain what the layers are to a non-actuary?

5   A. Okay. Thank you.

6   So in this example, so we actually -- for

7 reinsurance structure, we start from bottom. So

8 1500 million excess 1453 million: That means once the

9 event happens for this composite company, the first

10 1453 million will be retained loss -- will be retained

11 by this one composite company. That is because we

12 believe it's -- on average, the companies in this

13 region, they hold a capital that can allow them to

14 retain a loss below 11-year return period loss.

15   Q. And when you say they retain the loss --

16   A. They retain the loss, 1453 million is the

17 loss they retain. And the --

18   Q. And by "retain," you mean they pay it?

19   A. They don't get reinsurance recovery. So the

20 "retain" means -- yeah, they pay it and they do not

21 get any recovery from reinsurance treaty.

22   MS. FUNDERBURK: Thank you.

23   MR. FRIEDMAN: Your Honor, I'm sorry to

24 interrupt, but those numbers she is testifying to

25 aren't on the screen -- portion of the exhibit that

1 I can see on the screen.

2   They are? I'm sorry, where -- oh, my

3 mistake. I just got that explained to me. Excuse me.

4   MS. FUNDERBURK: Thank you.

5   Please proceed, Ms. Mao.

6   THE WITNESS: Yeah. Then -- so this

7 reinsurance structure has five layers. The first

8 layer is 1500 million, so the one's a loss above

9 1454 million. So if you add 1500 million to the 1453,

10 that becomes the retention of the -- that becomes the

11 attaching of the second layer. 2953 equal 1500 plus

12 1453. So the size of the first layer is 1500 million,

13 and the size of second layer is 20 million -- 2000

14 million, sorry.

15 BY MS. FUNDERBURK:

16   Q. Thank you. And can you -- can you discuss

17 the return periods?

18   Again, to a nontechnical audience, how would

19 you best explain the return periods, the attachments

20 versus the exhaustion, you know, where coverage

21 starts, where coverage ends? Can you explain that?

22   A. Oh, sure --

23   Q. Thank you.

24   A. -- let me try.

25   The return period loss means loss of this

1   size or above will happen every 13 years of that

2   return period indicate. So in this example,

3   1453 million is the 11-year return period. That

4   means, in North Carolina, for the NCRB's exposure, a

5   loss of 1453 million or above will happen every

6   11 years for that composite company.

7   And then for the -- then if we look at the

8   second layer, 2953, that -- the return period is

9   23 years. So that means for North Carolina composite

10 company, a loss of 2353 million [sic] will occur every

11 23 years --

12   Q.   Okay.

13   A.   -- 2953 or above will happen every 23 years.

14   Q.   Okay. And then so on?

15   A.   And then so on, yes.

16   Q.   Okay. Did you select the return periods

17 here? Do you know how they were selected?

18   A.   What --

19   Q.   Oh, the return periods in RB-13, do you know

20 how those were selected?

21   A.   Yes. The return period of the first number,

22 11, and the top number, 273 [sic] -- 11 and the 279,

23 those two numbers are based on Aon's composite

24 reinsurance database. So that is, when we look at

25 Aon's clients, on average, they buy protection start

1   from 11 years, and they exhaust from 279 years.

2   Q.   So that's a standard within Aon? Those

3   return periods are standard return periods you would

4   use for North Carolina or another state if you were

5   running the calculations? Am I understanding that?

6   A.   Yeah, this is what we typically observed of

7   Aon's clients to buy, yeah, based on -- because it's a

8   mixture of large companies, small companies, regional

9   and the national.

10   And sometimes -- so it also depend on what

11   company exposed to. So we notice if a company is

12   mid- -- so has tornado/hail exposure alone, they tend

13   to buy higher return period, much higher than the

14   hurricane risk.

15   And also a company if they buy a

16   Fitch-rated, then it -- sometimes it requires them to

17   buy up to 400-year PML; and if it's A.M. Best rated,

18   it's a 200-year hurricane or a 250-year earthquake

19   event. So the different rating agencies have

20   different type of stress tests. So it's really --

21   this is -- this is the result of mixture of various

22   company, they are different -- have different rating

23   and a different buying strategy.

24   Q.   Okay. So -- and correct me if I'm

25   summarizing this wrong -- so you have the different

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1   return periods, and an individual company might make a

2   determination: This is where we are going to by based

3   on their individual risk, whether they're in the

4   Midwest and have to deal with tornadoes or whether

5   they're on the Eastern Seaboard and have to deal with

6   hurricanes?

7   A.   Yes.

8   Q.   They would calculate that and make -- and

9   review the data and make a determination as to where

10   they were going to purchase and the return period?

11   A.   Yes.

12   Q.   Do you know where most companies in North

13   Carolina fall?

14   A.   Hmm?

15   Q.   Do you know where would -- to the extent you

16   know, do you know where most companies in North

17   Carolina would purchase?

18   A.   That -- most North Carolina companies are

19   national carriers, and as I know, national carriers

20   are typically A.M. Best rated; so that means -- so the

21   retention is very hard to tell because different

22   companies have different surplus positions, so when

23   they determine how much they want to retain, sometimes

24   they have a measure, like when the -- after the first

25   event happens, how much surplus remained after the

1   first event. So it's really very -- so the 11 years

2   is a weighted average that we observe with our kinds.

3   But 279 years here, that means probably they

4   are dominated by the national carriers that are

5   A.M. Best rated.

6   Q.   Okay. Do you know if these return periods

7   are consistent across prior filings that have been

8   submitted by the Rate Bureau?

9   And again, to the -- I don't want you to

10   feel like you need to speculate or answer a question

11   you don't know. But to the extent you know, are these

12   return periods consistent, including the upper levels?

13   A.   Yeah, I don't -- I don't recall the answer,

14   but I think during the period from last filing to this

15   filing, what we notice is, because the reinsurance

16   cost is increasing, the companies tend to buy -- tend

17   to retain more and they buy more on the top. So that

18   would make the most economic sense to them because the

19   reinsurance is higher price in the lower layer. So

20   that's why there is some observation we notice the

21   company retain more but that they also buy more on the

22   top.

23   Q.   Okay. And is -- the 279, is that the highest

24   level that you recommend or calculate?

25   A.   In this case, 279 is the exhaustion of the

1 reinsurance.

2   Q.   Okay.   Are there other times where you

3 recommend higher? Does it go -- would your

4 calculations ever go above 279 for the exhaustion

5 point in that return period?

6   A.   That, I don't recall, because each time does

7 the -- run the pricing curve and base on the latest

8 market pricing curve and then makes a determination.

9 So I don't recall what the prior number looks like.

10   Q.   Okay.   Thank you.

11   If one of the layers that had a lower

12 exhaustion point than 279 were selected ultimately as

13 the upper layer, would that correlate with cost? If

14 you're at the 149 layer, that comes with less cost

15 than the 279 layer; is that accurate?

16   A.   Sorry, can you repeat your question?

17   Q.   I will echo Mr. Spivey and say I will try.

18 And I'll try -- I will try to be clear.

19   When you're looking at exhaustion levels,

20 the rate -- the return periods and the exhaustion

21 levels, if -- is it correct to say that if the return

22 period with an exhaustion level of 81 is selected,

23 that is a lower cost to an insurer than if they are at

24 an exhaustion point of 149?

25   Is that -- is that how the periods work --

1 the return periods work?

2   A.   I try -- I'm not sure if I fully understand

3 the question, but generally, the reinsurance pricing,

4 the lower layer has higher price, and the higher layer

5 has lower price.   That is because the lower layer has

6 the loss -- higher expected loss, and the loss is more

7 certain, because it happened -- so in the lower layer,

8 you can see, for the 11-year return period, that means

9 a loss can happen every 11 years.   So the likelihood

10 of that loss is almost 10 percent -- 9 percent,

11 10 percent.   But if you go above, the likelihood is

12 very remote; however, it becomes more volatile.

13   So the pricing in the lower layer is more

14 driven by the loss, and the pricing in the upper layer

15 is more driven by volatilities, standard deviations.

16   Q.   Okay.   Thank you.

17   MS. FUNDERBURK: Could we switch to

18 RB-14, please? And I'm just going to check my notes

19 to see if there's anything additional.   I think

20 there'll be a few questions.

21   All right, thank you.

22 BY MS. FUNDERBURK:

23   Q.   So the reinsurance layer shown in here in the

24 first column, for the hypothetical one -- and I think

25 you've -- you've discussed some how those were

1 determined; I appreciate that -- so these are the same

2 levels as what we previously discussed in RB-13;

3 correct?

4   A. Correct.

5   Q. Okay. And RB-14, the purpose here is to show

6 the net cost of reinsurance values in the last column;

7 correct?

8   A. Correct.

9   Q. Okay. Can you tell me -- I see there are

10 some percentages. So the second column has -- the

11 second column is labeled "Rate-On-Line"?

12   A. Yes.

13   Q. Can you explain that to me and how it was

14 derived?

15   A. This is -- this Rate-On-Line is -- it is by

16 looking up Aon's pricing curve.

17   Q. Okay.

18   A. Yeah. How they derive is, we start from the

19 expected loss and then derive to the expected premium.

20 So this is actually Aon's methodology algorithm

21 calculate this Rate-On-Line.

22   Q. Can you tell me how it's calculated without

23 getting into any proprietary information?

24   A. Okay. So basically, we are looking at -- so,

25 for example, for the layer 15 million excess of 1453,

1   so we can see that here is -- so we -- typically, we

2   look at North Carolina's event curve, then we

3   calculate what is expected loss in this -- in this

4   layer.

5   Then Aon has a loss curve, as I mentioned --

6   so we have the loss curve from expected loss to

7   expected premium. So we use that loss curve -- it's

8   an exponential fit -- so we use that loss curve from

9   the expected loss column -- expected loss column to

10 derive the expected premium based on the exponential

11 pricing curve we have.

12   Q.   Okay. Thank you for referencing the -- one

13 of the other columns. And actually, I'd like to just

14 briefly go through all of them.

15   A.   Okay.

16   Q.   So the -- if you could go through the

17 "Deposit Premium," what it represents, how it's

18 derived; the "Reinstatement Premium," the "Expected

19 Total Premium" --

20   A.   Okay.

21   Q.   -- that would be helpful for me to just have

22 a general overview with an explanation of what the

23 columns are and how they were derived.

24   A.   Okay. So "Rate-On-Line" is really the

25 percentage of the premium you pay based on the size of

1   the layer.

2   So for the column of the deposit, it is

3   Rate-On-Line multiplied by the layer limit. For

4   example, the first layer is 316,200 equal to

5   21 percent multiplied by 1500 million; so it is the

6   Rate-On-Line applied to the size of the layer to get

7   the deposit premium.

8   Q.   Okay. Thank you.

9   A.   And since most of the catastrophe reinsurance

10 treaty include one reinstatement, so the reinstatement

11 means really protect the -- one, there is a multiple

12 event hit the treaty, so it allows to -- insurer to

13 reinstate the limit but pay that portion of the

14 reinsurance premium to reinstate.

15   And it's up to one reinstatement; so that

16 means you could use the reinstatement by one event, it

17 blows through the whole layer. Or it can be the

18 second event if there's still remaining -- it could be

19 the third event if there's still remaining portion

20 that's not used by the second event. So -- but it's

21 up to one full reinstatement.

22   So in our simulation, we just -- because

23 it's a year simulation, so some years you have no

24 events, some years you have multiple events, but on

25 average, so this is a reinstatement the company would

1   pay under this treaty that we discuss on the left

2   column. So if there is a small portion of the

3   reinstatement premium expected, then the expected

4   total premium equals a deposit premium plus the

5   reinstatement premium.

6   Q.   Thank you.

7   Is there anything else you'd like to

8   describe about the columns?

9   A.   So the -- yeah, the next one is "Expected

10   Ceded Loss": That is the expected recovery from

11   reinsurance treaty. Then by subtracting expected

12   ceded loss from the total premium, we have the net

13   cost of reinsurance: That is what's being used in the

14   NCRB filing, that $1.19 billion.

15   Q.   Thank you.

16   And I think I'm almost finished. I do want

17   to -- I want to clarify something about the layers.

18   A.   Okay.

19   Q.   It sounds like, from what you've said, there

20   are two potential costs that are impacted by the

21   layers. One could be the actual cost of the

22   reinsurance -- the net cost of the reinsurance itself,

23   but then also, potentially, the amounts that the

24   insurance company itself could have to pay out. Is

25   that accurate -- is that an accurate statement based

1 on what you said?

2   A.   So you're saying --

3   Q.   The losses. So the layers seem to

4 indicate -- changes in the layers seem to indicate two

5 potential values --

6   A.   Mm-hmm.

7   Q.   -- or monies: One, the actual net cost of

8 the reinsurance; and then two, the amount of losses.

9 Is that an accurate statement of -- is that an

10 accurate statement by me?

11   A.   Yeah. The -- so if I state correctly, the

12 net cost of reinsurance equal the reinsurance premium

13 for that layer minus the expected reinsurance recovery

14 for that layer. That is the net cost of reinsurance,

15 and that is considered the profit of reinsurance

16 company. So that is the last column: That is the

17 profit of reinsurance companies.

18   Q.   Okay. If an -- let's say if the uppermost

19 exhaustion period was set at 149 instead of 279,

20 I believe you said that could result in increased

21 losses. Is that correct?

22   A.   No. I think if company buy less -- so if

23 they only buy 150 a year versus 250 a year, then the

24 company will pay less because they don't have to pay

25 the upper -- the top layer --

1   Q.   They would pay less in the premium?

2   A.   Yes, they would pay less in total reinsurance

3 premium, yes.

4   Q.   Okay. But could potentially have more

5 exposure by nature of paying --

6   A.   Correct. They will retain all the loss above

7 that 150-year level.

8   Q.   Okay. So purchasing at the -- purchasing at

9 81 versus 149, or at 149 versus 279, reduces the

10 actual premium?

11   A.   Correct.

12   Q.   But by the same token, the flip side of that

13 is there's additional exposure to the -- to the

14 company?

15   A.   Yes, additional exposure and also increased

16 likelihood of insolvency if the company doesn't have

17 other means to raise their capital.

18   Q.   Which could potentially impact their ratings;

19 correct?

20   A.   Yes, impact their rating, and the solvency.

21   Q.   Okay. All right, thank you very much.

22 I appreciate the explanation, particularly in a

23 nontechnical sense.

24   A.   Thank you.

25   MS. FUNDERBURK: Mr. Spivey, given that

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1   I've asked Ms. Mao some questions, would you like to

2   follow up?

3   MR. SPIVEY: Yes, your Honor, just a

4   few things, just to clarify for myself.

5   MS. FUNDERBURK: Yes.   Thank you.

6   FURTHER DIRECT EXAMINATION BY COUNSEL FOR THE

7   NORTH CAROLINA RATE BUREAU

8   BY MR. SPIVEY:

9   Q.   Ms. Mao, is it correct -- am I understanding

10   this correctly: That the return period is, in

11   essence, the probability of a loss at that level?

12   So in the example of the first layer,

13   starting at 1453 million, am I correct in

14   understanding that a return period -- if we go back --

15   let's go back to RB-13, please.   It attaches at 11?

16   A.   Correct.

17   Q.   Am I understanding that that means the

18   probability of a loss as large as 1453 million is

19   around 9 percent, or the inverse of the 11, one over

20   11?

21   A.   Correct.   Yeah, the probability of loss of

22   1453 million or above will occur every 11 years.

23   Q.   Okay.   And it's stated again as a percentage.

24   That's --

25   A.   As percentage, it's 9 percent.

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1   Q.   You just take the inverse of the number of

2   years?

3   A.   Correct.

4   Q.   And is it correct that the attachment and

5   exhaustion points that you have selected here and that

6   Rate Bureau has included in the filing come from

7   actual market data on what companies are actually

8   buying in the marketplace in North Carolina?

9   A.   That's correct. The -- that reflects the

10   companies that -- nationwide companies doing business

11   in North Carolina and also the regional companies

12   doing business in the state.

13   Q.   So those are -- these not things that Aon is

14   specifying "This is what you have to do." This is

15   what Aon is observing in the actual marketplace; is

16   that correct?

17   A.   That's correct.

18   Q.   And does that vary from time to time?

19   I mean, like, when we did a filing ten years

20   ago, it wouldn't necessarily look the same way because

21   what companies may have been doing in the marketplace

22   then may have been different?

23   A.   That's correct. Yeah, especially when the

24   price is increased, a company will try to spend their

25   money carefully, so try to get the biggest bang for

1 their buck, so they will structure reinsurance

2 differently.

3   Q.   And so in one of your answers about -- well,

4 strike that.

5   The Rate-On-Line that the hearing officer

6 asked you about, is it correct that that is the price

7 of reinsurance as a percentage of the coverage being

8 purchased?

9   A.   That's correct.

10   Q.   So it's essentially the premium that the

11 insurer will pay for dollars of coverage that it's

12 buying?

13   A.   Correct.

14   Q.   And in discussing the rate online, you used

15 the term "loss curve." Is it -- and you said Aon is

16 determining and using what -- using its loss curve in

17 establishing these layers and that sort of thing, and

18 the rates online. Is the loss curve that you referred

19 to based on Aon's observations of what actually occurs

20 in the marketplace?

21   A.   Yes. Aon established a correlation based on

22 our clients purchasing; so how much they pay in this

23 layer, what is expected loss. Then we aggregate the

24 data and we aggregate the data into a power curve.

25   Q.   You've also used the term, in responding to

1 some questions, "PML"?

2   A.   Mm-hmm.

3   Q.   Can you just tell us what that means?

4   A.   Yeah.   Probable maximum loss.

5   Q.   And can you describe what that is in the

6 context of buying reinsurance?

7   A.   In context of buying reinsurance here is --

8 let me go back to -- in this case, that means the

9 company will protect the -- the company's reinsurance

10 will protect this company between 11-year return

11 period to 279-year return period --

12   Q.   Okay.

13   A.   -- in this specific case.

14   Q.   And so when we were talking about the

15 attachment point and the exhaustion points here, am

16 I understanding correctly that insurance companies

17 retain the exposure of loss for themselves for any

18 losses that occur below the attachment point and any

19 losses that occur above the final exhaustion point?

20   A.   That's correct.

21   MR. SPIVEY: I think that concludes the

22 questions I was -- would like to ask now.

23   MS. FUNDERBURK: Thank you, Mr. Spivey.

24   I understand, Mr. Friedman, you would like

25 some time to prepare.   I do want to at least commence

1   Ms. Mao's cross-examination today.

2   MR. FRIEDMAN: I have a suggestion.

3   The -- I've got questions rolling in from people

4   online here. I don't even understand some of the

5   questions they're proposing that I ask, and I do need

6   to be able to understand them, and then -- let alone

7   be able to form follow-up questions depending on her

8   answer.

9   I could probably do about 45 minutes of

10   cross right now, and that -- but past -- and that's

11   just based on very basic lawyerly instincts and some

12   few technical questions. And what I'm suggesting is

13   that I do that and then we break for the day.

14   MS. FUNDERBURK: I don't want to break

15   for the day. We can break for a long lunch, and you

16   can reevaluate some notes, and then we can come back.

17   And you may not finish. You may need some additional

18   preparation time. I'm willing to break for a couple

19   hours. But I understand Ms. Mao has availability

20   concerns even next week, potentially, on the 12th --

21   that you've got meetings in Chicago.

22   Logistically speaking, how late can we

23   actually go today? When are people's flights

24   scheduled, Mr. Spivey?

25   MR. SPIVEY: I think Ms. Mao is

1   scheduled to fly out until this evening.

2   THE WITNESS: Yeah, 8:20.

3   MS. FUNDERBURK: Okay. All right.

4   Any other flight concerns?

5   MR. SPIVEY: I know some of the folks

6   are leaving this afternoon, but --

7   (Over-speaking.)

8   MS. FUNDERBURK: Okay. But they won't

9   be a concern for this?

10   MR. SPIVEY: -- if we could get as far

11 as we could get with Ms. Mao today, that would be our

12 preference.

13   MS. FUNDERBURK: Okay.

14   Let's go until 12:15. That'll be a good

15 breaking point.

16   Are you okay to go until 12:15, or do you

17 need another break, Ms. Mao? You're fine? Okay.

18   Do you need some water?

19   THE WITNESS: I'm good, thank you.

20   MS. FUNDERBURK: Okay. Thank you.

21   Let's go until 12:15. We'll take a break

22 for -- we'll try a couple hours -- and then resume,

23 maybe two hours, to see how far we can get with her

24 testimony, because I would like to get as much of her

25 testimony done today as we can.

1   I'd also, again -- we have concerns. We

2   close the building at 5:00. We have to get everybody

3   out at 5:00, which means we need to do a hard stop at

4   4:30 to make sure we clear the building and security

5   feels comfortable that we've cleared the building.

6   MR. FRIEDMAN: Can I ask your Honor,

7   then -- it sounds like you're expecting me to have

8   around two and a half hours of combined cross for her

9   today?

10   MS. FUNDERBURK: I don't know how much

11   time you will have today. What I would anticipate is

12   we get you started with your cross, of what you think

13   you can do, we go to 12:15, and then we take maybe a

14   two-hour break and we come back to see where things

15   are; and that will give you some time to consult with

16   your folks.

17   MR. FRIEDMAN: Okay.

18   MS. FUNDERBURK: Please proceed,

19   Mr. Friedman.

20   CROSS-EXAMINATION BY COUNSEL FOR THE

21   NORTH CAROLINA DEPARTMENT OF INSURANCE

22   BY MR. FRIEDMAN:

23   Q.   Morning, Ms. Mao.

24   My first question for you is, please give me

25   the number and names of the Aon clients that are doing

1   homeowners business in North Carolina.

2   A.   I cannot give you that number and names.

3   Q.   Why is that?

4   A.   It's proprietary information.

5   Q.   Even the names?

6   A.   Yes.

7   Q.   Okay. Now, can you at least tell me how many

8   Aon clients are doing homeowners business in North

9   Carolina?

10   A.   I don't have that number readily available.

11   Q.   I asked you the same question three and a

12   half weeks ago and you haven't figured it out now?

13   A.   No, I didn't --

14   MS. FUNDERBURK: Mr. Friedman, I don't

15   that "Have you figured it out" is necessary. You can

16   follow up, but watch the tone.

17   MR. FRIEDMAN: Yes.

18   BY MR. FRIEDMAN:

19   Q.   You have not gone back and looked for that

20   number?

21   A.   I didn't try to get the information because

22   I didn't think that follow-up question -- I didn't

23   think you are expecting me to find it out.

24   Q.   Okay. Is it more than 10? Less than 10?

25   A.   What --

1   Q.   Do you know -- any idea? There's 110, as

2   I understand it, voluntary market members whose data

3   is relevant to the hypothetical ones filed. And so

4   what I'm asking is, out of that 110, do you have any

5   sense of how many are Aon clients doing business in

6   North Carolina?

7   A.   No, I didn't. I didn't look for that

8   information. I could look, but I didn't. I don't

9   have that information --

10   (Over-speaking.)

11   Q.   Excuse me. Could you please look for that

12   for next week on Thursday?

13   A.   Okay.

14   MR. FRIEDMAN: Would you mind pulling

15   up RB -- I believe it was the article. It was the

16   first introduced yesterday.

17   MS. FUNDERBURK: Please be sure you're

18   speaking in the microphone.

19   MR. FRIEDMAN: I'm sorry. The article

20   that --

21   MR. SPIVEY: I think everyone has hard

22   copies.

23   MR. FRIEDMAN: I'm -- then give me a

24   moment to look for my hard copy, if you could, your

25   Honor.

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1   MR. SPIVEY: I'll give you my copy.

2   MR. FRIEDMAN: Thank you.

3   (Document was handed to counsel.)

4   MR. SPIVEY: RB-34?

5   MR. FRIEDMAN: Yes.

6   MR. SPIVEY: I see that we do have it

7 on the screen.

8   MR. FRIEDMAN: Okay. Great.

9 I appreciate that.

10 BY MR. FRIEDMAN:

11   Q. Ms. Mao, when did you first read RB-34?

12   A. That, I don't remember when was first time

13 I read it, but I do remember in my -- yeah, in the

14 past few years, and there's various occasions

15 I visited this paper.

16   Q. And if you could tell me what in this article

17 you think is relevant to your prefile testimony or

18 your testimony today.

19   A. Nothing in this article I -- I didn't think

20 about this article in my entire prefile testimony and

21 in my work for the Bureau until Wednesday evening

22 after I watched Ms. Cavanaugh's testimony.

23   So I was hoping to see what justification

24 she used to select RMS over AIR by looking at these

25 two numbers. I want to see her support. Since she

1   didn't provide support, so I thought about are there

2   other benchmarks we can use to compare.

3   Q.   So could you please tell me what in the

4   article is -- you consider relevant to the testimony

5   in the new exhibits you've produced that your -- you

6   have gone through yesterday and today?

7   A.   So the Table 5 is information relevant to

8   rebuttal testimony against Ms. Cavanaugh's Table 14,

9   I believe.

10   Q.   Okay. Is there anything else besides Table 5

11 that you have -- believe in this article is relevant

12 to your testimony on rebuttal yesterday and today?

13   A.   Other relevant information would be this

14 article presented the normalization methodology

15 that -- that is important because adjustments for

16 demographic and housing unit is an important portion

17 of the hurricane normalization, and Ms. Cavanaugh

18 didn't do that in any of her five testing. There are,

19 I believe, two tests involve the normalization of the

20 hurricane loss, so I feel that is also relevant, that

21 her methodology and the testing lack these components

22 of normalization.

23   Q.   Okay. Could you please point me to what

24 pages and, in those, what paragraphs support your

25 testimony about the normalization?

1   A.   It is the -- it is on page 31. So it's

2   page 31, on the right side of this -- yes. This is

3   29. Yeah, 29. Yes.

4   On this page, if we go to the top portion,

5   it outlined -- yeah -- inflation, capita -- wealth

6   per capita, and affected county population. I think

7   this is what I believe is -- or I agree with author's

8   opinion about hurricane normalization, because

9   hurricane normalization is about compare hurricanes on

10 the same basis.

11   And as we also know, hurricane is sporadic

12 events, and they happen -- large hurricane happen only

13 once every many years. And then when we try to bring

14 all the losses into the -- on the same basis, not only

15 we need to do the trending that Ms. Cavanaugh is

16 doing, but we also need to account for the population

17 change and the wealth of the community.

18   Q.   So you're saying the Figure 1 or the

19 narrative after that in "Affected County Population"

20 shows -- or supports your testimony about the

21 normalization?

22   A.   My testimony about normalization is mainly

23 the -- what I read, my understanding of this paper,

24 and I agree with this paper. And there are three

25 paragraphs: the "Inflation," "Wealth Per Capita," and

1   "Affected County Population." I agree these are the

2   three important components.

3   Q.   Okay. So the three paragraphs on the

4   right-hand corner under "Affected County Population"?

5   A.   Yes. Basically, all the paragraphs on this

6   page.

7   Q.   Oh, okay. So beginning with the paragraph on

8   the far left --

9   A.   Mm-hmm.

10   Q.   -- at the top, and leading up to the bottom

11   paragraph on the far right?

12   A.   Yes.

13   Q.   Okay. And does the map include support for

14   your testimony about the normalization?

15   A.   Can you ask the --

16   Q.   I'm sorry, does Figure 1 -- is that also data

17   that supports your testimony about normalization?

18   A.   I didn't use this map. I simply just used

19   the table that I showed. I didn't examine each --

20   each state's population change. I trust the author

21   used the proper information in his analysis.

22   Q.   Okay. So your testimony today does not

23   involve Figure 1?

24   A.   No.

25   Q.   Okay. And when you just said you simply used

1   the table, what table is that, again?

2   A.   Table 5.

3   Q.   Okay. Okay. So is it my understanding, on

4   Table 5, that that includes actual historical data for

5   actual modeled storms?

6   A.   Those are actual historical data for actual

7   storms -- not modeled storms, actual storms.

8   Q.   Okay. And what are the names of those

9   storms?

10   A.   Oh, that is -- no, I don't have that readily

11   available. Let me see if it's in one of the tables.

12   Oh, yeah. On page 35. It didn't give all

13   the storms' names, but it gives the top 50 storms --

14   name of the storms.

15   Q.   It gave numbers for some of those storms and

16   the numbers according to year; is that correct?

17   A.   Yes, because in some years those storms are

18   not named.

19   Q.   Okay.

20   A.   In some old years, those storms don't have a

21   name.

22   Q.   Did you or the Bureau provide us any

23   comparison data about these 50 storms?

24   MR. SPIVEY: I'm sorry, what kind of

25   data?

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1 BY MR. FRIEDMAN:

2   Q.   Any data comparing these 50 storms to the

3 modeled results?

4   A.   I didn't have that information. I didn't

5 provide. I rely on this author's analysis.

6   Q.   Could you provide it the next -- when we come

7 back for testimony next week?

8   A.   No, I don't have that information.

9   Q.   Okay.

10   MS. FUNDERBURK: That assumes that we

11 won't be done with your testimony today. So if you

12 need something, you may need to ask her for it for the

13 break.

14   MR. FRIEDMAN: I -- okay.

15 BY MR. FRIEDMAN:

16   Q.   Could you find that out today?

17   A.   What -- I'm not sure what you are exactly

18 asking for.

19   Q.   I'm asking for --

20   MR. SPIVEY: She responded she doesn't

21 have the data you asked for.

22   MR. FRIEDMAN: Right. And I understood

23 the Court was suggesting that I ask when it would be

24 available. Is there no --

25   MS. FUNDERBURK: I'm suggesting if

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1 there's something that she is being -- if there's

2 something being requested of her, you request that

3 that occur during the break to the extent possible.

4   MR. FRIEDMAN: Yes, ma'am.

5 BY MR. FRIEDMAN:

6   Q. How would you go about obtaining the

7 information on page 35?

8   MR. SPIVEY: Objection. If this is

9 some theoretical question, maybe we have time for

10 that. If he's suggesting that she's supposed to go do

11 his research for him, I object to that.

12   MS. FUNDERBURK: Tell me, what exactly

13 are you looking for, Mr. Friedman?

14   MR. FRIEDMAN: Right now, and I --

15   MS. FUNDERBURK: What data --

16   MR. FRIEDMAN: What I would like to

17 know -- I'm going to ultimately want to know whether

18 she can state for a fact that all of the data on

19 page 35 and then the page --

20   MS. FUNDERBURK: 35 of the normalized

21 hurricane damage --

22   MR. FRIEDMAN: Yes, Table --

23   (Over-speaking.)

24   MS. FUNDERBURK: -- in the

25 United States, RB-34? Okay.

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1   MR. FRIEDMAN: Table 2.

2   MS. FUNDERBURK: Okay.

3   MR. FRIEDMAN: And then the explanation

4 on 2, what I am asking her is whether she can state

5 for a fact and provide us evidence that all of the

6 narrative on 31 and the numbers on 35 are actually

7 incorporated into the models, because she is

8 testifying about -- we asked repeatedly for actual

9 data to compare to the models. As I understand it,

10 she has spoken now and seemed to adopt the numbers and

11 explanations in the article I've just discussed. And

12 what I think is clearly relevant is what evidence does

13 she have that any of this data was either input into

14 the models that she ran or was actually already

15 programmed in through some assumption to the models.

16   MR. SPIVEY: Your Honor, this article

17 has been presented. It's already been described by

18 Ms. Mao as being the work of a prominent scientist in

19 the field which -- researching hurricane loss damage

20 and how to normalize those damages to current day

21 values.

22   I'm not sure I understand what Mr. Friedman

23 expects in terms of what Ms. Mao can tell him about

24 the data underlying Dr. Pielke's work and how it

25 relates to his question about the models.

1   MR. FRIEDMAN: Your Honor, in my

2   original cross of her, I asked her extensive questions

3   about what storms have been part of the various

4   modules in the models. I asked her about what overall

5   actual data she was aware, other than that data she

6   input to run the models, was actually taken into

7   account, and, like I say, programmed or somehow taken

8   into account in the assumptions of the models.

9   MS. FUNDERBURK: So does your question

10 relate to her direct testimony and your subsequent

11 cross-examination?

12   MR. FRIEDMAN: Well, your Honor, when

13 you asked me where I was going with this, I was

14 talking about my ultimate goal. There's a number of

15 questions leading up to that. So I was just trying to

16 explain, your Honor, what, ultimately, I would like to

17 know from her.

18   MS. FUNDERBURK: But does that relate

19 to her initial testimony in your cross-examination, or

20 does that relate to her rebuttal testimony?

21   MR. FRIEDMAN: Her rebuttal testimony,

22 your Honor.

23   MS. FUNDERBURK: Okay. And in what way

24 does it relate to the rebuttal testimony -- your

25 cross-examination of her rebuttal testimony?

1   Because you've referenced her original

2   testimony and your cross-examination -- your questions

3   regarding the data and the models. How does this

4   relate to her cross-examination of rebuttal?

5   MR. FRIEDMAN: So it -- I understand

6   your question better, your Honor. It relates to her

7   cross-examination because in the cross-examination she

8   stated that she knew nothing about the modules but

9   believed that because the various modeling companies

10 employed the best meteorologists, engineers, and

11 I forgot what other professionals, she believed they

12 would have necessarily taken into account great

13 amounts of actual data. That was -- and then she --

14 and she said she doesn't know more than that. She was

15 not testifying to anything more that was in the

16 modules, and she thought it would be proprietary

17 anyway if she knew that.

18   She is now, through this, through other of

19 her exhibits, engaging in comparisons of her actual

20 data to her modeled results; and among the many things

21 I'd like to know is was any of the actual data she's

22 now comparing to the modeled results -- does she know

23 if that's actually taken into account or part of the

24 models.

25   MR. SPIVEY: Your Honor, Ms. Mao

1 testified in rebuttal about the appropriateness and

2 necessity of normalizing hurricane losses when you're

3 comparing those actual losses to what the models

4 project those losses to be. She utilized this article

5 as support for a process for normalizing those

6 damages; and that's what she presented in her rebuttal

7 testimony.

8   This has nothing to do with her testimony a

9 month ago and questions about underlying data in the

10 models themselves. This has simply been used to

11 normalize the damages presented by Ms. Cavanaugh in

12 her testimony for rebuttal purposes.

13   MR. FRIEDMAN: Your Honor, this is --

14 again, I'm going to have to go back at length over the

15 discovery requests. But she is, almost for the first

16 time, referring to actual historical data that she is

17 identifying, despite our many requests about this --

18   MS. FUNDERBURK: We're going to start

19 over on the questioning because we're getting --

20 I mean on the argument on this, because we need to

21 actually do some cross-examination and ask some

22 questions.

23   This was presented in relation to

24 Ms. Cavanaugh's testimony for normalization. It's

25 someone else's data in a research paper.

1   MR. FRIEDMAN: Okay.

2   MS. FUNDERBURK: Start your -- go

3   ahead, start your questioning again. Even if you have

4   to restate a question --

5   MR. FRIEDMAN: Okay.

6   MS. FUNDERBURK: -- but start your

7   questioning again.

8   BY MR. FRIEDMAN:

9   Q. Ms. Mao, per the verbiage on page 31 and the

10   data on page 35 in Table 2, do you know whether the

11   AIR standard actually considers any of this data?

12   MR. SPIVEY: I'm sorry, actually

13   considers what?

14   MR. FRIEDMAN: Considers any of this

15   data.

16   THE WITNESS: I don't know if they used

17   Dr. Pielke's paper to develop their model or not.

18   I have no idea. I --

19   BY MR. FRIEDMAN:

20   Q. But it's not -- it's not about the paper.

21   I'm asking about the data in the paper. Do you know

22   whether they used any of that data or not?

23   A. I have submitted AIR documentation. There is

24   a section on examples of storms they used to calibrate

25   their model. I think that paper disclosed some of the

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1 historical storms being used in their analysis. Some

2 are probably meteorology. They calibrate the wind

3 speed, the central pressure. Some are used for the

4 loss calibrations, they collect data from their

5 clients. But I don't have an exact list of what AIR

6 or RMS did.

7   MR. FRIEDMAN: If you give me a moment,

8 your Honor, I'm going to get her profile testimony.

9 BY MR. FRIEDMAN:

10   Q. Ma'am, could you turn to Exhibit RB-9,

11 please. And is that your profile testimony?

12   MS. FUNDERBURK: Please be sure you

13 speak in the microphone.

14   MR. FRIEDMAN: Excuse me, ma'am.

15 BY MR. FRIEDMAN:

16   Q. Is that your profile testimony?

17   A. RB-9 is Gross Modeled Hurricane Expected

18 Loss, include- -- oh.

19   Q. My mistake. RB-8.

20   MS. FUNDERBURK: RB-8 is Ms. Mao's

21 pre --

22   THE WITNESS: Okay.

23   MS. FUNDERBURK: I'm sorry, RB-7 is

24 your profile testimony. RB-8 is your CV.

25   MR. FRIEDMAN: Sorry for the confusion.

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1   BY MR. FRIEDMAN:

2   Q.   In RB-7, you just testified that it show- --

3   as I understand it, the storm history that you

4   testified is somewhere in your report.   Is it in RB-7?

5   A.   Can you point the line and page number in

6   RB-7?

7   Q.   Ma'am, you said, just a moment ago -- I asked

8   you about whether you knew if any of the data in --

9   from page 31 and 35 of Exhibit RB-34 was actually

10   taken into account in the Aon historic, and you

11   answered that you -- in your testimony, there was a

12   listing of some storms that were -- no, you didn't --

13   A.   It's not my testimony.   I am referring to the

14   AIR model documentation I submitted as part of the

15   discovery; and in that documentation, they showed the

16   historical comparison.   Even Ms. Cavanaugh referenced

17   some -- some pages of that report -- of that document

18   in her testimony --

19   Q.   Okay.

20   A.   -- that that document had showed AIR's, how

21   they use historic -- how they compare historical loss

22   with the modeled loss, and how they use historical

23   National Hurricane Center's information to develop the

24   hazard in the hazard module.

25   So, yeah, that document is there.   But it

1 doesn't have a list of whether all those 50 storms are

2 used or only part of those are used. That detail is

3 typically not available to us; those are only

4 available to vendors.

5   Q. So over the break I will find that article,

6 and we'll come back, and at least I'd like to try to

7 figure out --

8   A. Sure.

9   Q. -- what in -- I'm sorry -- what in that data

10 response or discovery response at least overlaps with

11 what's on page --

12   A. Sure.

13   Q. -- pages 31 and 35.

14   A. Sure.

15   Q. Let's switch topics and go back to -- let me

16 find --

17   One moment, your Honor.

18   Could you turn to RB-13, please.

19   A. Yes.

20   Q. For 2024, can you tell me what the attachment

21 and exhaustion points are for even one actual North

22 Carolina homeowners rider?

23   MR. SPIVEY: Objection to the extent

24 I'm not sure this relates to her rebuttal testimony.

25 Maybe it's relating to the questions you asked, your

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1 Honor, but it's not relating to her rebuttal

2 testimony.

3   MR. FRIEDMAN: Your Honor, her answers

4 to your questions are part of her rebuttal testimony.

5   MS. FUNDERBURK: Well --

6   MR. SPIVEY: And that's fine, if that's

7 what this is, but I just want to make the point this

8 is not her rebuttal --

9   MS. FUNDERBURK: And I'll say they

10 relate to the questions I asked. That was the time

11 I chose to ask them.

12   MR. SPIVEY: Maybe I should restate it

13 as not an objection so much as noting this pertains to

14 your questions and not to her rebuttal that

15 I presented with her.

16   MS. FUNDERBURK: So noted. Thank you.

17   MR. SPIVEY: Thank you.

18 BY MR. FRIEDMAN:

19   Q. Actually, let's start with the lowest layer

20 at 1500 or 1. -- 1500 million. And you see the

21 attachment points and exhaustion points for that

22 layer, the attachment is 11 and the exhaustion point

23 is 2023 -- or is 23? Excuse me.

24   A. Yes.

25   Q. For 2024 -- actually, for any year -- you

1   choose one -- can you tell me what the actual

2   attachment point was for a North Carolina -- an actual

3   North Carolina homeowners rider?

4   A.   So you are ask me actual North Carolina

5   homeowner carrier? I don't have that information

6   readily available. I have -- I observed some national

7   carriers that cover North Carolina, and I think the

8   exhaustion point is reasonable compared to what

9   I observed. Because national carriers are typically

10   A.M. Best rated, it's very common for them to buy up

11   to 250 a year exhaustion.

12   Q.   Okay. When you looked at the national

13   numbers, did those include the -- for these

14   unidentified national carriers, did that include the

15   amount that was allocated to North Carolina

16   particularly?

17   A.   So for -- this is -- for national carrier,

18   they buy reinsurance to protect their nationwide

19   exposure, then when they file reinsurance, they are

20   going to --

21   MS. FUNDERBURK: Madam Court Reporter,

22   can you hear okay? Okay.

23   I apologize for interrupting, Ms. Mao.

24   THE WITNESS: They will allocate

25   certain portion based on the reinsurance recovery in

1   North Carolina. So in their structure, North Carolina

2   is not a stand-alone structure. There's no attaching.

3   Exhaustion for North Carolina is their only allocation

4   to North Carolina.

5   BY MR. FRIEDMAN:

6   Q.   Okay. I appreciate that, then. Then I guess

7   you said that you reviewed the data of national

8   carriers doing business in this region, including

9   North Carolina?

10   A.   Yes.

11   Q.   Okay. Were those only Aon clients? Or did

12 you have that data about other insurers?

13   A.   Those are Aon clients.

14   Q.   Okay --

15   MR. SPIVEY: I want to note, your

16 Honor, again, I think we're straying beyond rebuttal

17 at this point.

18   MR. FRIEDMAN: Your Honor, there were a

19 great deal of questions by you to her about the basis

20 for the layers and the attachment points and the

21 exhaustion points. She very clearly testified as if

22 those were based on real data as opposed to merely

23 what the model kicked out.

24   She has --

25   MS. FUNDERBURK: Given that my

1   follow-up questions regarding the reinsurance

2   questions that had been part of the case and part of

3   the rebuttal -- given that my questions did pertain to

4   this, I'm going to allow him to cross-examine on this.

5   MR. SPIVEY: I understand, your Honor,

6   but I'm going to just note that, yes, your questions

7   helped understand what this is displaying, but I'm not

8   sure you were asking about what Mr. Friedman is

9   obviously getting into in terms of actual data that

10   she's looked at. That goes all the way back to

11   October -- early October, his direct -- his

12   cross-examination of Ms. Mao.

13   MS. FUNDERBURK: And Mr. Spivey does

14   raise a valid point. Even those -- I'm going to allow

15   questions related to my follow-up on the reinsurance

16   calculations, including, you know, RB-13 and 14,

17   because obviously that's where my focus was, but

18   I will instruct you to carefully remain within the

19   confines of what was discussed and what was addressed

20   on the rebuttal presented and also my follow-up

21   questions.

22   MR. FRIEDMAN: Could we go ahead, then,

23   and break for two hours, your Honor?

24   MS. FUNDERBURK: Is there anything we

25   need to address before we break?

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1   No? Mr. Friedman, anything we need to

2   address before we break?

3   MR. FRIEDMAN: No, ma'am.

4   MS. FUNDERBURK: Okay.

5   We are going to be in recess until 2:15 by

6   the clock in the courtroom. I expect everyone to

7   resume and be in their seats and ready to proceed at

8   2:15.

9   We're in recess. Thank you.

10   (Recess taken from 12:15 p.m. with resumption

11   scheduled at 2:15 p.m.)

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1   STATE OF NORTH CAROLINA   )
)   C E R T I F I C A T E
2   COUNTY OF ORANGE   )

3

4   I, Sophie Brock, Notary Public in and for the

5   State of North Carolina, do hereby certify that the

6   above hearing was taken and transcribed by me; and that

7   the foregoing pages are a true and accurate transcript

8   of the testimony of said witnesses. I further certify

9   that the persons were present as stated

10   I further certify I am not of counsel for or

11   in the employment of any of the parties to this

12   action, nor am I interested in the result of said

13   action.

14   IN WITNESS WHEREOF, I have hereto set my hand

15   and affixed my official notarial seal, this 6th day of

16   December, 2024.

17

18   _Sophie Brock_____
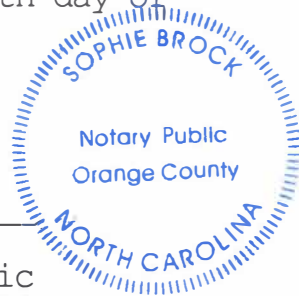
19   Sophie Brock, Notary Public
     Notary Number: 200834000001
20   My commission Expires: 12/3/2028

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1   E R R A T A   S H E E T

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3   PAGE   LINE   CORRECTION

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17   _____

18   I, _____, after having

19   read the foregoing transcript of the hearing In the

20   Matter of: The Filing Dated January 3, 2024, by North

21   Carolina Rate Bureau for the Revision of Homeowners

22   Insurance Rates wish to make the above corrections.

23

24   SIGNATURE_____

25   DATE_____