

NORTH CAROLINA DEPARTMENT OF INSURANCE  
RALEIGH, NORTH CAROLINA

STATE OF NORTH CAROLINA  
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 )  
HOMEOWNERS INSURANCE RATES )  
)

**COPY**

Docket No. 2157

BEFORE: AMY FUNDERBURK, HEARING OFFICER

TRANSCRIPT

OF

HEARING

VOLUME IV - A.M. SESSION

Raleigh, North Carolina

October 10, 2024

9:00 a.m.

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

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\* \* \* \* \*

Hearing in the matter of the filing dated January 3, 2024 by the North Carolina Rate Bureau for revised homeowners' insurance rates, at the North Carolina Department of Insurance, 3200 Beechleaf Court, Raleigh, North Carolina, on the 10th of October, 2024, at 9:00 a.m., before Renee M. Habrack, RPR, and Notary Public.

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

THE WITNESS: M I N C H O N G M A O E X A M I N A T I O N

Conti nued cross-exami nati on. . . . . 559  
By Mr. Fri edman

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I N D E X O F E X H I B I T S

M A R K E D

I D E N T I F I E D

(No exhi bi ts were marked)

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P R O C E E D I N G S

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MS. FUNDERBURK: Good morning, everyone.

AUDIENCE: Good morning, Your Honor.

MS. FUNDERBURK: Thank you. Today is Thursday, October 10th, it's 9:00 a.m. We are back on the record.

Yesterday when we recessed Mr. Terence was -- Mr. Friedman was conducting his cross-examination of Ms. Mao.

Ms. Mao, let me remind you, you continue to be under oath for purposes of testifying in this hearing.

Are there any housekeeping matters we need to address this morning before we proceed?

MR. FRIEDMAN: There is one, Your Honor, because it deals with a person's health condition. If we could -- best to do it off the record --

THE REPORTER: I'm sorry, I can't hear you.

MR. FRIEDMAN: It has to do with a person's health condition, so I was hoping to discuss that with opposing counsel and yourself off the record. Unless you think that -- would prefer that to be addressed on the record.

1 MS. FUNDERBURK: Counsel, please  
2 approach. We will do a bench conference.

3 (Bench conference off the record.)

4 MS. FUNDERBURK: Thank you, Counsel, and  
5 we are back on the record.

6 Mr. Friedman, are you prepared to  
7 proceed?

8 MR. FRIEDMAN: I am.

9 MS. FUNDERBURK: Please move forward  
10 with your cross-examination.

11 MR. FRIEDMAN: Thank you.

12 CONTINUED CROSS-EXAMINATION

13 BY MR. FRIEDMAN:

14 Q. Ms. Mao, you testified yesterday that in the  
15 process of validating the AIR and RMS models, Aon ran  
16 its own model; is that correct?

17 A. I want to clarify. Aon tested AIR and the  
18 RMS model independently, and Aon also has their own  
19 catastrophe model, and Aon also tested their own  
20 catastrophe model, but we don't use Aon's model to test  
21 RMS and AIR model. Each testing of the model is an  
22 independent process.

23 Q. I understand that. You used Aon's model, I  
24 believe you testified yesterday, for validation?

25 A. I used -- we use Aon's model in some

1 comparisons to -- in the -- to comply with the ASOP 38  
2 requirement, which is when you validate one model,  
3 you've got to compare that model with the output from  
4 other models.

5 Q. Okay. Did you also -- did Aon also run a  
6 comparison with a CoreLogic hurricane model?

7 A. Yes. We run comparison for CoreLogic model  
8 as well because we license CoreLogic model and we test  
9 every model we license.

10 Q. For the CoreLogic results, were those  
11 attached to your ASOP 38 test?

12 A. Yeah. In my ASOP 38 documentation, there are  
13 parts that we tested models vulnerability and  
14 sensitivity, yes, in several charts I included the  
15 CoreLogic result side by side with AIR and RMS results.

16 Q. Yesterday you testified that as far as Aon's  
17 results from comparing its own model, you provided  
18 aggregated numbers that, I mean, included, for example,  
19 wind speed, plus, I assume, the net plus the CAR, what  
20 have you, or the wind? I'm sorry. Let me restate  
21 that.

22 A. Uh-huh.

23 Q. Yesterday you testified, as I understood it,  
24 that in Aon -- when it was comparing RMS and AIR to  
25 its Florida based model, the engineering module

1 results, the meteorological module results, and the  
2 financial module results were all aggregated; is that  
3 correct?

4 A. Yes. When we get the model output from the  
5 result, out of the model, that is the result of all  
6 these models combined.

7 Q. Okay.

8 A. So -- so, what -- it's easiest when we talk  
9 about measures, like average annual loss and probable  
10 maximum loss, however, if you -- if you're talking  
11 about when you run the footprint of a historical storm  
12 out of the model, in that case, it is the frequency  
13 component is not there because we are talking about  
14 just the one specific event.

15 Q. Well, why don't we -- I will try to phrase my  
16 questions mostly in terms of frequency and severity.

17 A. Okay.

18 Q. So, as I understand it, from what you  
19 testified yesterday, you had the separate numbers for  
20 the frequency and severity results you got from Aon's  
21 model; is that correct?

22 A. We did a different model. They have a  
23 different event catalog, that event catalog have  
24 probably various frequencies for certain intensity of  
25 storm, yes. Each model maintain a catalog of events.



1 Q. So you have that number broken out when you  
2 when you ran Aon's model; is that correct?

3 A. When I run Aon's model, those information are  
4 in the model available. I don't necessarily, like,  
5 break out, have that in hand, before I run the model.

6 Q. But you didn't provide that level of detail  
7 to the Commissioner with regard to the frequency and  
8 severity results of Aon's model, correct?

9 A. It is not the scope -- within the scope of  
10 our service for NCRB. For NCRB, our scope is to  
11 provide AIR and RMS model results to support the rate  
12 filing and the scope of service doesn't include --  
13 CoreLogic -- doesn't include Aon's internal  
14 intellectual testing model.

15 Q. Yes, but wasn't your obligation, as an  
16 actuary, to provide the information such that other  
17 actuaries can understand it? Do you consider that  
18 responsibility to include when you do your Rule 30 --  
19 ASOP 38 attestation [sic] to include specifically the  
20 frequency and severity results broken out for the Aon  
21 model?

22 A. I disagree because ASOP 38 specifically was  
23 saying actuary's responsibility is to validate the  
24 input into the model and the output of the model. And  
25 the frequency and the severity is not a standard output

1 of the model. You have to go into a lot of effort and  
2 go to the back end, and sometime you even need to talk  
3 to the vendor to get that information. That's not a  
4 standard output of the model.

5 Q. Did you provide the frequency and severity  
6 for the AIR and RMS model results?

7 A. I didn't break that out, frequency, severity.  
8 We provided what's required to do these filing. For  
9 example, we provided average annual loss of AIR and  
10 RMS. And, then, also required by the statute to the  
11 extent the model used for the rate filing, the statutes  
12 require us to provide the event description, the  
13 landfall, and the category. That is information we  
14 provided, but only for AIR and RMS because those are  
15 the two models used to determine the rate for NCRB.

16 Q. Did you provide for the AIR and RMS results  
17 the data from which the North Carolina -- the  
18 Department's actuaries could discern the severity and  
19 the frequency?

20 A. The -- yeah, the model result on NCRB's, that  
21 information they could derive some, yeah, frequency,  
22 severity, but that is also, again, the information is  
23 inconsistent. In some ways the different models  
24 handles category differently. For example, in RMS it's  
25 used the RMS six hours before the landfall. So,

1 therefore, in the category you will see there is a  
2 storm, the category definition is for that six hours.  
3 However, for AIR it is the category at landfall. So,  
4 there are details of -- in the information, and if the  
5 actuary doesn't understand those details, again, he or  
6 she could derive some misleading results.

7 Q. Okay. But you didn't provide that sort of  
8 data from which our actuaries could derive the  
9 frequency or severity of the Aon model results?

10 A. That's because Aon's model result is not used  
11 by NCRB rate filing, so we are not required. It's not  
12 within the scope of this service agreement.

13 MR. FRIEDMAN: Mr. Spivey, I don't know  
14 whether the next question is -- I will try to phrase it  
15 so it does not call for -- doesn't call for the  
16 substance of anything. It's just that I don't know  
17 whether it's something -- I am going to ask her whether  
18 she was instructed by the Rate Bureau -- whether they  
19 discussed what extent of Aon's data or, from its own  
20 model results and from CoreLogic, should be included.  
21 I don't know how to get at that because I don't know if  
22 that would have been something discussed between  
23 counsel and Ms. Mao or --

24 MS. FUNDERBURK: Let's proceed with the  
25 question and see where it goes.

1 MR. FRIEDMAN: Just giving you a heads  
2 up.

3 Q. So, Ms. Mao, did the Bureau tell you not to  
4 include the full range of data from the Aon model?

5 A. The Bureau only asked Aon to provide service  
6 running model AIR and RMS model.

7 Q. Did they tell you they didn't need to see or  
8 didn't want you to provide the full range of data from  
9 the Aon model or the CoreLogic model?

10 A. When I performed the service, I performed  
11 exactly what is in the scope of our service agreement,  
12 that is AIR and the RMS only.

13 Q. It's a yes-or-no question. Did you discuss  
14 with them whether to provide the full panoply of the  
15 results from Aon and CoreLogic; yes or no?

16 A. I didn't discuss that because it's not in the  
17 scope.

18 Q. Okay. So, nobody at the Bureau discussed  
19 with you whether to provide all the data from the Aon  
20 model or whether all the data from the CoreLogic model?

21 A. No one discussed with me because the scope  
22 has been defined in our service agreement.

23 Q. Okay. And I think yesterday you said you  
24 didn't feel you independently needed to provide that  
25 data, at least as to the Aon model, because you felt it

1 would -- that our actuaries lacked the necessary  
2 expertise to evaluate it?

3 A. I don't understand your question.

4 Q. Yesterday we talked about a couple of things.  
5 We talked about whether you provided the broken out  
6 numbers for the Aon results versus the aggregated. Do  
7 you recall that conversation?

8 A. I don't know -- excuse me, when you talk  
9 about Aon versus aggregate, I think that's not an apple  
10 to apple comparison.

11 Q. So, you testified yesterday that with your  
12 Rule 38 attestation [sic] or attestation, you provided  
13 the results from your run of the Aon model, but that  
14 those results aggregated the results as far as  
15 frequency, severity, any engineering results, right?  
16 Did you not testify yesterday that you didn't think  
17 that it was appropriate to provide the additional data  
18 about Aon's run because you didn't think the  
19 Department's actuaries had enough expertise to evaluate  
20 it?

21 MR. SPIVEY: Object to the  
22 characterization of her testimony.

23 Q. Do you think that -- sure. Do you think  
24 that -- did you not provide the broken out data from  
25 Aon's model because you thought it would confuse the

1 Department's actuaries?

2 A. No, that's not true.

3 Q. Okay.

4 A. I didn't provide any breakout model because  
5 that is not -- also not the scope of the ASOP 38  
6 requirement. ASOP 38 is very specific about what the  
7 actuary should do with testing of models, that is the  
8 input and output, and there is also the sensitivity and  
9 also related to some historical comparison. I  
10 conducted every component that required by the ASOP 38,  
11 and the ASOP 38 doesn't require actuary to break out  
12 the model and to get each piece out of the model, and  
13 it's not part of the scope.

14 And, however, when Aon internally we test  
15 model -- our engineers and our meteorologists did test  
16 those components and showed me the results.

17 Q. Thank you. We will go over at ASOP 38 in a  
18 moment.

19 As far as the CoreLogic results, I believe  
20 you testified that -- were you provided with the  
21 individual results, for example, with regard to  
22 frequency and severity from running CoreLogic?

23 A. I -- so, in our model evaluation process, we  
24 conduct every model in the exact same fashion. So,  
25 what they do with AIR, they do exact same thing for

1 CoreLogic. And for my purpose of the ASOP 38, it's --  
2 I just pull some result out of the dashboard and put  
3 them out side by side in order to fulfill the  
4 requirement of the ASOP 38 in term of comparing models.

5 Q. So, my question is, did you see, when you saw  
6 the models, the, for example, the specific results as  
7 far as frequency and severity that CoreLogic spit out?

8 A. Those details are in the documentation, and I  
9 seen them once, but I don't recall when seen them. It  
10 may not be when I complete my ASOP 38. It's just at  
11 some point of time I review those documentation, and  
12 then I develop my ASOP compliance over a period of  
13 time.

14 Q. Uh-huh. So, you may have seen the results,  
15 for example, as to frequency and severity from  
16 CoreLogic?

17 A. Yes.

18 Q. Did you provide that level of data about the  
19 CoreLogic results to the Commissioner?

20 A. I'm not required to provide that information.  
21 That's outside of the scope of Aon's service to the  
22 Rate Bureau.

23 Q. So, my question is yes or no. Did you  
24 provide it?

25 A. I didn't provide because it's out of the

1 scope of our service to NCRB.

2 Q. Okay. So, I'm going to go to ASOP 38 in a  
3 bit, but I want to go over some questions of what North  
4 Carolina law you are aware of and when.

5 A. I am not a lawyer. So, I want to summarize,  
6 I am aware that we use two models is because the North  
7 Carolina law requires the Bureau to show at least two  
8 model results, right, but one model result is used for  
9 rate filing.

10 Q. But you do have an obligation, whether under  
11 38 or elsewhere in the ASOPs, to, if you know of,  
12 contrary state law identify it?

13 A. No. I don't have the obligation with ASOP  
14 38. ASOP 38 is related to validation of the model.  
15 And, for example, if I provide information from AIR  
16 model, then I complete AIR documentation. And when I  
17 do -- when we use RMS model, then I complete the  
18 document for RMS. I have no obligation to include  
19 other models in the same documentation. It's optional.  
20 It's an actuarial judgment what I included, but my  
21 focus for each ASOP is just that specific model used  
22 for these rate filings.

23 Q. Why don't we refer back to exhibit -- Book 3,  
24 Exhibit 12. And I'm going to go into great detail  
25 about the ASOP 38 in a moment, but to ASOP 17, if you



1 could look at ASOP 17, which is at page 18, 19, 20.

2 And so, from 18 to 22, do you need a moment to review  
3 all of that?

4 A. Hmm?

5 Q. Do you need a moment to review all of that?

6 MR. SPIVEY: Excuse me. Are you asking  
7 her to review the entire ASOP?

8 MR. FRIEDMAN: I'm asking her what she  
9 needs time -- if she needs to review the entire ASOP or  
10 just talk about specific provisions.

11 MR. SPIVEY: Do you have a question for  
12 her?

13 THE WITNESS: Yeah, do you want to --

14 Q. I'm just trying to ascertain what's most  
15 comfortable for you. So, yes, we are talking about,  
16 specifically, subsection 3.4.

17 A. Yes.

18 Q. Is 3.4 still applicable to you when you  
19 present your hurricane model results?

20 A. Yes.

21 Q. Okay. Despite ASOP 38? I thought -- I was  
22 trying to discern -- I thought you were saying that  
23 everything that you have to do in the ASOPs was  
24 encompassing 38, and I'm asking you whether there are  
25 other provisions, such as ASOP 17 subsection 3.4, that

1 you're also bound by?

2 A. Yes. I am bound for the -- for this 3.4, it  
3 says if the actuary believes that relevant law or  
4 regulation contain a material conflict with appropriate  
5 actuarial practice, then actuary should disclose the  
6 conflict. In this case, I don't believe there is any  
7 conflict.

8 Q. I understand. I'm just trying to figure out  
9 what you thought elsewhere in the ASOPs applied to you  
10 besides Rule 38.

11 A. Every ASOP apply to me.

12 Q. Okay. So, going back to that, yesterday we  
13 were talking, I guess, specifically about the CAR.

14 A. Yes.

15 Q. And I believe you testified that at the time  
16 you wrote your testimony you were not aware of the 2014  
17 Court of Appeals' decision.

18 A. That's correct. I became aware of that 2014  
19 just weeks ago when I received the testimony from your  
20 side.

21 Q. And weeks ago, or at the time you wrote your  
22 report, were you aware of the 2014 Commissioner's  
23 order?

24 A. No, I didn't read. I wasn't aware.

25 Q. So, you have never read the order, but you

1 understand that order was affirmed by the Department --  
2 by the Court of Appeals?

3 A. It's -- now I understand.

4 Q. So, in addition to this issue of CAR, did you  
5 read the Court of Appeals' opinion on the issue of  
6 calculation of the net cost of reinsurance before or  
7 after you prepared your report? Have you --

8 MR. SPIVEY: Objection. Assumes facts  
9 she hasn't even covered or established.

10 Q. Have you -- did you read -- when you read the  
11 2014 Court of Appeals' decision on net cost of  
12 reinsurance?

13 A. No.

14 Q. So, what did you -- what did you read in the  
15 2014 Court of Appeals' decision?

16 A. I get familiar with those decisions through  
17 the testimony provided by your witness.

18 Q. All right. So, you didn't review the entire  
19 decision or just the parts that you decided to?

20 A. I didn't review the entire decision.

21 Q. Okay. So, did you notice that the Court of  
22 Appeals' decision addressed the -- how the Commissioner  
23 had analyzed the net cost of reinsurance?

24 A. I understand how the decision was made, and  
25 how the Commissioner decided on the net cost of

1 rei nsurance.

2 Q. Okay. But you weren't aware of that at the  
3 time you wrote your opinion?

4 A. That's correct. I wasn't aware of that.

5 Q. Were you aware, at the time you wrote your  
6 opinion, of how the Court of Appeals addressed the  
7 demand surge function in -- that was at issue in 2014?

8 A. I wasn't aware. I wasn't aware of that.

9 Q. Okay. So, you didn't read the portion of the  
10 Court of Appeals' decision that deals with the demand  
11 surge?

12 A. No.

13 Q. Did you read the portion of the Court of  
14 Appeals' decision that dealt with how the Commissioner  
15 had addressed the modeled hurricane losses?

16 MR. SPIVEY: Objection. She's already  
17 testified that she didn't read that opinion.

18 MR. FRIEDMAN: No. She's testified  
19 repeatedly that she's read parts of it.

20 MS. FUNDERBURK: I am going to overrule  
21 the objection to the extent that she has referenced  
22 some of it that she has become familiar with. It  
23 appears Mr. Friedman is exploring which parts she is  
24 and is not familiar with, and I am going to allow that.

25 Please be very specific with your

1 questions.

2 Q. Did you read the portion of the Court of  
3 Appeals' decision that dealt with whether the  
4 Commissioner accepted the AIR models that were used in  
5 2014 100 percent or whether he could reduce them based  
6 on actual hurricane losses?

7 A. I --

8 MR. SPIVEY: Objection to the  
9 characterization of the Court of Appeals' opinion and  
10 what the Commissioner did.

11 MR. FRIEDMAN: Your Honor, I was trying  
12 to get more specific, but I can get more general if  
13 need be.

14 MS. FUNDERBURK: I think it would be  
15 helpful if your questions were not compound, perhaps.  
16 Let's start there.

17 Q. Did you read the Court of Appeals' decision  
18 with regard to how the Commissioner had calculated the  
19 hurricane losses?

20 A. I didn't read the Court of -- I believe I  
21 already told you, I didn't read the entire of the  
22 decision.

23 Q. Right. I'm trying to figure out which parts  
24 you read and which parts you didn't read.

25 A. As I mentioned, the parts I have

1 understanding is through your witness testimony. I  
2 didn't read the decision myself.

3 Q. So, is that you didn't read the decision as  
4 far as it addressed the Commissioner's treatment of  
5 hurricane losses?

6 A. I didn't read that part.

7 Q. Have you read it now?

8 A. No.

9 Q. No recent -- okay. Three weeks ago, you  
10 didn't read it? Okay.

11 In 2014, do you know if Aon modified its  
12 results as to the -- let me ask -- think of a better  
13 actuarial term. Do you know whether Aon accepted its  
14 results 100 percent for the hurricane losses?

15 A. I don't understand your question.

16 Q. As I understand your testimony yesterday, you  
17 accepted the results without any modification that the  
18 AIR models and the RMS models produced as far as  
19 hurricane loss?

20 MR. SPIVEY: Mr. Friedman, are you  
21 talking about when she ran it for this filing?

22 MR. FRIEDMAN: Yes.

23 A. Yes, for this filing we give AIR and RMS  
24 model equal weight and based on the model results.

25 Q. Okay. So, you accepted -- you merged them,

1 but, otherwise, didn't apply any reduction to either  
2 the AIR results or the RMS results or the merged  
3 results?

4 A. Correct. We blended two result without  
5 adjustment because making adjustment without a good  
6 justification is not actuarially sound.

7 Q. And did you make an adjustment in either the  
8 AIR or the RMS results or the merged results as far as  
9 the calculation of the CAR?

10 A. No, we didn't make adjustment.

11 Q. As far as the demand surge numbers?

12 A. Demand surge number is not adjusted.

13 Q. And, then, finally, the net cost of  
14 reinsurance, did you make any adjustments to what the  
15 models said about that?

16 A. We didn't make adjustment.

17 Q. So, is it fair to say you accepted them  
18 100 percent?

19 A. Yes.

20 Q. Thank you.

21 And do you know whether in 2014 -- do you  
22 know that in 2014 an AIR expert testified -- that an  
23 AIR employee testified about the AIR results?

24 A. Yes, I understood a couple people from AIR  
25 testified.

1 Q. Do you know whether they accepted the  
2 hurricane loss results from the AIR model 100 percent?

3 A. That, I don't know.

4 Q. Do you know whether they accepted the AIR  
5 results from -- for the CAR 100 percent?

6 A. I think -- my understanding is they didn't do  
7 the CAR. CAR it was done by Milliman at the time, and  
8 it's not run by AIR. Those results are from the Beach  
9 Plan and FAIR Plan.

10 Q. So, I may have misunderstood when talking to  
11 Mr. Anderson. Did Milliman, in 2014, run a modeled CAR  
12 or actually rely on the data?

13 A. My understanding is Milliman did a licensed  
14 model, as Mr. Anderson testified, and the data for CAR  
15 would come from agency that -- the information passed  
16 from the agency to Milliman. But due to the license  
17 restriction, Milliman can no longer receive the  
18 information.

19 Q. Okay. When did Aon begin doing the CAR and  
20 take Milliman's place?

21 A. As Mr. Anderson testified, it is around -- I  
22 have to think, in 2022.

23 MS. FUNDERBURK: Mr. Friedman, don't  
24 interrupt the witness.

25 A. 2022 or 2023. That's the time when



1 Milliman's information became outdated, and it's time  
2 to update that information.

3 Q. Okay. And I wasn't trying to worry about the  
4 particular year, but my question really is as soon as  
5 Aon assumed responsibility for the CAR, did it, even in  
6 its first work for the Bureau, model the CAR?

7 A. Sorry, what's your question?

8 Q. So, the first time that you ran a CAR, the  
9 first time that you determined CAR results for the  
10 Bureau, did you model those results?

11 A. Yes, we did. My understanding is Milliman's  
12 methodology is based on some model loss in some layers,  
13 then apply the cat bond curve to those layers to  
14 determine the CAR's provisions. And the missing piece  
15 are those modeled loss in those layers, and Aon is able  
16 to fill the gap to generate modeled loss for those  
17 layers.

18 Q. So, Milliman, in some way, relied on some  
19 modeled results for its determination of the CAR?

20 A. That's my understanding.

21 Q. Okay. And, then, is it fair to say that when  
22 Aon took over, it was able to model everything for the  
23 CAR?

24 A. Can you define "everything"? What's  
25 "everything"?

1 Q. The CAR results is -- the CAR results that  
2 you have reported on and that you've recommended or  
3 that ultimately the board adopted, the Bureau adopted,  
4 are 100 percent modeled?

5 A. The piece of the CAR that is expected deficit  
6 in each layer that was determined by model, and then  
7 other parts of the CAR came from industry's cat bond  
8 pricing curve.

9 Q. Okay. And was the actual data that you --  
10 about the other industry's cat bonds pricing curve that  
11 you input into AIR and RMS, or was that built into it?

12 A. No, other part of the cat bond data is not  
13 part of the AIR model. They apply to AIR model result  
14 to derive the provision for CAR. So, other part of the  
15 data is a separate process.

16 Q. So, was that data a process that you  
17 provided, the cat bond data?

18 A. The cat bond data include ten years of the  
19 cat bond insurance. And when we took over, we utilized  
20 the nine years that's already in the data compiled  
21 from -- by the Lane Financial, Lane Financial, then we  
22 supply one additional year of data, of cat bond data,  
23 and that data is collected by Aon's security team.

24 Q. So, just does that -- what does that look  
25 like in terms of steps? Do they run the AIR model and

1 the RMS model and then add, outside of the model  
2 results, those nine or ten years of cat bonds?

3 A. Yes. We run AIR and RMS results, and then we  
4 apply Beach Plan, FAIR Plan's reinsurance structure,  
5 and their surplus position in -- to calculate the  
6 estimated deficit in each reinsurance layers in order  
7 to calculate what is the expected assessment for Beach  
8 Plan and the FAIR Plan.

9 Q. Okay.

10 A. Then we utilize catastrophe bond yield curve  
11 to estimate what an investor would expect if they  
12 purchased a cat bond to support Beach Plan, FAIR Plan's  
13 assessment, what is the expected yield they would  
14 typically receive, and there is the real market  
15 conditions.

16 Q. Okay. So, that helps me understand with  
17 regard to the cat.

18 With regard to the net, did you accept the  
19 AIR and RMS results merged 100 percent?

20 A. We -- yes, we accept that because that's what  
21 also Beach Plan and FAIR Plan accepted. When they buy  
22 their reinsurance, they use a similar model result on  
23 their exposure and then the determining their  
24 reinsurance pricing, determining their expected loss in  
25 each layer. So, we try to be consistent in this

1 process, be consistent with Beach Plan and FAIR Plan,  
2 be consistent with what the industry is doing.

3 Q. So, you did accept -- I'm trying to figure  
4 out now whether with regard to net, you accepted the  
5 results from AIR and RMS, merged them, and took it all  
6 100 percent without any adjustment?

7 A. That's correct, that's the industry standard  
8 practice, and this is also what's been done for Beach  
9 Plan and the FAIR Plan's reinsurance.

10 Q. In -- are you aware that the FAIR Plan and  
11 Beach Plan have made public their premium dollars that  
12 they pay for the net cost of reinsurance?

13 A. I read their financials, and I am not -- I  
14 cannot derive their total -- the reinsurance dollars at  
15 different layer. I don't think that information is  
16 public available.

17 Q. Did you see any information about that, as  
18 opposed to by layer?

19 A. I rely on their layer. I don't use a premium  
20 in our calculations.

21 Q. Do you know whether the Rate Bureau could ask  
22 the Beach Plan for that level of detail?

23 A. I am not -- my understanding is the Bureau  
24 couldn't receive the information from Beach Plan and  
25 FAIR Plan, that's why they asked Aon to run the model.

1 Q. Did you ever ask the Bureau whether it could  
2 receive data from the Beach Plan and the FAIR Plan  
3 about the actual premium dollars that they are paying  
4 for the net cost of reinsurance?

5 A. I am not sure why I need to ask that  
6 information because it's irrelevant to the CAR  
7 calculation. It's also irrelevant to the net cost of  
8 reinsurance analysis we are doing.

9 Q. So, the actual costs, the premium costs, of  
10 net cost of reinsurance are irrelevant to your  
11 calculation of the net?

12 MR. SPIVEY: Objection.  
13 Mischaracterizes her testimony.

14 THE WITNESS: I -- what I'm --

15 MS. FUNDERBURK: Hold on a second.

16 Ms. Mao, you're free to answer if he's mischaracterized  
17 or not. It appears Mr. Friedman is trying to restate  
18 what he believes her testimony is, and I will allow you  
19 to clarify what that -- whether he's correct or not.

20 THE WITNESS: Okay.

21 MS. FUNDERBURK: If you feel that he has  
22 misstated --

23 THE WITNESS: Okay.

24 MS. FUNDERBURK: -- what your testimony  
25 was, you're free to clarify that.

1 THE WITNESS: Okay.

2 MS. FUNDERBURK: Mr. Friedman, can you  
3 restate your question clearly?

4 MR. FRIEDMAN: Hopefully I can restate  
5 it in a way that is more acceptable to the Bureau.

6 Q. Were -- I believe you stated that the Beach  
7 Plan and FAIR Plan, what they are actually paying in  
8 premiums for the net cost of reinsurance was not  
9 relevant to your calculation of reinsurance; is that  
10 correct?

11 A. I want to clarify that. The Bureau include  
12 110 members and the Beach Plan and FAIR Plan is just  
13 one or two members, and so, therefore, we cannot rely  
14 on one or two members information to calculate the net  
15 cost of reinsurance. This is what I mean. Having that  
16 information will not derive Bureau's provision.

17 Q. Okay.

18 A. And also Beach Plan, FAIR Plan has very  
19 different risk profile. It is -- especially for the  
20 Beach Plan, it's only the coastal counties, and with  
21 that type of the profile their structure would look  
22 very different from primary insurers that write  
23 business in the whole state. So, for all these  
24 reasons, we cannot rely on one or two company's  
25 reinsurance purchasing to determine Bureau's net cost

1 of reinsurance.

2 Q. In terms of hurricanes, where are the  
3 greatest losses covered by homeowners' insurance in the  
4 state?

5 A. What do you mean "the greatest"?

6 Q. Are they on the beach and coast, or are they  
7 inland?

8 A. For hurricane loss, beach/coast has a higher  
9 potential hurricane exposure.

10 Q. And do you know what percentage or rough --  
11 do you know whether the Beach Plan and the FAIR Plan  
12 write the majority of the homeowners' coverage -- well,  
13 I suppose FAIR Plan doesn't write homeowners' coverage.  
14 Let's just talk about the Beach Plan.

15 Beach Plan writes the majority of homeowners'  
16 coverage on the beach and the coast?

17 A. That's correct, that's my understanding.

18 Q. Would you agree, then, that the greatest need  
19 to purchase reinsurance is to cover losses on the  
20 coast?

21 A. There is a need to cover the loss on the  
22 coast. There is also a need to reflect the entire  
23 state. Because if you only reflect the coast, then you  
24 are actually penalizes the state, you are overstating  
25 the loss.

1 Q. But is there a greater need to purchase  
2 reinsurance to cover the loss -- I'm not stating  
3 whether there is no need to cover -- to purchase  
4 reinsurance to cover hurricane loss in the rest of the  
5 state. What I'm asking is, is there a greater need to  
6 purchase it on the beach and coast than in the rest of  
7 the state?

8 A. There is a great need for purchasing, yeah,  
9 reinsurance for the beach and the coast, and there is  
10 also a need for the inland because you want to reflect  
11 the reciprocation benefit of the state to benefit your  
12 policyholders, and only reflecting beach and coast that  
13 you lose out on that reciprocation benefit and you  
14 are -- you have to potential to overcharge your  
15 policyholders.

16 Q. So, you said there was a great need to  
17 purchase it on the beach and coast. What I'm asking  
18 is, is there a greater need to purchase it for the  
19 beach and coast than the rest -- for the rest of the  
20 state?

21 A. So, as a re- -- as an insurance person, I  
22 would say I would be reluctant to use greater, those  
23 type of words, because each company is quite unique.  
24 They buy reinsurance to protect their exposure, and  
25 without knowing their exposure looks like, you can't



1 really say greater or lesser.

2 Q. Okay. There is more exposure for the Beach  
3 Plan on the coast and the beach than for the voluntary  
4 market; is that correct?

5 A. There is a great exposure on the -- on the  
6 Beach Plan, yes. They have high market share on Beach  
7 Plan.

8 Q. And yet you think that the -- what the Beach  
9 Plan actually pays for its reinsurance policies is not  
10 relevant to what the voluntary market should pay?

11 A. I think you took my words out of the context.  
12 What I'm simply saying is using one company's  
13 reinsurance purchasing to decide the entire state  
14 reinsurance cost load is not a good practice because  
15 that one company cannot represent the entire state.

16 Q. Do you determine reinsurance cost load by  
17 territory or region?

18 A. We determine the reinsurance cost load at  
19 state level, then allocate to the territory level.

20 Q. Okay.

21 A. And, also, in our reinsurance load, we  
22 include Beach Plan, FAIR Plan's exposure, and that is a  
23 better representative of the North Carolina market.  
24 It's -- rather than one company.

25 Q. When you allocate the modeled premium costs

1 to the different regions, as I understand what you just  
2 said?

3 A. Yes, we allocate the reinsurance premium and  
4 the expected reinsurance loss to territories.

5 Q. With regard to the reinsurance premium, the  
6 modeled reinsurance premium, is more of that allocated  
7 to the beach and coast than the rest of the state?

8 A. It's all based on what each region's  
9 contribution to the reinsurance loss. So, to the  
10 extent one region contributes more to the region's  
11 loss, they get more allocation.

12 Q. And, in your results, did the beach and the  
13 coast contribute more to the reinsurance costs than the  
14 rest of the state?

15 A. So, yeah, it's in the results, in the  
16 territory reinsurance allocation results. Yeah, the  
17 result is showing in that exhibit.

18 Q. So, my question is about -- do you need to  
19 look at that exhibit?

20 A. Yeah, we can look at that together if you  
21 want to.

22 Q. Well, I'm just asking whether you are able,  
23 without looking at the exhibit, to tell me whether  
24 there was a greater allocation of the reinsurance cost  
25 to the beach and coast than the rest of the regions

1     i n d i v i d u a l l y ?

2           A.     My understanding is, yes, because of the  
3     beach and the coast, they contributed to more  
4     reinsurance expected loss. Therefore, they received  
5     more allocation of the reinsurance premium.

6           Q.     Okay. Thank you.

7                     But the Beach Plan actual premiums for  
8     reinsurance were not included in or not considered in  
9     the modeled reinsurance, net cost of reinsurance; is  
10    that correct?

11          A.     As we discussed, in our -- our effort is to  
12    treat the North Carolina Rate Bureau as one composite  
13    aggregate company in our reinsurance analysis. Our  
14    analysis is not based on North Carolina Beach Plan.

15          Q.     So, my question was a yes-or-no question.  
16    Were the actual premium dollars that the Beach Plan  
17    pays for reinsurance in the limited regions that it  
18    issues policies, did that -- the actual dollars they  
19    pay, did it work at all into the modeled net cost of  
20    reinsurance that you produced?

21          A.     Our methodology is based on the actual  
22    dollars that the whole industry paid to North Carolina,  
23    and it's a composite aggregate concept. So, in our  
24    model, we don't look at one specific company's pricing.

25          Q.     Okay. So --

1 A. So -- go ahead.

2 Q. Are there any actual premiums paid for  
3 reinsurance by any North Carolina insurer that are  
4 reflected in the modeled cost of the -- modeled net  
5 cost of reinsurance?

6 A. Yes. Because our methodology is -- looks at  
7 Aon's real market data for the entire industry that's  
8 doing business in North Carolina and we included their  
9 actual purchasing, their actual structure in our  
10 analysis to come up with this indicated reinsurance  
11 structure and the indicated reinsurance cost.

12 Q. So, I did see that in your opinion, where you  
13 discuss looking at actual premium costs from a variety  
14 of Aon's clients.

15 A. Yes.

16 Q. And did you look at their reinsurance costs  
17 particularly allocated to North Carolina or national?

18 A. So, we look at what is the national company  
19 there, what is our average attaching and the exhaustion  
20 for their reinsurance. And then because our underlying  
21 exposure is NCRB's exposure, so, therefore, it is North  
22 Carolina specific in our reinsurance analysis.

23 Q. Okay.

24 A. The modeled loss, the allocation, they are  
25 all North Carolina specific.

1 Q. So, is it -- did Aon first look at the  
2 national data and then allocate, itself, what portion  
3 of that would be allocable to North Carolina?

4 A. Aon looked at the national data, as well as  
5 the southeast regional writers because these two type  
6 of the writers are the -- take majority of the market  
7 share in North Carolina. Yes, we look at their  
8 reinsurance purchasing and typically what -- how much  
9 they buy, and then we determine the indicated structure  
10 just for North Carolina.

11 Q. You said that you looked at it for NCRB  
12 members. Does that include -- that doesn't include the  
13 Beach Plan, though, does it?

14 A. We look at our market data that includes  
15 this -- includes the writers that provide insurance in  
16 North Carolina.

17 Q. How many North Carolina homeowners' carriers  
18 did you look at to determine the actual premium cost  
19 attributable to North Carolina?

20 A. I don't have this number readily available.  
21 But when we look at our data, we look at one whole year  
22 of placement, and then we set a filter to select all  
23 the national carriers and the southeast regional  
24 carriers. I don't have that exact number handy.

25 Q. Okay. Did you provide that exact number?

1           A.     No, we didn't because that is -- we did -- we  
2 provide the result of that information, but we don't  
3 provide -- we didn't provide exact number. However,  
4 Aon, we place -- we are either number one or number two  
5 brokers in every part of the world, and in the U.S.  
6 typically we have more than one-third of the market  
7 share, and in certain regions we have more. So, we are  
8 confident with our data that has a good representation  
9 of the -- of the -- of reinsurance coverage in every  
10 part of the country.

11           Q.     When you said, as I understood it, that you  
12 looked at the national actual premium costs for  
13 reinsurance, and then also looked at the southeast --

14           A.     Yes.

15           Q.     -- regional cost --

16           A.     Yes.

17           Q.     -- did you also look specifically at the  
18 North Carolina costs for premium costs for reinsurance?

19           A.     So, so our -- our analysis is North Carolina  
20 specific. And, as you know, for a regional carrier and  
21 the national carrier, they provide coverage at -- at  
22 the whole level, and there is no, like, North Carolina  
23 specific coverage in their reinsurance treaty. Their  
24 treaty cover all peril countrywide.

25           Q.     Do you recall Mr. Anderson's testimony that

1 he believed the Rate Bureau members could allocate  
2 their national prices for reinsurance to North  
3 Carolina, but it would be burdensome?

4 A. I recall that not only burdensome but also  
5 the data call would cause significant delays in the  
6 data. And by the time you would use the data in the  
7 rate filing, the data could be two and three years old.  
8 And for reinsurance, it's very -- reinsurance pricing  
9 is very responsible -- responsive to the market  
10 condition, and the pricing could fluctuate a lot from  
11 year to year. So, therefore, using two or three year's  
12 old data would not be a good representation for the  
13 current market condition. That's what Mr. Anderson  
14 said in his testimony.

15 Q. Okay. And just as it is possible for the  
16 Bureau members to -- to allocate some part of their  
17 reinsurance costs to North Carolina, you said it's  
18 burdensome, but it is possible, right?

19 A. It would -- it would require all 110 members  
20 provide their allocation to the Bureau if they are  
21 willing to.

22 Q. If they are willing to?

23 A. Correct.

24 Q. The Bureau, in your understanding, has to  
25 base its net cost of reinsurance on aggregated data

1 from the members?

2 A. I believe Mr. Anderson also testified that  
3 reinsurance pricing information is highly trade secret,  
4 and the companies are not willing to share that  
5 information.

6 Q. Okay. That's a decision of the companies?

7 A. Correct. That's their data.

8 Q. Okay. And without that data, does that --  
9 without that data, does that affect the actuarial  
10 reasonableness of the net cost of reinsurance  
11 calculation?

12 A. My opinion is using Aon's composite aggregate  
13 data to price the reinsurance is just as -- it is a  
14 good approach. And if you collect all the data after  
15 you smoothing out the information, you are very likely  
16 you -- the effort is not giving you the marginal  
17 benefit because, as you know, different companies have  
18 different risk appetite. They use different models.  
19 They may use -- they purchase for different coverage,  
20 different perils, and all those differences, when you  
21 select 110 companies in the aggregate, it's -- it will  
22 give you a mixture of very different reinsurance buying  
23 patterns.

24 Q. In your understanding of what the Bureau  
25 bases its rate calculations, isn't that the whole point



1 of the Bureau, that where there is North Carolina data  
2 available, they have to aggregate it? And so, some  
3 insurance companies -- there is going to be a variety,  
4 some insurance companies may benefit from that variety,  
5 the aggregated number, and some may not?

6 A. The Bureau is doing the -- exactly the thing  
7 that using the aggregate market composite data for the  
8 reinsurance.

9 Q. But they don't have the actual premium costs.  
10 You said that an insurer is not willing to share with  
11 the Bureau the actual premium costs that they are  
12 paying?

13 A. The actual premium cost is in Aon's analysis.

14 Q. So, you have the actual premium -- you  
15 received the actual premium costs that all 110  
16 homeowners' carriers are paying?

17 A. No, that's not 110. Those are -- the Aon's  
18 client that Aon place reinsurance for them, we have all  
19 their actual premiums, all their reinsurance structure,  
20 and then based on what they have, we derive the  
21 aggregate composite view for Rate Bureau based on the  
22 actual data.

23 Q. Did you identify, individually in your filing  
24 or in your testimony, what those actual numbers were  
25 for North Carolina companies writing homeowners?

1 A. So, I don't -- I don't understand. So, you  
2 want me to disclose what?

3 Q. Did you disclose -- I'm not asking you to  
4 disclose anything. I'm just asking if you did. You  
5 said, as I understood now, that you have actual premium  
6 numbers for some variety of Aon clients?

7 A. Yes.

8 Q. And those were actual premium numbers  
9 allocated to North Carolina, not to the southeast coast  
10 generally?

11 A. Those are the actual premiums that -- for  
12 insurance companies that's doing business in North  
13 Carolina.

14 Q. Yes. But my question -- so, it is -- those  
15 are -- you have the numbers for the actual reinsurance  
16 costs that were allocated to North Carolina by the Aon  
17 clients?

18 A. I have the actual dollars for those insurance  
19 companies for their reinsurance placement that include  
20 North Carolina.

21 Q. My question is, did you have North Carolina  
22 centric allocated premium -- actual premium data?

23 A. So, our methodology is to -- that by using  
24 North Carolina Rate Bureau's exposure, it is the North  
25 Carolina centric and for North Carolina share of

1 rei nsurance.

2 Q. Did Aon make any effort to distinguish  
3 between what the select Aon clients were paying in the  
4 southeast overall or in North Carolina particularly?

5 A. So, in our database we include the pricing  
6 curve for the entire layer, and we -- in that process,  
7 we -- that -- again, that includes North Carolina, but  
8 we don't do allocation at that process.

9 Q. So, you didn't separate North Carolina from  
10 the premium costs for the whole of the southeast?

11 A. Not in that step.

12 Q. Did you ever, in the course of determining  
13 the net cost of reinsurance?

14 A. So, in the -- by using NCRB's exposure, it's  
15 equivalent to that allocation to North Carolina.  
16 Because if we want to include other exposures, then we  
17 have to -- then we include more, then we need to  
18 allocate. But when we have the underlying exposure  
19 only for North Carolina, NCRB, then that's equivalent  
20 to just getting their fair share of the reinsurance.

21 Q. So, that's -- you did have some numbers,  
22 based on the exposures, that would indicate what this  
23 unidentified group of Aon clients were paying in actual  
24 premiums for North Carolina?

25 A. I don't -- I don't think I understand your

1 question, yeah.

2 Q. Okay. You said that you could tell what  
3 portion of your clients' premium dollars for net cost  
4 of reinsurance were being paid in North Carolina.

5 Did I understand you correctly?

6 A. Those are the -- those are the individual  
7 client work. We typically do for each individual  
8 client and help them allocate reinsurance to the state,  
9 but that's not part of this process. We don't disclose  
10 that information to the Bureau.

11 Q. Okay. Understood. And so, you didn't  
12 disclose that information to the Department either?

13 A. We are not allowed to disclose our client  
14 confidential information to --

15 Q. And that's because your clients have chosen  
16 to keep you from disclosing what actual premium costs  
17 are allocable --

18 A. Correct.

19 Q. -- to North Carolina?

20 A. Correct.

21 Q. Okay. And so, when you're saying that you  
22 did consider, in your net cost of reinsurance  
23 calculation, some number of conglomerated actual  
24 premium costs for North Carolina, is that what you --  
25 am I understanding you correctly there?

1           A.     All the information we used for reinsurance  
2 placement, they are actual market data paid by real  
3 companies that covers the North Carolina.

4           Q.     Okay. And none of that actual premium was  
5 included with your testimony, was it, because it's  
6 proprietary?

7           A.     Yeah. Those premium was used to determine  
8 the NCOR for this filing, but the individual premium  
9 cannot be shared with a third party.

10          Q.     Was even the aggregated premium, among these  
11 Aon clients, shared with the Department?

12          A.     No. We don't share aggregated premium, but  
13 we share a curve that is correlated, the loss versus  
14 rate. So, that curve is what's being used to determine  
15 NCOR.

16          Q.     From that curve, can the Department's  
17 actuaries determine the actual premium dollars that  
18 these aggregated Aon clients are paying in North  
19 Carolina?

20          A.     From that curve -- from the curve, they can  
21 estimate, based on the parameter of the curve, yes,  
22 they can have some -- they can have an estimate.

23          Q.     How can they estimate when they don't know  
24 who the Aon clients are or how many of them you're  
25 reflecting in that curve?

1           A.     Because you are talking about the aggregated  
2 curve. We give the Department the aggregate curve. We  
3 give -- we provided the programs that generate that  
4 curve. And there are parameters of the curve, and  
5 there are laws of the curve, and the Department actuary  
6 can just use the loss and the parameter of the log  
7 normal -- the log-linear distribution to calculate the  
8 premium. That's what your witness did.

9           Q.     So, you accept that our witnesses -- you're  
10 speaking of Ms. Cavanaugh?

11          A.     Yes.

12          Q.     Okay. Do you accept that her calculation  
13 from that curve is the correct actual premium price for  
14 those Aon clients that you based?

15          A.     She -- no. I don't believe so because she  
16 picked a model and -- picked a model that generates low  
17 results, and so this is not what reinsurance industry  
18 is doing. The reinsurance industry is using both AIR  
19 and the RMS model. They don't just rely on one lowest  
20 model, which is what Ms. Cavanaugh was doing.

21          Q.     Okay. Would she have only been able to  
22 determine correctly what those actual premium dollars  
23 are for these unidentified Aon clients if you had given  
24 the actual number which you have?

25          A.     We give her enough information that she can

1 derive the total premium needed based on the expected  
2 loss. She has the information to replicate our  
3 calculation, without individual the companies  
4 purchasing.

5 Q. So, you just said she's given -- you've given  
6 her enough information to recalculate -- recalculate  
7 the overall net cost; is that correct?

8 A. Correct.

9 Q. But as to the actual premium dollars being  
10 paid by North Carolina homeowners' association --  
11 homeowners' carriers, did you give her enough data to  
12 calculate the actual premium dollars, not the overall?

13 A. We -- as I -- as Mr. Anderson testified, as I  
14 testified, we are not allowed to provide that  
15 information because that information belong to Aon's  
16 clients, and we don't have the authorization to share  
17 the information with third party.

18 Q. Okay. Would that information have been  
19 useful for the Commissioner's actuaries to determine  
20 the actual premium dollars being paid?

21 A. That information is -- she already has enough  
22 information to calculate the total premium needed, and  
23 she doesn't need this individual information to derive  
24 to the same conclusion.

25 Q. Okay. I'm not talking about the total

1 reinsurance cost needed. I'm talking about the actual  
2 premium dollars that Aon says it considered from some  
3 unidentified number of clients. Does she -- did you  
4 give her enough data for her to figure that out, the  
5 actual premium dollar, not the necessary net cost of  
6 reinsurance?

7 A. I believe I already shared Aon cannot give to  
8 anyone the actual premium paid by our client.

9 Q. And would it have been helpful if she wants  
10 to determine the actual premium dollars being paid to  
11 have given that -- regardless of whether you can reveal  
12 that, would it have been helpful to the Commissioner's  
13 actuaries to look at that?

14 A. She will not get more information than she  
15 already has because for the NCRB reinsurance, we want a  
16 composite aggregate information that we already gave  
17 her. By knowing the individual, it would not change  
18 the aggregate composite information.

19 Q. My question is, if she wanted to determine  
20 what Aon's unidentified clients are paying in North  
21 Carolina, just that, not what you are saying the  
22 necessary net cost of reinsurance is, but the actual  
23 premium dollars, if she decided that was relevant, did  
24 you give her enough information to do that?

25 A. Again, we cannot share that information with



1 a third party. We are not allowed, not required by  
2 law, to provide that information. That's -- I am  
3 referring to the Actuarial Standard of Practice precept  
4 9 that -- regarding confidential information, actuaries  
5 have the responsibility and the duty to protect our  
6 principals' confidential information.

7 Q. Right. And that's a matter of contract  
8 between Aon and the principals?

9 A. Correct.

10 MR. SPIVEY: Objection. Objection.  
11 She's talking about actuarial standards.

12 MR. FRIEDMAN: No, but I'm asking about  
13 what the source -- she had said that they are not  
14 legally allowed to provide it under that principle.  
15 And I was asking -- meant to ask, if it wasn't clear,  
16 when you say "legally," do you mean because of a  
17 contract or because of an actual statute?

18 MR. SPIVEY: I still object to the  
19 characterization. I don't think that's the way she --  
20 I don't think you've correctly or properly  
21 characterized her answer.

22 MS. FUNDERBURK: Okay. If I'm  
23 understanding correctly, Mr. Friedman, you're trying to  
24 ascertain the source of the inability to provide that  
25 information; is that correct?

1 MR. FRIEDMAN: Yes.

2 MS. FUNDERBURK: Ms. Mao, we understand  
3 your testimony is you are unable to provide that data;  
4 is that correct? Or am I mischaracterizing?

5 THE WITNESS: That is correct. We are  
6 not able to provide because those are our clients'  
7 confidential information.

8 Q. And you're not --

9 MS. FUNDERBURK: Hold on.

10 MR. FRIEDMAN: Excuse me.

11 MS. FUNDERBURK: And is that  
12 confidentiality requirement due to a contract you have  
13 in place with that client?

14 THE WITNESS: Yes.

15 MS. FUNDERBURK: Okay. Thank you.

16 Q. So, it's your hypothetical, then, if your  
17 clients didn't require Aon to keep their actual premium  
18 dollars attributable to North Carolina confidential,  
19 just assuming you didn't promise that to the clients in  
20 a contract, assuming that, would -- so, putting aside  
21 the whole issue of the proprietary information, would  
22 it have been helpful to the North Carolina Commissioner  
23 of Insurance's actuaries to see those actual premium  
24 dollars?

25 A. It's a very big assumption because it

1 doesn't -- Aon doesn't promise to keep that  
2 confidential. Aon would have no client, and then we  
3 will have no information to provide.

4 MR. FRIEDMAN: Your Honor, at this point  
5 I think I have asked whether the Court could direct her  
6 to answer because I think it's a very simple scenario.  
7 I am asking whether on some objective level, regardless  
8 of whether Aon's going to have any business, regardless  
9 of whether Aon's clients won't give them anything  
10 without that protection, the proprietary protection,  
11 whether -- this is what actuaries deal with, as I think  
12 Mr. Anderson said it best, more data is actually good  
13 for an actuary. Whether -- putting aside all those  
14 proprietary concerns and the current concerns about the  
15 affect on Aon's business, it would be actuarially  
16 helpful to the Commissioner's actuaries to see those  
17 actual premium dollars. And she is not -- I feel like  
18 I have asked that about five or six different ways, and  
19 I haven't gotten an answer, and yet that's exactly what  
20 the ASOPs -- we can go over more of them -- requires,  
21 that she provide it in a method so that the  
22 Commissioner's actuaries can recreate it.

23 MS. FUNDERBURK: Response, Mr. Spivey.

24 MR. SPIVEY: I'm not sure where to  
25 begin. But as to the very last part, the statement

1 Mr. Friedman made that that's exactly what the ASOP  
2 requires, that has not been established at all here.  
3 He's talking about information that he claims the ASOP  
4 requires, but that's not established in this evidence  
5 at all.

6 MR. FRIEDMAN: I can ask a question to  
7 simply establish that.

8 MR. SPIVEY: I mean the evidence, Your  
9 Honor, is that the information is not available. It's  
10 not available to any of us. And for him to argue to  
11 you that the ASOP requires that we provide it to his  
12 actuaries is just ignoring all of that.

13 MS. FUNDERBURK: Are you arguing,  
14 Mr. Friedman, that the ASOPs require the provision of  
15 that specific information, or they require the  
16 provision of enough information to adequately consider  
17 the matter before the hearing officer?

18 MR. FRIEDMAN: The latter.

19 MS. FUNDERBURK: And I do believe that's  
20 what he's arguing.

21 I also hear you on the establishment of  
22 exactly what the ASOPs require, but I do believe the  
23 argument that Mr. Friedman is making is whether or not  
24 there is sufficient information before the hearing  
25 officer to review the issues before us. Also believe

1 Ms. Mao clearly testified that the information is not  
2 available due to contracts that are in existence.

3 And, Ms. Mao, if I have mischaracterized  
4 or, Mr. Spivey, if you think I've mischaracterized,  
5 feel free to let me know.

6 So, I believe your next question --  
7 correct me if I'm wrong -- is this what you're trying  
8 to determine? You're acknowledging that the  
9 information is confidential, is privileged as a matter  
10 of contract between other parties not involving the  
11 Rate Bureau. Your next question, I believe, is, is  
12 that information that would help clarify matters if it  
13 had been available, would it help clarify matters for  
14 the hearing officer?

15 MR. FRIEDMAN: Yes, ma'am, that is  
16 exactly my next question.

17 MS. FUNDERBURK: I was trying to clarify  
18 what is before the Court. Mr. Friedman, I am going to  
19 give you a little bit of leeway before we move on to  
20 continue with this line of questioning. I'm going to  
21 ask you to proceed at this point.

22 MR. FRIEDMAN: So, okay, to better  
23 clarify what I meant -- essentially to restate the  
24 question you just stated, Your Honor? I'm not sure.

25 MS. FUNDERBURK: I'm going to ask that

1 you restate the question clearly, and not in a compound  
2 manner, to clarify to the witness exactly what you are  
3 seeking, and then we are going to move on. So, please  
4 ask your question.

5 Q. If the information on the actual premium  
6 dollars paid by some number of Aon clients doing  
7 business in North Carolina were available, would it be  
8 helpful to the Commissioner and his actuaries?

9 A. I -- it's -- it depends. If I make the call,  
10 I wouldn't think it's helpful because I have enough  
11 information to draw the same conclusion and by relying  
12 on the aggregate information. So, I -- Ms. Cavanaugh  
13 may have different opinion, but it's my opinion it  
14 wouldn't be more helpful than what she already  
15 received.

16 Q. Have you used models to estimate the net cost  
17 of reinsurance for individual companies in other  
18 states?

19 A. We used the same pricing curve to estimate  
20 reinsurance costs for, yeah, for all Aon's clients.

21 Q. And so, in doing -- when you are  
22 presenting -- have you presented evidence in support of  
23 a net cost of reinsurance for individual companies in  
24 other states who are asking for rate increases?

25 A. Yes. We do that for many of Aon's clients.

1 Q. And I was asking are those modeled entirely,  
2 or is some part of it presenting the actual data from  
3 that specific client?

4 A. We provide actual -- actual information to  
5 that specific client but only to that specific client,  
6 not to anyone outside of that specific client.

7 Q. And when you provide that specific data to  
8 whatever other state's Commissioner of insurance for  
9 that specific client, do you provide the actual costs  
10 of premiums they are paying for reinsurance?

11 A. So, very often that information is included  
12 in the details that's being filed and they're trade  
13 secret protection. So, in the public domain, you would  
14 not see the actual premium.

15 Q. But the Commissioner would?

16 A. The Commissioner, yes, in some jurisdictions  
17 they do see that information.

18 Q. Have you worked in jurisdictions where you  
19 don't have to provide or you have never provided the  
20 actual cost of the premiums for an individual carrier  
21 that is seeking a rate increase?

22 A. Yes, I have seen that because in some  
23 jurisdictions, they allow a different approach for --  
24 for the risk provision. So, some companies, they don't  
25 provide net cost of reinsurance in their analysis.

1 They just calculate the total risk provision, that's  
2 enough to cover the retained risk, as well as ceded  
3 risk. So, yes, they are both ways of doing that.

4 Q. Okay. Do you -- roughly, could you put a  
5 number on the jurisdictions you've worked on, where  
6 you've calculated the net cost of reinsurance, do most  
7 of them require the actual premium dollars, is it  
8 50 percent?

9 A. When you do the net cost of reinsurance  
10 approach, yes, the net cost of reinsurance always  
11 starts with the actual reinsurance premium.

12 Q. And I'm asking do you -- in the majority of  
13 the states, do you actually provide the numbers as part  
14 of your filing?

15 A. Yes. In majority of the state, yes, they are  
16 fine, but North Carolina Rate Bureau one unique entity  
17 that only one of these type of entity existed in the  
18 country.

19 Q. Thank you.

20 MR. FRIEDMAN: Your Honor. Could we  
21 take a ten-minute break for everyone to --

22 MS. FUNDERBURK: Yeah, I was actually  
23 going to suggest the same. We're about halfway through  
24 the morning. Are there any matters we need to address  
25 before recess?



1 MR. SPIVEY: Not here, Your Honor.

2 MS. FUNDERBURK: Any matters,

3 Mr. Spi vey?

4 Okay. Ms. Mao, just, again, remind you  
5 you'll be under oath when you return.

6 The Court will take a ten-minute recess  
7 returning at 10:40. I ask that the attorneys be  
8 available, seated, and ready to go at 10:40. Thank  
9 you. We are off the record.

10 (Recess from 10:32 to 10:42.)

11 MS. FUNDERBURK: Counsel, are we ready  
12 to proceed?

13 MR. FRIEDMAN: Yes, ma'am.

14 MS. FUNDERBURK: Thank you. We are back  
15 on the record.

16 Ms. Mao, again, I will remind you, you  
17 do continue to be under oath for your testimony.

18 Apparently we've had the white noise  
19 kick on in the courtroom. We are going to check that  
20 to see if we can turn it off, but it is interfering a  
21 little bit with the sound, and it's making it appear  
22 that the microphones are not as loud as they actually  
23 are. So, I will ask everyone to make a concerted  
24 effort to speak loudly and into the microphone so that  
25 our clerk can pick up that recording and our court

1 reporter, as well, can be picked up the recording, and  
2 hopefully we will have the white noise turned off after  
3 lunch.

4 Mr. Friedman, please proceed.

5 MR. FRIEDMAN: Thank you.

6 Q. Going back to the Beach Plan actual premium  
7 dollars for reinsurance, is it true that all of the  
8 Bureau members who write North Carolina homeowners'  
9 insurance are also members of the Beach Plan?

10 A. Yes. Based on the membership, all voluntary  
11 writers in North Carolina are members of Beach Plan.

12 Q. Do you know if they, then, know the actual  
13 premium dollars that the Beach Plan is paying for  
14 reinsurance?

15 A. That part I am not sure, between the Beach  
16 Plan and their members, what type of the information  
17 they exchange between Beach Plan and their members.  
18 However, that information, how much Beach Plan is  
19 paying for reinsurance is not available outside of  
20 Beach Plan and their members. I'm not sure if they  
21 share with their members, but the Beach Plan don't  
22 share with the public and the third party.

23 Q. Are you saying that they don't share with the  
24 public or they don't publish it?

25 A. They don't publish it.

1 Q. Do you know whether the Bureau can ask the  
2 Beach Plan for additional data that they don't  
3 publicize?

4 A. That I don't know. Again, I didn't ask that  
5 question because, as we discussed, if we have one  
6 company, one Beach Plan's premium, it doesn't give us a  
7 whole picture of the Bureau's net cost of reinsurance.

8 Q. Do you know whether the Beach Plan's  
9 reinsurance premium costs, the actual ones, are  
10 available on their website?

11 A. I am not aware.

12 Q. Have you ever looked?

13 A. I look at -- yes, I look at the Beach Plan  
14 very often. I look at their structure that is readily  
15 available.

16 Q. Have you ever looked specifically for the  
17 actual premium dollars they pay for reinsurance?

18 A. I tried. I didn't see it.

19 Q. Okay. Thank you. Why don't -- I'm going to  
20 move on now, ma'am, to -- this is in Book 3, Exhibit, I  
21 believe, 12, and I was going to be talking about ASOP  
22 38. And that is at page -- it starts at page 55.

23 MR. FRIEDMAN: Your Honor, if I could  
24 have a second to figure out where I did my notes, that  
25 would be very helpful.

1 Q. So, if you could turn to first 2.1, which is  
2 section -- subsection 2.1 on page 56.

3 A. Uh-huh.

4 Q. I will read it into the record. "Assumption:  
5 a type of explicit input to a catastrophe model that is  
6 derived from data, represents possibilities based on  
7 professional judgment, or may be prescribed by law or  
8 others. When derived from data, an assumption may be  
9 statistical, financial, economic, mathematical, or  
10 scientific in nature and may be described as a  
11 parameter."

12 That last phrase, "or may be prescribed by  
13 law," does that, to you, mean that an actuarial  
14 assumption in the context of a hurricane model, the  
15 very assumption may be something that is required by  
16 law?

17 A. Yeah. It says, "may be prescribed by law,"  
18 yes.

19 Q. Okay. So, if there were a statute -- this is  
20 a hypothetical, if there were a statute that said we --  
21 you are required to provide all of the data about the  
22 engineering model -- module, if there was that -- do  
23 you understand a hypothetical?

24 MR. SPIVEY: Objection.

25 Q. If there were a statute that -- I will finish

1 the question. I was just trying to make sure that  
2 first clause was understanding.

3 If there were a statute that said the  
4 Commissioner of Insurance requires that you reveal all  
5 assumptions, including the engineering module, would  
6 you have to provide that to that Commissioner in your  
7 run of the model under 38?

8 A. So you are -- can I restate your question?  
9 You're saying if Commissioner required me to disclose  
10 engineering model, do I have to disclose it?

11 Q. No. I will try to better state it.

12 If there was a statute that said the  
13 Commissioner requires that anybody relying on a modeled  
14 hurricane loss or -- reveal all of the assumptions,  
15 including all of the assumptions underlying the  
16 engineering module, would you be ethically obligated  
17 under ASOP 38, to submit that data?

18 A. I -- first off all, you know, ASOP 38 is  
19 applicable to users of the model, not developer of the  
20 model, and that set of assumption is more related to  
21 the developer of the models. So, yeah, in that case,  
22 in your hypothetical case, I would work with our  
23 counsel to clarify the requirement and to determine  
24 what to do in order to comply with law and the ASOP.

25 Q. Okay. And if the counsel agreed that, yes,

1 the law requires you, as the user of the model, who is  
2 presenting the testimony about the results of the  
3 model, to reveal all of the assumptions baked into the  
4 engineering module, would you have to reveal it under  
5 ASOP 38?

6 MR. SPIVEY: Objection. All  
7 Mr. Friedman has pointed us to is a definition of the  
8 word "assumption."

9 MR. FRIEDMAN: And, Your Honor --

10 MR. SPIVEY: And then he's posing a  
11 hypothetical --

12 MR. FRIEDMAN: I'm sorry.

13 MR. SPIVEY: -- about some law that  
14 might require the disclosure of assumption, as I'm  
15 understanding the question.

16 MR. FRIEDMAN: Yes, sir.

17 MR. SPIVEY: We are not even in ASOP 38  
18 anymore. We are under some hypothetical law. Am I  
19 understanding your question?

20 MR. FRIEDMAN: I am trying to probe  
21 where it says that assumptions may be prescribed by  
22 law, that's within the definition of an assumption, and  
23 if there were a law, such as a Court of Appeals'  
24 decision, that says it's necessary for us to see the  
25 details from, for example, the meteorological module,

1 would she have to provide that.

2 MR. SPIVEY: All right. In that  
3 explanation Mr. Friedman has now brought in an entirely  
4 different subject of whether a Court of Appeals'  
5 opinion may specify something that is certainly not in  
6 evidence here. Again, I don't know --

7 MR. FRIEDMAN: Can I respond to this,  
8 Your Honor?

9 MR. SPIVEY: -- how we can understand  
10 what your question is.

11 MR. FRIEDMAN: I think my question is  
12 really clear. I'm asking about she has acknowledged  
13 assumptions, meaning something that may be prescribed  
14 by law. And she has acknowledged that there -- she's  
15 guided by 38. And all I'm asking is that if there were  
16 a law that required her to reveal all bases for the  
17 assumptions for whatever module of a hurricane model,  
18 would she have to reveal it. Aside from  
19 any proprietary --

20 MS. FUNDERBURK: I am going to allow you  
21 to restate your question and present it to Ms. Mao, and  
22 I am going to ask that you do that in a non-compound  
23 question manner --

24 MR. FRIEDMAN: Okay.

25 MS. FUNDERBURK: -- to make the question

1 as clear to Ms. Mao as possible and as clear to counsel  
2 so that he may object, if necessary, as possible.

3 Please proceed.

4 Q. So, do you understand -- in the hypothetical  
5 I am about to ask you, do you understand that I am  
6 asking about a hypothetical law?

7 A. Yes, yes.

8 Q. And are you able to talk about a purely  
9 hypothetical legal requirement?

10 A. I am not a legal expert. I need to talk with  
11 my counsel.

12 MR. FRIEDMAN: If she needs a break --

13 MS. FUNDERBURK: Do you -- are you  
14 saying you need to talk to your counsel at this point,  
15 and we need to recess or to answer a hypothetical  
16 question you might consult counsel --

17 THE WITNESS: Yeah.

18 MS. FUNDERBURK: -- as the situation  
19 arose?

20 THE WITNESS: The latter. Yeah.

21 MS. FUNDERBURK: Okay. Are you  
22 comfortable proceeding?

23 MR. SPIVEY: Yes.

24 MS. FUNDERBURK: Thank you. Please  
25 proceed, Mr. Friedman.



1 Q. Okay. So -- I'm sorry, are you saying that  
2 you need to consult with counsel in order to figure out  
3 if you can answer a question about a hypothetical law?

4 A. What I mean is I need to consult my counsel  
5 in order to interpret, yeah, what that hypothetical law  
6 is.

7 Q. And by your counsel, you mean the Bureau's  
8 counsel?

9 A. Yeah, the Bureau's counsel.

10 MR. FRIEDMAN: Your Honor, I will save  
11 this question until -- as far as this actual -- as to  
12 the definition of assumption, the meaning of it, until  
13 after lunch. I assume, then, that's when she could  
14 consult with counsel so that I can ask these --

15 MS. FUNDERBURK: We will reserve that  
16 question. Please continue.

17 Q. Section 2.6 of the definitions, also on  
18 page 56.

19 A. Uh-huh. Yes.

20 Q. It reads, "Intended purpose: The goal or  
21 question, whether generalized or specific, addressed by  
22 the catastrophe model within the context of the  
23 assignment."

24 A. Uh-huh. Yeah.

25 Q. Are the intended purposes within that meaning

1 of your use of the AIR and RMS models, does the  
2 intended purpose include the calculation of the net  
3 cost of reinsurance?

4 A. Yes. Its intended purpose for this project  
5 include the hurricane loss cost, net cost of  
6 reinsurance and CAR.

7 Q. Thank you.

8 So, if you could turn to page 58. And I'm  
9 looking at, I guess, what is technically 3.2C, but it's  
10 on page 58. Do you see that at the top of this page?

11 A. Yes.

12 Q. I'm going to read it into -- well, I guess I  
13 actually -- ma'am, I am going to read the introduction  
14 on page 57 to 3.2, and then I was -- if it's acceptable  
15 to counsel, as far as completeness, just going to read  
16 C and not A, B on -- for 3.2.

17 MR. FRIEDMAN: And I have to ask her if  
18 she has read that and ask her about it, but yesterday I  
19 got objections for not reading it into the record  
20 myself.

21 MS. FUNDERBURK: Please read it into the  
22 record and proceed with your questioning.

23 Q. Okay. So, looking at page 57 --

24 A. Yes.

25 Q. -- where it says, "Catastrophe models

1 developed by experts."

2 A. Yes.

3 Q. "When selecting, using, reviewing, or  
4 evaluating a catastrophe model developed by experts,  
5 the actuary should take into account the following."  
6 And then moving to the next page, number C, "whether  
7 there are industry or regulatory standards that apply  
8 to the catastrophe model or to the testing or  
9 validation of the catastrophe model, and whether the  
10 catastrophe model has been certified as having met such  
11 standards."

12 A. Uh-huh.

13 Q. Okay.

14 A. Yes.

15 Q. Did you take into account whether there were  
16 North Carolina regulatory standards that applied to the  
17 catastrophe model?

18 A. So, are you talking about the ruling in 2014?

19 Q. I'm talking about any regulatory standards.

20 A. Yes.

21 Q. Okay. And did you -- when you wrote your  
22 report, did you know there were any?

23 A. I -- yeah. When I wrote write the report, I  
24 believe these two models met the regulatory standard  
25 and widely accepted by the industry.

1 Q. Okay. And since you read the 2014 Court of  
2 Appeals' decision, do you still believe that those  
3 models met the regulatory standards of North Carolina?

4 A. It depend on how you define regulatory  
5 standard. They are in the specific regulation in North  
6 Carolina in insurance code that -- or it's based on the  
7 specific case. In this case, I am not a lawyer, so I  
8 don't follow every court ruling, every rate hearing  
9 outcome. So, I usually follow the insurance  
10 regulation. So, if I don't see there is a specific  
11 regulation to prohibit certain models, then I consider  
12 we're meeting the regulation.

13 Q. Okay. So -- and that's how you go about  
14 using the models in whatever state you are working in?

15 A. Yes. In the state, yeah, we usually go with  
16 the statutory requirement first, then go with insurance  
17 regulations.

18 Q. Do you ever inquire in any state of whatever  
19 insurer you're representing, whether there are any case  
20 decisions defining what is -- what applies, what  
21 standards apply to the catastrophe models?

22 A. So, there is some -- there are cases, but  
23 it's -- I haven't seen any -- yeah, let me put that  
24 way. There are cases related to specific filing and  
25 that subsequently may not be a regulation, may not be

1 treated as a regulation.

2 Q. So, are you comfortable in speaking about  
3 what is a regulation?

4 A. The regulation is the -- so, in California  
5 it's called the Insurance Code of Regulation, and in  
6 Florida it is published by Florida OIR in different  
7 rules, rating rules, those are the regulation I am  
8 talking about. So, I usually don't go search those  
9 rate hearing decision to -- and then treat those as  
10 regulation.

11 Q. Okay. So, you wouldn't treat court decisions  
12 as regulatory standards?

13 A. My -- in my view is, if you consider the  
14 court decisions that do not allow hurricane Category 5  
15 in North Carolina, then that should be followed by  
16 modeling vendors. So, in their event catalog, they  
17 probably should exclude those events from their  
18 catalog, but it's not a user's job to keep track of  
19 every -- every case in the country and every ruling in  
20 order to make that decision because it's overly  
21 burdensome.

22 Q. So, before you complete a hurricane model for  
23 a client in another state, is it unduly burdensome or  
24 burdensome to ask the client or the client's attorneys  
25 whether there are any court decisions regarding what

1 you can and can't include in a catastrophe model?

2 A. When we complete this client work, our client  
3 will have specific -- specifically ask how they want to  
4 treat in different jurisdictions. And they are -- they  
5 keep track of those specific rules and ask us to make  
6 exceptions.

7 Q. Okay. So, but I'm not asking about what the  
8 clients tell you. I'm asking about what duty you have  
9 as an actuary, independent of what the clients tell you  
10 to do --

11 A. Uh-huh.

12 Q. -- to -- have you ever asked what -- are  
13 there any case decisions concerning what I can include  
14 in a catastrophe model or not?

15 A. In this case, North Carolina Rate Bureau  
16 asked us to include both AIR and the RMS. We are doing  
17 the work under Rate Bureau's discretion.

18 Q. In any other state where you've used a  
19 cat- -- a model, have you ever asked a client whether  
20 there are -- or been told by the client that there are  
21 court decisions that also limit what you can do with  
22 the model?

23 A. In other state we have a process to monitor  
24 what's modeled being approved and allowed to use by  
25 different jurisdictions, but we don't track the court

1 decisions for a specific rate filing.

2 Q. So, again, you've never asked whether there  
3 are any court decisions of your clients? Ask your  
4 clients whether there are any court decisions that will  
5 dictate what you do with your model?

6 A. That's not -- we don't -- we don't follow the  
7 court -- we don't keep track of the court decisions  
8 unless client ask us to do.

9 Q. What I am asking -- so -- but my question is,  
10 have you ever asked your client whether there are  
11 courtroom models -- whether there are court decisions  
12 that are relevant, not whether you keep track of them,  
13 but have you ever, personally, as an actuary, asked  
14 them?

15 A. Now, I have to think about.

16 Q. Take whatever time you need.

17 A. Uh-huh. I don't recall have those  
18 conversations.

19 Q. Have any clients ever told you that there is  
20 a court decision that will limit what you can do with  
21 your model?

22 A. I don't recall.

23 Q. Okay.

24 A. I don't recall any incidents recently.

25 Q. So, a little bit ago you talked about what

1 would happen if there were, I believe you said, a  
2 regulatory standard that prohibited modeled  
3 Category 5s. Is that what -- you had said either a  
4 regulatory standard or a case decision that said you  
5 couldn't use modeled Category 5s, so you kept them out  
6 of the model.

7 A. That is what I read from your witness  
8 testimony.

9 Q. Okay. But I'm asking -- okay. So, you read  
10 that in the witness testimony.

11 Did you read, in the 2014 Court of Appeals'  
12 opinion, that they affirmed the Commissioner's  
13 rejection of all modeled Category 5 storms?

14 MR. SPIVEY: Objection to the  
15 characterization.

16 Q. Did you read in the North Carolina Court of  
17 Appeals' decision anything about the Category 5 storms?

18 A. No.

19 Q. Okay. And do you know whether, in 2014, the  
20 Commissioner rejected the modeled results for any  
21 Category 5 storms?

22 A. I am aware, yes, a few weeks ago he rejected  
23 the Category 5.

24 Q. And did you become aware of that by looking  
25 at the Commissioner's order or looking at the Court of



1 Appeal s' deci si on?

2 A. By looking -- by reading your witness  
3 testimony.

4 Q. Okay. Has there ever been a Category 4 storm  
5 that first made landfall in North Carolina?

6 A. Yes. 1954, Hurricane Hazel.

7 Q. In terms -- what's the standard for landfall?  
8 Is it based on -- for HURDAT purposes, is it based on  
9 where the eye of the storm first makes landfall?

10 A. They use something called Rmax. It's one  
11 minute -- the maximum wind speed over the water, that  
12 is the definition of the wind speed. Yes, I believe  
13 the definition is based on the maximum wind speed.

14 Q. I guess I don't know enough about hurricanes,  
15 but does that mean that their definition, the maximum  
16 wind speed is in the eye?

17 A. So, I don't know if I can answer that  
18 questioning a scientific, sound way. So, I would  
19 rather stay with the definition of the hurricane  
20 maximum wind speed. How about we say that, since I'm  
21 not a meteorologist.

22 Q. Absolutely understand.

23 Do you know whether HURDAT's standard relies  
24 -- for landfall, relies on where the eye of the storm  
25 hits first? Do you know that or not? If you don't,

1 that's fine.

2 A. So, I -- conceptually, but not to the detail,  
3 like, is that to the eye or to some other definition.  
4 No, I don't have the exact definition of that handy.

5 Q. Is your general understanding of HURDAT  
6 standard for where a hurricane has hit, that it depends  
7 on where the eye first hit?

8 A. This is -- yeah, I think you are getting into  
9 a meteorology question.

10 Q. I understand you're getting into a  
11 meteorology qu- -- I am just asking what your general  
12 understanding of this standard for where landfall  
13 occurs according to HURDAT.

14 A. Yes.

15 Q. Okay. And does landfall, according to  
16 HURDAT, occur where the eye first hits?

17 A. I think the -- it's just that you are getting  
18 to the very technical definition of the -- of typically  
19 handled by a meteorologist, and you want me to cite  
20 exact definition. I don't think that's my  
21 responsibility.

22 Q. I'm not asking you to cite it. I'm asking  
23 what your personal understanding as an actuary is.  
24 Whether or you not you know the actual definition or I  
25 can point you to the language, what is your general

1 understanding of HURDAT's standard for where a  
2 hurricane makes landfall?

3 A. My general understanding -- understanding of  
4 the hurricane is landfall is, basically, by wind speed  
5 and the damaging wind speed, what is a maximum wind  
6 speed. That's my general understanding.

7 Q. So, you don't know if it has anything to do  
8 with where the eye hit?

9 A. I don't know if that is -- why is that  
10 important to you?

11 Q. I don't -- I am asking the questions, ma'am.

12 So, I am asking you whether you know if where  
13 the eye hit is relevant to HURDAT, or your general  
14 understanding, as an actuary who runs models and  
15 reports on the model's severity and/or landfall,  
16 because you do report on where your modeled hurricanes  
17 have landfall, correct?

18 A. Correct. And I think the -- when we discard  
19 every other aspect, only talking about eye, hurricane  
20 eye, is not a good discussion because, you know,  
21 hurricane is not a symmetric system. And on different  
22 side of hurricane on the left side and right side, it  
23 has totally different damageability. So, when you hit,  
24 it's not -- when the hurricane hits, it's not really  
25 only the where the eye hit matters. It also depend on

1 where is your mostly exposure on the right side of the  
2 system because that's the most damaging part of the  
3 hurricane.

4 Q. Okay. I understand that you might disagree  
5 with the standard of HURDAT that says --

6 A. I don't disagree with the standard, and I go  
7 with what modeling vendors' expert's interpretation of  
8 the HURDAT and the developer event catalog.

9 Q. Okay. I understand. But what I am asking  
10 you is, are you aware of whether the HURDAT definition  
11 of where a hurricane makes landfall, an actual  
12 hurricane, depends on where the eye of the hurricane  
13 is?

14 MR. SPIVEY: Objection. Asked and  
15 answered. Multiple times.

16 MS. FUNDERBURK: Sustained.

17 MR. FRIEDMAN: Your Honor, I say it  
18 hasn't been answered at all. All I've gotten in  
19 response is, well, she literally said, why are you  
20 asking me that. I don't think that's relevant.

21 So, I mean, at this point, I haven't  
22 heard -- she's indicated she has some understanding of  
23 what HURDAT's standard is, but she has said why are you  
24 asking me that, that's not relevant. There is a bigger  
25 consideration about where a hurricane hits. But I'm

1 still just trying to figure out if she will acknowledge  
2 that HURDAT standard depends on where the eye hits.

3 MS. FUNDERBURK: Ms. Mao, I have also  
4 heard you reference that's a meteorological issue or  
5 term as part of your answer; is that correct? What I'd  
6 like to know is, is the question that's being asked by  
7 Mr. Friedman something that you consider to be outside  
8 of your area of expertise? I'll need you to answer  
9 verbally, ma'am.

10 THE WITNESS: And I also think it's an  
11 unfair question because a hurricane, you know, is not  
12 just a landfall, hurricanes there are also by passing  
13 hurricanes. And so, when you just pick on one specific  
14 definition, ask me whether or not I know that  
15 definition, I don't think -- I don't feel comfortable  
16 answering your question.

17 Q. Okay. I'll make it simpler. Have you ever  
18 read the HURDAT definition of "landfall" for a  
19 hurricane?

20 A. I don't remember that -- I don't remember the  
21 definition, but I am part of the Florida submission for  
22 impact forecasting and our scientists use the HURDAT  
23 information.

24 Q. So, I'm not asking whether you remember it.  
25 I'm asking if you ever read it.

1 A. I may have read it, but I don't remember.

2 Q. Okay. Do you remember whether it had any  
3 language with regard to landfall that had to do with  
4 where the eye made landfall first?

5 A. I read the definition. My goal with landfall  
6 is mainly the wind speed that damaging -- cause  
7 damaging, that is what I care about landfall, not where  
8 the eye is.

9 MR. FRIEDMAN: Your Honor, at this  
10 point, I am going to ask if the Court could direct her  
11 to answer the question of whether -- she said she's  
12 read it. Whether -- what she -- if she recalls,  
13 whether she recalls anything in there about the eye of  
14 the storm and where it makes landfall because she's  
15 done it every single thing for 20 minutes to say that  
16 she doesn't think it's relevant, that she doesn't think  
17 the industry looks at where the eye falls, that the  
18 models may not. But I'm just simply asking whether or  
19 not she recalls anything from whenever she read the  
20 HURDAT definition that had to do with the eye of the  
21 storm as relates to landfall. It's just a do you  
22 remember or not.

23 MR. SPIVEY: And --

24 MS. FUNDERBURK: Go ahead.

25 MR. SPIVEY: Your Honor, I thought she

1 answered the question that she didn't remember. Maybe  
2 I missed --

3 MR. FRIEDMAN: She answered the question  
4 that she may have read the definition of HURDAT, the  
5 HURDAT definition of landfall. She has not answered  
6 whether she remembers, when she read that, any mention  
7 of the eye of the storm.

8 A. Yes, I don't remember because that's not my  
9 focus. My focus is wind speed because wind speed and  
10 the damageability are correlated.

11 Q. Okay. So, you don't remember?

12 A. Yeah, I don't remember.

13 Q. And where did the eye of the storm for  
14 Hurricane Hazel in 1954 hit first?

15 A. I don't know that answer.

16 Q. Okay. So, going back to -- let's see. Could  
17 you turn -- we are still on page 58, subsection 3.3.2.

18 MR. SPIVEY: I'm sorry?

19 MR. FRIEDMAN: 3.3.2 --

20 MR. SPIVEY: Okay. Thank you.

21 Q. -- on page 58.

22 A. Okay.

23 Q. So, I will just -- it's a long one, but I  
24 will read it all in for clarity's sake.

25 "The actuary should take reasonable steps to

1 confirm that the precision and accuracy of the user  
2 input are consistent with the intended purpose, and it  
3 should refer as applicable to ASOP number 23, data  
4 quality. When selecting, using, or evaluating data  
5 using a catastrophe model, certain user input may be  
6 required to produce catastrophe model output for the  
7 specific application. User input can include  
8 assumptions or data. If the catastrophe model requires  
9 user input, the actuary should evaluate the  
10 reasonableness of the user input and should have an  
11 understanding of the relationship between the user  
12 input and catastrophe model output."

13 My first question is, what user -- and did  
14 you -- did you input or did Aon input user data -- or  
15 input data into the AIR and RMS models?

16 A. Aon receives the exposure data from ISO, and  
17 from there -- the ISO data includes year built, policy  
18 forms, territory, construction, and the total insured  
19 value. Then, from there, Aon used some of the  
20 assumptions that agreed by NCRB, and we make some  
21 assumptions to the data including the deductible limit  
22 by coverage, and run these assumptions and the control  
23 totals by ISO and the NCRB before input into the model.

24 Q. So, Aon does, itself, input data into the  
25 model?



1 A. What do you mean "itself"?

2 Q. When you were running a model, and you  
3 received this information, whether from ISO --

4 A. Yeah, uh-huh.

5 Q. -- or from the Bureau itself --

6 A. Yes.

7 Q. -- part of your modeling process is to input  
8 that data?

9 A. Yes.

10 Q. Okay. And what data do you input that you  
11 receive either from ISO -- or did you input that you  
12 received either from ISO or the Bureau for running the  
13 RMS models and the AIR models in this filing?

14 A. That is the aggregated level exposure data  
15 from NCRB -- for NCRB's members.

16 Q. Was it only the exposure data, or are there  
17 other types of data that you input?

18 A. As I said, we received the aggregated data  
19 that has a total insured value for the primary coverage  
20 and also the territory-level construction, year built.  
21 In order to run the model, additional data assumptions  
22 need to be made, and as those assumptions were  
23 developed by working with the NCRB, and those  
24 assumptions were signed off by NCRB.

25 Q. Okay. So, as far as -- let's use, for

1 example, the territory level -- I believe -- did you  
2 say territory-level construction?

3 A. Yes.

4 Q. Okay. So, you received that data from the  
5 Bureau or from ISO?

6 A. From ISO.

7 Q. Do you know whether ISO's territory-level  
8 data was based on, specifically, North Carolina?

9 A. I believe so.

10 Q. Do you know for a fact?

11 A. Because when we look at the data, all the  
12 territories are within North Carolina.

13 Q. Okay.

14 A. And we didn't see any other states'  
15 information.

16 Q. Okay. So you're assuming that because it  
17 says this is data about the types of construction in  
18 North Carolina, that it necessarily is?

19 A. So, we also conduct some control total  
20 comparison. And every time before we run the data, we  
21 calculate the control total and not only -- before  
22 sharing with the ISO for signing off, we also compare  
23 with the last year, the past years, last round of the  
24 exposure. We want to see if those changes are any  
25 significant changes and that we will verify with ISO if

1 those changes are reasonable or not.

2 Q. So, I'm only using this as one example, the  
3 territory-level types of building construction.

4 A. Uh-huh.

5 Q. I think that deals with the damageability?

6 A. Correct.

7 Q. From what you just said, in this case, did  
8 you receive some data from ISO about the damageability  
9 in North Carolina?

10 A. No. We don't receive damageability.  
11 Damageability is in the model. We receive the  
12 construction information of the exposure.

13 Q. Okay. So, did you receive some construction  
14 information -- well, first of all, by "construction,"  
15 do you mean the type of construction of a house?

16 A. Yes. Like a wood frame, masonry, veneer,  
17 these type construction that typically distinguished in  
18 the model.

19 Q. And you received some data from ISO that  
20 dealt with or that said it dealt with the construction  
21 of homes typically within North Carolina?

22 A. Correct.

23 Q. Did you -- then you said that sometimes for  
24 some data you may receive, from ISO or the Bureau, you  
25 do -- you add additional data?

1           A.     That is -- it is in order for those to run,  
2     in order for the data to run, for example, we only  
3     received the earned house year that the policy count,  
4     and earned amount of insurance that is only the primary  
5     coverage amount. And in order for model to reflect the  
6     full cost, we need to make assumptions for the contents  
7     time element. So, we work with Bureau to develop those  
8     assumptions and develop those additional fields that  
9     required by model.

10          Q.     Okay. So, there are things, in addition for  
11     -- that the ISO data, that are input based on this  
12     collaborative process between the Bureau and you about  
13     those additional assumptions?

14          A.     That's correct because ISO data is aggregate  
15     data with only few fields.

16          Q.     Uh-huh.

17          A.     Yeah.

18          Q.     The -- using the construction again as an  
19     example, did you work, in this case, with the Bureau on  
20     those additional assumptions you would put into the  
21     model with regard to construction in North Carolina?

22          A.     So, our process because the construction is  
23     all coded in the data, and we didn't change the  
24     construction coding, and we take whatever from the  
25     actual data call and we use the construction as is in

1 modeling process.

2 Q. So, by from the data call, do you mean what  
3 ISO gave you from the data call?

4 A. Correct. Construction is one of the fields  
5 in the data from ISO.

6 Q. Okay. So, in this case, these -- beyond the  
7 ISO data, these additional assumptions, what ones did  
8 you work on with the Bureau?

9 A. All those assumptions were -- work out from  
10 previous filing, and we shared these assumptions with  
11 the Bureau and with ISO, and there is no -- no change  
12 for those assumptions in this filing.

13 Q. Okay. So, what types of -- what were the --  
14 all of the assumptions that you took from prior  
15 filings?

16 A. It is in one -- in the first discovery  
17 request, we included a deck that shows the full  
18 assumptions of the data.

19 Q. And that shows the types of assumptions that  
20 you incorporated from prior filings?

21 A. Yes. That is a type of assumptions, for  
22 example, for homeowner H03, what assumption you made  
23 for contents, what assumption for additional living  
24 expense, for a pertinent structure, and also, for  
25 example, for different AIR, RMS models, they have the

1 limit and the value for additional living expense.  
2 They treat -- one model treat as a daily amount and  
3 another model treat as a yearly amount. So, we clearly  
4 outline how we are going to model the value for each  
5 model. So, it's all disclosed in that assumption  
6 document.

7 Q. Okay. Thank you. I, myself, couldn't  
8 understand that from that, but I read it, and I  
9 appreciate you clarifying that for me.

10 When you take that, those assumptions from  
11 prior Rate Bureau filings, do you -- are you giving  
12 more weight to more recent Rate Bureau filings or all  
13 of them in 20 years, what filings do you take it from?

14 A. I don't understand why we need to get the  
15 weight because those are standard policy for -- for the  
16 contents, what is contents coverage for a standard  
17 homeowner policy. That hasn't really changed. So, the  
18 same assumption has been used, and there is no 20-year  
19 weighting for that process. The assumption is the  
20 assumption.

21 Q. So maybe weighting -- I've misused that term.  
22 How far back in the Rate Bureau filings do  
23 you go in order to arrive at what that assumption is?

24 A. We do rate filing for Bureau for -- I believe  
25 this is the third rate filing we did for the Bureau,

1 and the same assumptions has been used for those  
2 filings.

3 Q. Okay. And that doesn't -- you weren't doing  
4 that for the 2014?

5 A. We didn't do the 2014.

6 Q. Okay. Did you -- you were relying entirely  
7 on what assumptions the Bureau made in its requested or  
8 recommended rate; is that fair?

9 A. Actually, those assumptions, we feel those  
10 are very reasonable assumptions. As I mentioned to  
11 you, Aon model 50, 60 percent of the U.S. industry,  
12 property industry data, and those assumptions are very  
13 consistent with what we see with other clients.

14 Q. Okay. So, my question is, though, whether  
15 those assumptions that may be consistent with other  
16 clients but that you used from those prior filings that  
17 Aon has worked on --

18 A. Uh-huh.

19 Q. -- whether you were looking at the  
20 assumptions according to the rate originally requested  
21 by the Bureau?

22 A. So, what do you mean whether I look at that  
23 request by Bureau?

24 Q. Okay. Basically this, were you looking at  
25 the assumptions for what the Bureau asked for in terms

1 of rate? Or were you looking at what, say, through a  
2 settlement the Bureau actually got?

3 A. We look at mainly on the -- our understanding  
4 of industry coverage based on the policy condition of  
5 the industry, based on what we see with the insurance  
6 company from other insurance companies' data.

7 Q. So, are you using the assumptions for the --  
8 what was actually in the filing by the Rate Bureau, or  
9 were you using assumptions based on what generally is  
10 done in the industry, what assumptions are generally in  
11 the industry?

12 A. Those assumptions were agreed upon by our  
13 discussion with Bureau.

14 Q. Okay.

15 A. Yeah.

16 Q. So, you're basing your assumptions on what  
17 the Bureau said were the assumptions?

18 A. So, I have to clarify. I started working on  
19 this Bureau filing probably in 2021, and there have  
20 been filings Aon done before my time. So, those  
21 assumptions were previously discussed with Bureau, and  
22 every time we will share with the Bureau that these are  
23 going to be the assumption to be made for those data,  
24 and we ask Bureau to sign off for those assumptions.

25 Q. Okay. So, is it that you produce the



1 assumptions you're going to use and input into the  
2 model to the Bureau and get their sign off?

3 A. My team use, yeah, used a set of assumptions  
4 to get their signoff, then we apply to the data.

5 Q. And is that set of assumptions based on  
6 national industry trends or national industry  
7 assumptions or based on the ones that were actually in  
8 the North Carolina Bureau's past filings?

9 A. So, again, those assumptions are discussed  
10 with the Bureau and the Bureau agreed on those  
11 assumptions. And in term of how, initially, we come up  
12 with those assumptions, that's before my time, and I  
13 don't have that answer for that.

14 Q. Okay. This time around did you --

15 A. This time around we use the same assumptions  
16 as from the last filing, that we used in last filing,  
17 and there is no change for those assumptions.

18 Q. Over -- so, you said Aon worked on the past  
19 three filings. Has the average deductible -- the  
20 assumption as to the average deductible remained the  
21 same over those three filings?

22 A. I -- for -- for this, I believe so. We  
23 didn't change the average deductible.

24 Q. Okay. Has the attachment point, for the  
25 purposes of modeling the net cost of reinsurance,

1 stayed the same for those three filings?

2 A. No. Because in our program we look at the  
3 average attachment, the medium attachment point of  
4 the -- of data -- different data points. And as  
5 exposure change, and as you point out in earlier, that  
6 insurers tend to increase their retention, and they buy  
7 more on top because the reinsurance increase, price  
8 increase. So, our structure actually reflect what  
9 companies are actually buying for their program. So,  
10 we will -- we have different program. We have  
11 different structure with each analysis.

12 Q. I don't think I actually had discussed the  
13 fact that insurance companies go along changing their  
14 attachment points or developing them or enlarging them.  
15 But, in any case, so when you say that you do an  
16 assumption for the attachment point, for the purpose of  
17 net cost of reinsurance, is that assumption based on  
18 North Carolina attachment points for North Carolina  
19 homeowners' insurers or is it based on the national?

20 A. It's based on all insurance companies that  
21 Aon placed reinsurance for based on the nationals and  
22 the regionals company, how much they buy reinsurance.

23 Q. And when you say regional, do you mean within  
24 North Carolina or not?

25 A. Regional, what I mean is southeast region,

1 but we exclude those Florida only carriers. So, we  
2 notice majority of the companies doing business in  
3 North Carolina are those national carriers and plus  
4 those regional carriers.

5 Q. Is it your understanding that the net cost of  
6 reinsurance is relative to the other percentages of the  
7 rate increase request the biggest one?

8 A. Yeah, I didn't work on the indication for  
9 these filing. I didn't -- I'm not the one who put  
10 together the rate filing. So, I was responsible for  
11 catastrophe modeling, hurricane provision, and the net  
12 cost of reinsurance. So, I didn't directly compare.

13 Q. So, you've never seen what percentage of the  
14 overall rate dollar is represented by the net cost of  
15 reinsurance that you calculated?

16 A. As -- I think yesterday we discuss that  
17 31 percent of the overall premium.

18 Q. Is it fair -- is attributable to the net; is  
19 that correct or --

20 A. Yeah.

21 Q. -- to hurricanes, generally?

22 A. It's the net cost of reinsurance.

23 Q. So, you said that your assumptions are based  
24 on what Aon's clients pay for reinsurance in the  
25 region; is that correct?

1 A. What Aon's clients pay for for reinsurance --  
2 for reinsurance -- for their program.

3 Q. Right. In the region?

4 A. For their program, for their whole program.

5 Q. Oh, for the national?

6 A. Yes.

7 Q. Okay. But do you make adjustments for the  
8 region then or?

9 A. Yeah. So, by reflecting -- by running the  
10 composite North Carolina company, we -- we only reflect  
11 the costs for North Carolina. This is the process.

12 Q. Could you tell me roughly what percentage of  
13 the 110 North Carolina homeowners' carriers Aon  
14 represents?

15 A. I don't have -- sorry. I don't have that  
16 number.

17 Q. In your experience, does Aon represent the  
18 majority of the homeowners' carriers in North Carolina  
19 with regard to their purchase of reinsurance?

20 A. As I discussed earlier, Aon work with seven  
21 out of the top ten homeowner carriers in the country,  
22 and we represent significant market share in every part  
23 of the country.

24 Q. Does that mean that you know that Aon  
25 represents seven out of the ten top homeowners' writers

1 in North Carolina with regard to their purchase prices  
2 of -- or their policy prices for reinsurance?

3 A. That, I don't have that number readily  
4 available. I can double-check that.

5 Q. Okay. Is it your understanding that y'all  
6 represent, out of the top ten, the majority of them,  
7 whether seven or not?

8 A. What do you mean? What is your question?

9 Q. Five or more. Is it your understanding that  
10 Aon represents five or more of the top ten in North  
11 Carolina?

12 A. That I don't -- I already told you I don't  
13 know. I don't recall the top ten in North Carolina, so  
14 I can't answer that question right now.

15 Q. Okay. And out of the other 100 homeowners'  
16 carriers in North Carolina, any idea about how many of  
17 them Aon represents with regard to purchasing  
18 reinsurance?

19 A. I don't have that number readily available.

20 Q. Okay. Any impression of whether you  
21 represent a lot of homeowners' carriers who are not in  
22 the top ten with regard to their purchase of  
23 reinsurance in North Carolina?

24 A. I don't have that number.

25 Q. So, you don't know whether it's a lot or a

1 few?

2 A. I don't have that information right now.

3 Q. Okay. Tell me about -- how did you arrive at  
4 the assumption as far as the exhaustion point for  
5 reinsurance coverage in North Carolina for the period  
6 in this filing?

7 A. So in my direct testimony, I discussed we use  
8 Aon's pricing curve, and we look at those companies,  
9 that national and the southeast regional, and the  
10 medium exhaustion point it is -- it's how we determine  
11 the exhaustion point for North Carolina Rate Bureau.

12 Q. Okay. So, again, you're looking at some  
13 percentage of the -- or you're looking at, in the  
14 southeast region, what all of Aon's clients are paying  
15 for net -- what all of Aon's clients have as their  
16 exhaustion point or whether you're looking at just some  
17 of Aon's clients in the southeast region as far as what  
18 their average exhaustion point is?

19 A. We look at all national carrier and all  
20 southeast carrier that's not Florida only. So, those  
21 are the company, we look at their exhaustion point. I  
22 also want to clarify the exhaustion point here means  
23 return period. It's not a dollar. So, we use a return  
24 period to -- as a lookup when we run the NCRB exposure,  
25 we will generate an event-loss curve, then we look up

1 that return period from that curve to determine the  
2 dollar amount of the exhaustion point.

3 Q. So, the -- does the average exhaustion point  
4 that you determine affect your calculation of the net  
5 cost of reinsurance?

6 A. Yes. Because the exhaustion point and the --  
7 you're attaching an exhaustion point will determine the  
8 reinsurance premium and the expected loss that will  
9 impact your net cost of reinsurance.

10 Q. So, when -- you said -- are you -- you're  
11 looking at all of Aon's clients in the southeast  
12 region, what their average exhaustion point is and not  
13 just some portion of the top ten writers in the region?

14 A. That's correct.

15 Q. Okay. But those are, again, only Aon's  
16 clients, not --

17 A. Correct.

18 Q. And who else, what's another big player in  
19 the broker for reinsurance business?

20 A. There is a top three brokers are an Aon, Guy  
21 Carpenter, and Gallagher Re.

22 Q. In the southeast region, who is the biggest?  
23 Who has the most clients?

24 A. I don't have the answer. It's also depend on  
25 what do you mean by "biggest"? Is that a number of

1 companies or the total premium? So, if you look at the  
2 total premium, I would say Aon probably the largest  
3 because we have the largest insurance companies as  
4 clients.

5 Q. So, actually, ma'am, I'm asking about the  
6 number of clients in the southeast region?

7 A. No, I don't have the number.

8 Q. Okay. Let's go back to -- what about the --  
9 did you make assumptions in the model for the average  
10 reinstatement premium?

11 A. Uh-huh, yes.

12 Q. Okay. Does the reinstatement premium affect  
13 your modeled net cost of reinsurance?

14 A. Yes, we assume one reinstatement premium in  
15 our calculation that is most common term in the  
16 catastrophe reinsurance treaty.

17 Q. Okay. And as far as your assumed average  
18 reinstatement premium, was that also based on just --  
19 was it based on all of Aon's clients in the southeast  
20 region?

21 A. Yes. It's also based on our real data from  
22 Aon's clients in southeast region and countrywide.

23 Q. Okay. For the southeast region, do some of  
24 Aon's clients not even write in North Carolina?

25 A. I'm not -- I'm not sure what you are talking



1 about.

2 Q. Okay. So, you used an average reinstatement  
3 premi um?

4 A. Ri ght.

5 Q. Based on Aon's clients nationally and in the  
6 southeast regi on?

7 A. Yes.

8 Q. Out of -- let's start with the national .

9 A. Uh-huh.

10 Q. Out of Aon's clients nationally that have --  
11 that you average their reinstatement premi ums --

12 A. Uh-huh.

13 Q. -- are some of them not writing homeowners'  
14 in North Carolina at all?

15 A. I am not aware of that. I didn't -- I don't  
16 think so.

17 Q. Do you think all of them are writing -- of  
18 Aon's clients --

19 A. Those nationals, I believe, they are writing  
20 North Carolina. So, I am not aware of anyone exclude  
21 North Carolina exposure.

22 Q. Okay. For all of your assumptions that you  
23 used in the models or you input into the models, how  
24 many Aon clients' data did you use?

25 A. I believe I already told you I don't have

1 that number. I can look up for that number.

2 Q. Okay. Would you say it's more than ten or  
3 more than 20?

4 A. More than ten for sure. And yeah, I saw that  
5 number at once, but I don't remember -- let me, if you  
6 want that number, give me some time. I look that for  
7 you.

8 Q. I'm fine, but if, you know, on your redirect,  
9 the Bureau wants to bring that out, I'm sure they will.

10 A. Uh-huh. Yeah. Again, I was trying to say,  
11 when you determine how much clients, how many clients,  
12 it's -- premium is probably a better measure because  
13 you can have some large clients that have significant  
14 market share. So, you could have ten clients, but if  
15 they account for over 50 percent of the market share,  
16 it's really -- it's a significant market share even  
17 though it's only ten data points.

18 Q. Well, out of those clients whose average  
19 exhaustion point, for example, Aon averaged --

20 A. Uh-huh.

21 Q. -- do you know what percentage of the North  
22 Carolina market they have?

23 A. That is -- yeah, that information I need to  
24 do some additional calculation to derive, but I don't  
25 have that information readily available now.

1 Q. Did you determine that information before you  
2 input the data into the models for this filing?

3 A. So, we don't do that calculation before we --  
4 we don't do that specific calculation on market share  
5 before we do this analysis.

6 Q. So, is it fair to say that when you do the  
7 analysis, you're assuming that Aon's clients, as an  
8 example, their exhaustion -- their reinstatement  
9 premiums are representative of the reinstatement  
10 premiums for whatever members of the Bureau aren't Aon  
11 clients?

12 A. We are assuming Aon has significant market  
13 share in every part of the country, and for that  
14 reason, it bring credible analysis for Bureau to  
15 determine the reinsurance structure for North Carolina  
16 composite, aggregate company.

17 Q. So, are you making a distinction between  
18 representative as opposed to reasonable? I will  
19 rephrase.

20 Do you -- when Aon inputs its assumptions  
21 about the net cost of reinsurance, which is around  
22 33 percent of the premium dollar requested in the  
23 filing, does it -- whatever -- from whatever insurers  
24 it gets, as an example, the reinstatement premium, does  
25 it assume that whatever those other Aon clients are

1 paying in its reinstatement premium is representative  
2 of what the average Bureau member is paying?

3 A. The foundation for these analysis is we need  
4 some -- for the composite aggregate information from  
5 largest, one of the largest broker, so data is credible  
6 and representative of the North Carolina market.

7 Q. Okay. So you assume that the re- -- the  
8 reinstatement premium, for example, of Aon's clients is  
9 actuarially reasonable to use for all of the other  
10 re- -- all of the other homeowners' writers in North  
11 Carolina?

12 A. Yes. I believe so because the reinstatement  
13 premium is calculated based on the deposit premium,  
14 based on the actual premium. So, both are real  
15 information that we use that based on the actual  
16 reinsurance purchasing in the market.

17 Q. By Aon's clients?

18 A. By Aon's client, yes.

19 Q. Right.

20 And you don't receive any numbers of the  
21 actual purchasing price for reinsurance premiums from  
22 anybody besides Aon's clients?

23 A. We don't receive those information.

24 Q. And you don't know what percentage of the  
25 North Carolina homeowners' writers are Aon clients?

1           A.     Again, I said what percentage really means is  
2     that the premium percentage, or the count of the policy  
3     percentage, and for either one you want, we can  
4     probably calculate that information later.

5           Q.     But you didn't calculate it when you ran --  
6     when you did your work with the models to determine the  
7     modeled cost -- net cost of reinsurance?

8           A.     We didn't calculate that specific number as  
9     part of this analysis.

10          Q.     And you didn't consider, then, anything,  
11     like, for example, the attachment points that the rest  
12     of the insurers that aren't Aon's clients in North  
13     Carolina were paying, or what their attachment points  
14     were?

15          A.     Yeah. We have no way to obtain that  
16     information because that's other brokers' trade secret  
17     information.

18          Q.     Couldn't the Bureau, in its data call, ask  
19     for that information?

20                   MR. SPIVEY:  Objection.  Assumes facts  
21     not even in evidence here.

22          Q.     So, have you seen the Bureau's data calls?

23          A.     No. I haven't, personally, seen the Bureau's  
24     data call.

25          Q.     Okay. Do you ever see the -- you only see

1 the results from the data call?

2 A. Correct.

3 Q. Okay.

4 A. I only see the aggregate result out of that  
5 data call.

6 Q. Okay. Putting aside any proprietary  
7 information of carriers or proprietary concerns about  
8 carriers -- the particulars of what carriers are paying  
9 for the net cost for reinsurance, and by "particulars"  
10 I'm meaning everything from the attachment point to the  
11 exhaustion point, if that weren't confidential or the  
12 brokers or the companies didn't insist it be  
13 confidential, would it be helpful for the  
14 Commissioner's actuaries to see?

15 A. It is my opinion that the information may not  
16 be that helpful.

17 Q. Why not?

18 A. That's because insurance companies, they  
19 place reinsurance for their countrywide exposure, and  
20 then they allocate the cost and their ceded loss to  
21 North Carolina, and they have different methodologies  
22 to allocate their loss. And the different companies  
23 also have different risk appetite, like you said,  
24 they buy different attaching exhaustion point, and they  
25 have the underlying exposure peril difference. And

1 some are -- in the Midwest, some are hurricane, some  
2 have the earthquake. So, the allocation is also very  
3 complex. And so, in the end, the result, you're  
4 talking about North Carolina-only result, is a result  
5 of allocation of many different companies represent  
6 different view, different risk appetite, and at that  
7 level it is very difficult to develop an aggregate  
8 view.

9 Q. Okay. I understand that there are lots of  
10 things that brokers or companies do in order to  
11 allocate. Is that, basically, what you are saying?

12 A. Correct.

13 Q. Okay. So, not talking with regard to that,  
14 but just talking to the actual numbers --

15 A. Uh-huh.

16 Q. -- that non-Aon clients that do business  
17 here, their actual numbers for what they allocate in  
18 terms of the net cost of -- what for their actual  
19 premiums to North Carolina, you don't think those raw  
20 numbers would be helpful for the Commissioner of  
21 Insurance's actuaries?

22 MR. SPIVEY: Objection. Again, assumes  
23 facts not in evidence.

24 MR. FRIEDMAN: Which ones are those?

25 MR. SPIVEY: Any actual allocation.

1 You're referring to actual allocations. There is no  
2 evidence that companies actually allocate that in the  
3 manner you're describing.

4 MR. FRIEDMAN: Okay.

5 Q. Are you aware of whether non-Aon clients do  
6 allocate the -- their premium costs for net -- for  
7 reinsurance to North Carolina?

8 A. Not only non-Aon client, Aon client also do  
9 allocation for their net cost of reinsurance, but for  
10 the reason I just described, because each company buy a  
11 different reinsurance structure, and some companies use  
12 AIR model to allocate, some companies use RMS, some  
13 companies use both model, depending on which model they  
14 use for rate filing. So, because all those variations,  
15 when you look at many different companies' allocation,  
16 you are getting apple-to-orange comparison because  
17 there is really no exact North Carolina-only premium.  
18 It's all the result of allocation by different  
19 companies' selected methodology.

20 Q. So, putting aside the methods of allocation,  
21 it's your opinion that it wouldn't have been helpful  
22 for the Commissioner's actuaries, in order to evaluate  
23 your calculation of the net cost of insurance, for them  
24 to have seen the -- without regard to the parts of the  
25 allocation or the methods, to have actually seen what



1 the numbers allocated by all the non-Aon clients in  
2 North Carolina that are writing homeowners', what there  
3 allocation numbers were?

4 A. If you ask my opinion, my opinion is Aon's  
5 methodology is better, but different actuaries may have  
6 different opinions.

7 Q. And by "Aon's methodology," you mean?

8 A. Our composite one company aggregate based on  
9 the actual reinsurance purchasing.

10 MR. FRIEDMAN: Your Honor, I've got two  
11 more questions, and I think we can -- I'll wrap it up.

12 A. Okay.

13 Q. You testified you've done a lot of work with  
14 the Florida Commission; is that --

15 A. Correct, yes.

16 Q. And that at the time you did this filing,  
17 Aon's model for hurricanes -- and does that include  
18 Aon's model for reinsurance?

19 A. Aon's model is not used by any reinsurers in  
20 their pricing. And Aon's model is our additional tool  
21 to help Aon's client understand their catastrophe  
22 risks. So, since Aon's model is not used by  
23 reinsurance industry to price reinsurance, we -- yeah,  
24 it's not considered in this process.

25 Q. Okay. So, I'm not asking you whether the

1 reinsurers use Aon's model. I'm asking whether Aon, in  
2 discussing with its clients what they should pay or  
3 what, ideally, they should pay for reinsurance, uses  
4 Aon's model to calculate?

5 A. No. We don't do that because how much they  
6 should pay is based on AIR and the RMS model, and  
7 that's the model reinsurers are using and that's the  
8 model we use as well.

9 Q. Do you ever use Aon's model for your own  
10 clients as far as reinsurance?

11 A. We use Aon's model to provide additional  
12 views in their reinsurance information package, but the  
13 decision-making are based on AIR and the RMS model.  
14 Aon's model provide additional views.

15 Q. Okay. And the reinsurance function or the  
16 net function of Aon's model is based on Florida?  
17 Florida data?

18 A. I want to clarify. Aon's model has hurricane  
19 model, but for countrywide, however, the countrywide  
20 component was outdated at the time, and we are in the  
21 process to develop the countrywide model. It's just  
22 been completed earlier 2024. So, at the time, the  
23 only -- only the Florida model -- only Aon's Florida  
24 model has met all those rigorous standard, and we are  
25 comfortable using that if client want to use that for

1 Florida refiling, but we don't widely use that for  
2 other client.

3 Q. Did you use it for Aon clients outside of  
4 Florida?

5 A. What? What's your --

6 Q. Do you use Aon's reinsurance function and its  
7 model for any clients outside of Florida?

8 A. We may provide results to show clients that  
9 information.

10 Q. Okay. Do you know what the typical  
11 exhaustion point for reinsurance -- homeowners'  
12 reinsurance in Florida -- in the Florida market is?

13 A. Florida market is a very unique market  
14 because it has a lot of the Demotech-rated companies  
15 that they buy up to 130-year PML to gather rating and  
16 that those companies are -- have -- they -- so, they --  
17 those companies are not able to be rated by AM Best.

18 Q. So, my question is do you have any idea of  
19 what the average exhaustion point is that is typical  
20 for the Florida homeowners' market?

21 A. I don't have the average number, but I can  
22 look at the curve. However, for Florida, there is  
23 different companies. Those Florida take-out type  
24 companies, they typically buy up to 130-year PML, and  
25 for national companies they have a different risk

1 appetite, and they may buy 250-year PML. So, it  
2 varies.

3 Q. So, when you were cross-testing -- I forgot,  
4 there is another word you used, when you were comparing  
5 Aon's model to the -- Aon's model to the AIR and RMS  
6 models with regard to reinsurance, did you look at what  
7 the average exhaustion point in Florida was?

8 A. Because no one use Aon's model to place  
9 reinsurance, then I am not able to get the exhaustion  
10 and the attachment point.

11 Q. Okay. So, not even people in Florida use it  
12 to purchase reinsurance?

13 A. No. They don't use Aon's model for  
14 reinsurance, and some companies use Aon's model for  
15 Florida rate filing.

16 Q. Okay. But not the reinsurance function of  
17 the model?

18 A. No. The reinsurance functions of model, as I  
19 mentioned, it's based on AIR and the RMS model.

20 Q. Okay. Do you know whether Florida's  
21 Department of Insurance has a requirement as far as  
22 what the average exhaustion point must be?

23 A. Florida has a statute that say insurers can  
24 reflect up to 250-year PML in their rate.

25 Q. Okay. So, they set a maximum on what the

1 exhaustion point can be?

2 A. They said the Commissioner should not  
3 consider rate as excessive if company decide to buy one  
4 in 250-year PML for reinsurance.

5 Q. Okay. And does it say that it shall be  
6 excessive if more than one in 250 PL [sic]?

7 A. It didn't say that.

8 MR. FRIEDMAN: Okay. That's all I've  
9 got for this morning, Your Honor.

10 MS. FUNDERBURK: Counsel, are there any  
11 matters we need to address before we take a lunch  
12 recess?

13 MR. SPIVEY: Certainly not before lunch  
14 recess.

15 You said you were concluded for this  
16 witness?

17 MR. FRIEDMAN: No.

18 MS. FUNDERBURK: I'm sorry, I can't hear  
19 you.

20 MR. FRIEDMAN: No, I've concluded with  
21 this witness about the particular reinsurance function  
22 of the Aon model.

23 MS. FUNDERBURK: Yeah. I take this to  
24 mean, Mr. Friedman, you're at a transition point to  
25 another --

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MR. FRIEDMAN: Yes, ma'am.

MS. FUNDERBURK: -- area to discuss with Ms. Mao. You are not concluded with her totally as a witness?

MR. FRIEDMAN: No, ma'am.

MS. FUNDERBURK: Okay. Anything we need to address before we go into the lunch recess?

MR. SPIVEY: No, Your Honor.

MS. FUNDERBURK: All right.

Ms. Mao, I will remind that when you come back after lunch you will be -- you will continue to be under oath.

It is ten after 12. We will take an hour and a half and return at 1:40. I ask that counsel be seated and ready to go at 1:40. We are in recess. Thank you.

MR. BEVERLY: Thank you, Your Honor.

(Hearing adjourned at 12:10 p.m. with resumption scheduled at 1:40 p.m.)

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STATE OF NORTH CAROLINA )  
 ) C E R T I F I C A T E  
COUNTY OF CABARRUS )

I, Renee Habrack, Notary Public, do hereby certify that the above hearing was taken and transcribed by me; and that the foregoing pages are a true and accurate transcript of the testimony of said witnesses. I further certify that the persons were present as stated.

I further certify I am not of counsel for or in the employment of any of the parties to this action, nor am I interested in the result of said action.

IN WITNESS WHEREOF, I have hereunto subscribed my name, this 10th day of October, 2024.

*Renee M. Habrack*  
RENEE M. HABRACK, CCR, RPR  
Notary #20041960006  
My Commission Expires: 7/20/29

