



February 13, 2019

Honorable Mike Causey
Commissioner of Insurance
North Carolina Department of Insurance
Raleigh, North Carolina 27699

Re: Revision of Mobile Homeowner's MH(F) Insurance Rates

Dear Sir:

Enclosed herewith for filing on behalf of all member companies of the North Carolina Rate Bureau are revised premium rates, rating factors, and manual rules for Mobile Homeowner's MH(F) insurance subject to the jurisdiction of the Rate Bureau.

The enclosed memoranda and exhibits set forth and explain the calculations of proposed rate level changes that have been capped to produce an overall statewide average proposed rate level change of 19.9%, comprised of a +19.9% change for all MH(F) Owners coverages combined and +2.4% change for all MH(F) Tenant coverages combined. The caps on the rate level changes have been included in order to reduce the impact of the rate increases on policyholders, with the goal of increasing the rates to adequate levels in a more gradual manner. The filing shows revised territory definitions, which are the same territory definitions as for homeowners insurance and dwelling insurance. The filing shows a revised grouping of territories for rating purposes and shows revised rate levels varying by territory group within the state based on the revised territory definitions and revised territory groups. The filing also shows revised windstorm and hail exclusion credits, revised base amounts for amount of insurance and deductible, revised relativity factors for amount of insurance, new deductible options and revised deductible relativity factors, and introduction of a new age of mobile home rating variable.

The foregoing changes were calculated based on rates currently in force and reflect consideration duly given to data for the experience period set forth herein. Ratios in the filing relating to expense experience were developed from special calls issued by the Rate Bureau. In preparing this filing, due consideration has been given to the factors specified in G.S. 58-36-10(2) and G.S. 58-36-10(7).

Information and statistical data required pursuant to G.S. 58-36-15 and 11 NCAC 10.1105 are shown and referenced in RB-1, Section E. Additionally, the pre-filed testimony of (a) Paul Anderson – Milliman, Inc.; (b) Matthew Berry, Chairman, Property Rating Subcommittee; (c)

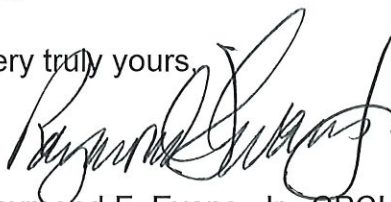
Elizabeth Henderson – Aon; (d) Stephen Fiete – Aon; (e) Dr. James Vander Weide, Financial Strategy Associates; and (f) Dr. George Zanjani are submitted herewith.

The foregoing changes are to become effective in accordance with the following Rule of Application:

These changes are applicable to all new and renewal policies written to become effective on or after February 1, 2020.

Your approval of this filing is respectfully requested.

Very truly yours,

A handwritten signature in black ink, appearing to read "Raymond F. Evans, Jr.", written in a cursive style.

Raymond F. Evans, Jr., CPCU
General Manager

Enclosure

North Carolina Mobile Homeowners MH(F) Program

Explanatory Memorandum

This memorandum has been prepared in support of the North Carolina Rate Bureau's ("NCRB") proposed revision to its North Carolina Mobile Homeowners MH(F) program. The rate indications developed in this analysis assume an effective date for the proposed rates of February 1, 2020 and assume rates will be in effect for one year.

Note that Mobile Homeowners MH(F) policies provide flood coverage, including coverage for both inland flood and storm surge. Accordingly, the analysis underlying this rate filing includes both types of flood losses.

In this filing, the term "hurricane losses" refers to losses identified as being caused by a hurricane, and is intended to include hurricane wind losses and storm surge flood losses. The term "catastrophe" generally refers to all losses identified as being caused by a catastrophe, including but not limited to hurricane, inland flood, and non-hurricane windstorm losses.

Premium, Loss, and Expense Experience

This proposed revision is based on the combined premium and loss experience of all licensed companies writing Mobile Homeowners MH(F) insurance in North Carolina, except as noted in *Section E, Supplemental Material*. In order to have this experience available for rate review and ratemaking in accordance with accepted standards, all such companies are required to file each year their total Mobile Home MH(F) insurance experience with one of the licensed statistical agents. Experience is recorded pursuant to the approved statistical plans and reported by the companies in accordance with instructions issued by the statistical agents under the Official Calls for Experience.

The rate indication and rating plan analyses included in this filing were performed using statistical plan data from Property Casualty Insurers Association of America (PCIAA) and one additional member company for calendar/accident years 2012 through 2016. Additional data was also obtained through separate company-specific data requests submitted to all companies writing Mobile Homeowners MH(F) insurance in North Carolina. More information related to these separate data requests is provided below and in *Section E* of this filing. In this filing, the data provided by the above-mentioned statistical agencies will collectively be referred to as the "available statistical data."

The available statistical data described above was provided to and combined by Milliman, Inc. (Milliman) at the direction of the North Carolina Rate Bureau. The statistical data was reviewed by Milliman for reasonability and consistency. More information regarding the data editing procedures used by Milliman can be found in *Section E*.

Expense data used in the analysis was provided and reviewed by the North Carolina Rate Bureau.

Statewide Indicated Rate Changes

The overall statewide indicated rate changes were calculated separately for Owners and Tenants. The following describes the key elements of the statewide indications:

- Loss Experience** - The Mobile Homeowners insurance experience for the MH(F) program was compiled on a calendar/accident year basis for the five-year period beginning with the year ending December 31, 2012 and continuing through the year ending December 31, 2016, the most recent period for which such experience is available. For each twelve-month period, the accident year experience reflects losses resulting from accidents occurring during that period with the premiums and number of mobile homes “earned” during the same period. Since this filing utilizes modeled hurricane losses, the actual hurricane losses (which include wind losses and storm surge losses) have been removed from the loss experience used for the rate indications. Because the statistical plan data does not contain a field to identify hurricane losses, a separate company data request was made to all companies writing Mobile Homeowners MH(F) insurance in North Carolina for calendar/accident years 2012 through 2016. From this data, the proportion of hurricane losses and claims was determined by territory and by policy form for each calendar/accident year. The resulting proportions were then applied to the statistical plan data to identify and remove the actual hurricane losses from the statistical plan data.

The losses compiled for each accident year are incurred losses (i.e., paid losses plus outstanding case loss reserves). Losses provided by PCIAA were evaluated three months after the close of the latest accident year period, or as of March 31, 2017, while losses provided by the one additional member company were evaluated as of September 8, 2018. The difference in evaluation dates of the data included in the analysis was accounted for when developing losses to ultimate.

- Excess Wind Losses and Excess Wind Loss Factor** – Because hurricane and other large-scale wind loss events are highly volatile in nature, both hurricane models and an excess wind procedure were used to achieve stability and adequacy in the indicated rates. As a result, extreme shifts in the rates (either upward or downward) due to the occurrence or non-occurrence of hurricanes or other large wind losses will be avoided. The excess wind procedure used for non-hurricane wind losses is described below. Modeled hurricane losses are discussed later in this memorandum.

Statewide excess wind losses are calculated for each accident year by first removing actual hurricane wind losses and then determining an expected long-term ratio of wind losses relative to total losses excluding wind losses. In determining the expected long-term ratio of wind losses to total losses excluding wind losses, the historical ratios for accident years in which unusually large wind losses were incurred are capped at five times the median statewide wind-to-total-minus-wind ratio.

All losses in excess of this expected wind ratio are defined as excess wind losses. The ratio of wind losses to total losses excluding wind losses for a given year is composed of two parts:

- (1) The capped excess wind loss ratio; and
- (2) The excess wind loss ratio above the cap.

The resulting actual excess wind losses identified using the methodology above are then removed from the loss experience used in developing rates. The long-term impact of excess losses (i.e., losses not related to hurricanes and, therefore, not accounted for in the hurricane model) is accounted for in the rates through the use of an excess wind factor, which is calculated using the following formula:

Excess Wind Loss Factor = 1.0 + [(Avg Capped Excess Ratio + Avg Excess Ratio above the

Cap)

/ (1.0 + Expected Ratio - Avg Capped Excess Wind Ratio)]

The excess wind methodology for MH(F) Owners and Tenants combined can be found on *Section C, Page 27*. Note that Mobile Homeowners losses were only available for accident years 2000 through 2004 and accident years 2007 through 2016. As such, only these years were used in the analysis.

To determine excess wind losses for each MH(F) policy form, the total MH(F) excess wind losses for each accident year were allocated based on the distribution of incurred wind losses by policy form (see *Section C, Page 28*).

- **Loss Development** – To develop the incurred Mobile Homeowners losses to ultimate, cumulative loss development factors (LDFs) are applied to incurred losses. To derive LDFs, Mobile Homeowners loss triangles were obtained from companies writing Mobile Homeowners business in North Carolina. These loss triangles for MH(F) Owners and MH(F) Tenants were aggregated on a combined basis. The aggregate triangles account for 90.2% of the MH(F) market in North Carolina. Using these aggregate triangles, age-to-age LDFs and age-to-ultimate LDFs were selected (see *Section C, Page 29*). The data used in the loss triangles was evaluated as of March 31, 2017. However, while one of the statistical agents provided rate indication data evaluated as of March 31, 2017, as noted above, one statistical agent provided data evaluated as of September 8, 2018. As such, the selected LDFs were also interpolated to the necessary months of development corresponding to losses evaluated as of September 8, 2018. The interpolated LDFs were weighted with the non-interpolated LDFs (corresponding to the losses evaluated as of March 31, 2017), using the incurred losses from each data provider as the weights. These weighted average LDFs were then used to develop aggregated losses to ultimate. The derivation of the weighted average LDFs can be found on *Section C, Page 30*.
- **Loss Adjustment Expenses (LAE)** – The incurred losses used in the rate indication do not include LAE. To account for these expenses, the incurred losses were multiplied by an LAE factor selected based on five years of historical incurred LAE to incurred loss ratios provided by the North Carolina Rate Bureau. A separate selected catastrophe LAE factor was used for modeled hurricane losses (see *Section C, Page 44*). See pre-filed testimony of S. Fiete for support of the catastrophe LAE factor.
- **Loss Trend** – To trend losses, frequency and severity trends were selected by policy form based on external cost indices and industry claims data.

Two different indices were considered: the CoreLogic Residential Index (CRI) and the Modified Consumer Price Index (CPI). The CRI and the CPI were considered for MH(F) – Owners while the personal property-related components of the CPI were considered for MH(F) – Tenants.

Since the external cost indices do not account for the effect of policy deductibles and therefore do not account for the fact that layers of loss above a deductible trend at higher rates, a First Dollar of Loss Adjustment methodology was used to determine an adjustment to first dollar of loss trends for each policy form using data for policies with \$50, \$100, \$250, \$500, and \$1,000 deductibles. The first dollar of loss adjustment was considered in conjunction with the index-based trend indications when reviewing and selecting trends. The First Dollar of Loss Adjustment method is displayed in *Section C, Page 36*.

Industry-based frequency and severity trend indications were calculated using the available statistical data. So as not to distort the indicated trends, historical catastrophe losses were

removed from the loss and claim count data. The methodology for eliminating the catastrophe losses was similar to the methodology used to remove hurricane losses from the available statistical data except that all catastrophe losses were considered as opposed to only hurricane losses.

In trending losses, a two-step trending procedure was used. Frequency and severity trend rates were selected by policy form separately for the experience trend period and the projection trend period. The experience trend period is defined as the first calendar accident day associated with the statistical plan data, or January 1, 2012, up to and including the last calendar accident day provided in the statistical plan data, or December 31, 2016. The projection period is defined as the end date of the experience period, or December 31, 2016, up to the average accident date of the one-year policy period during which the rates are projected to be in effect, or February 1, 2021. Loss trend rates were then calculated for each policy form using the following formula:

$$\text{Loss Trend Rate} = (1 + \text{Frequency Trend Rate}) \times (1 + \text{Severity Trend Rate}) - 1.$$

Loss trend factors were then calculated by policy form for each accident year based on the selected loss trend rates and trend periods. For each accident year, the experience period is calculated as the amount of time from the average accident date within the accident year to the end of the experience period, or December 31, 2016. The projection period is calculated for all accident years as the amount of time from the end date of the experience period, or December 31, 2016, up to the average accident date of the one-year policy period during which the rates are projected to be in effect, or February 1, 2021.

The selected frequency, severity, and loss trend rates, as well as the resulting loss trend factors for each MH(F) policy form are shown in *Section C, Pages 32 through 35*. The calculation of the loss trend factors for each of the MH(F) policy forms is shown in *Section C, Page 31*.

- **Exposure Trend** – Exposure trends were selected by policy form to account for changes in the amounts of insurance purchased by policyholders over time. The indicated exposure trend rates were calculated based on the average amount of insurance relativities calculated for each accident year and for each policy form. Since the rate-of-change in MH(F) manual rates by policy limit varies with the choice of deductible, the average amount of insurance relativities used in the exposure trend calculations are based on data for the \$250, \$500, and \$1,000 deductibles. These deductibles options account for the majority of policies.

The historical average amount of insurance relativities were used to calculate various estimates of the average annual change in exposure. Similar to the loss trends, exposure trend rates were selected separately for the experience period and the projection period (see *Section C, Page 39*). The experience trend period is defined as the first calendar accident day associated with the statistical plan data, or January 1, 2012, up to and including the last calendar accident day provided in the statistical plan data, or December 31, 2016. The projection period is defined as the end date of the experience period, or December 31, 2016, up to the average written date of the period during which the rates are projected to be in effect, or August 1, 2020.

Following the selection of exposure trend rates by deductible and policy form, exposure trend factors were calculated for each accident year based on the selected exposure trend rates and trend periods. For each calendar year, the experience period is calculated as the amount of time from the average written date within the calendar year to the end of the experience period, or December 31, 2016. The projection period is calculated for all calendar years as amount of time from the end date of the experience period, or December 31, 2016, up to the average written date

of the period during which the rates are projected to be in effect, or August 1, 2020. Total exposure trend factors were then calculated based on a weighted average of the \$250, \$500, and \$1,000 deductible trend factors, using on-level earned premium for the weights within each accident year (see *Section C, Pages 37 through 38*). Note that \$1,000 deductible trend factors were not used for MH(F) – Tenants.

- Average Rating Factors** – The rate indications included within this filing are calculated at a base class level. In order to convert the historical experience to a consistent base class level, average rating factors are used. The average rating factors represent the ratio of the average rate (earned premium at current manual rate level divided by the number of earned house years) and the average base class rate. Earned premiums at current manual rates are calculated using the extension of exposures method, which multiplies the rates in effect at the time of the review by the number of earned house years for each risk in the statistical plan data. The current base class rate used in the rate indication is defined by the following policy characteristics for each MH(F) policy form:

Current MH(F) Base Class Definitions

Policy Form	Amount of Insurance	Deductible	Policy Form	Occupancy	Tie-Down Credit
Owners	\$25,000	\$250	Named Perils	Owner-Occupied	No
Tenants	\$5,000	\$250	Named Perils	Owner-Occupied	No

It should be noted that the policy characteristics of the current base class, which are used to convert the historical experience to a consistent level for the purposes of calculating indicated rate changes, are not necessarily the same as the base policy characteristics presented in the current MH(F) rate manual from which policyholder premiums are calculated. This filing proposes to align the base class characteristics used in the rate indication with the base policy characteristics presented in the rate manual such that they are the same in future filings. The proposed base class characteristics used in the rate indication and the base policy characteristics presented in the proposed MH(F) rate manual are as follows:

Proposed MH(F) Base Class Definitions

Policy Form	Amount of Insurance	Deductible	Policy Form	Occupancy	Tie-Down Credit
Owners	\$50,000	\$250	Named Perils	Owner-Occupied	No
Tenants	\$20,000	\$250	Named Perils	Owner-Occupied	No

- Credibility** – Credibility of the historical experience was considered in several places throughout this filing, including in the determination of the total base class loss cost calculated for each policy form as well as in the selection of loss trends.

To determine the credibility of the non-hurricane mobile homeowners loss costs for each policy form, a limited fluctuation credibility methodology was used, as explained in a CAS Proceedings Paper “*Credibility of the Pure Premium*” by Mayerson, Jones, and Bowers. This methodology

assumes that Mobile Homeowners loss costs are normally distributed and the standard for full credibility is based on a 90% probability that the observed loss cost is within 10% of the expected loss cost. The methodology is intended to limit the effect that random fluctuations in the data can have on the indicated loss cost.

Based on the limited fluctuation credibility model framework, the formula for the full credibility standard (N_C) is equal to:

$$N_C = (z / k)^2 = 271$$

where: N_C = # of claims required for full credibility (rounded to nearest integer)
 z = 1.645 (from the standard normal table corresponding to a 90% confidence interval)
 k = 10% (tolerance for error)

For each policy form, the number of claims, N_C , required for full credibility from the formula above was converted from a claims basis into an earned house years basis using a frequency and severity modification. This conversion was performed using the five-year historical frequency, average severity, and variance of the severity distribution for each policy form in the following formula:

$$N_E = (N_C / f) \times (1 + \sigma^2 / s^2) = 30,000$$

where: N_E = # of earned house years required for full credibility (rounded up to nearest 10,000)
 f = Five-Year Claim Frequency
 σ^2 = Variance of the Severity Distribution
 s = Average Claim Severity

Using N_E as the standard for full credibility, the credibility (Z) for each statewide policy form and each territory or territory group was calculated using the standard Square Root Rule or:

$$Z = (E / N_E)^{0.5}$$

where: Z = Credibility of Segment (limited to a maximum of 1.00)
 E = Five-Year Earned House Years

The table below displays the standard for full credibility for each policy form, the statewide total house years during the experience period as well as the calculated credibility:

Policy Form	Standard (N_E)	Earned House Years (E)	Credibility (Z)
Owners	30,000	401,302	100.0%
Tenants	240,000	2,675	10.6%

The credibility-weighted loss cost from the NCRB's 2014 mobile home rate filing (trended to the proposed policy period) was used as the complement of credibility (CC) such that the credibility-weighted loss cost (LC_{CW}) is calculated as:

$$LC_{CW} = LC \times Z + CC \times (1.0 - Z)$$

where: LC_{CW} = Credibility-Weighted Loss Cost

LC = Indicated Base Class Loss Cost
CC = Complement of Credibility

To calculate the credibility of the indicated loss trends, limited fluctuation credibility was also used. A claims standard of 1,082 was used, which represents the number of claims needed to be within 5% of the expected trends with 90% probability. As the credibility was only used for informational purposes when making trend selections, no complement of credibility was used.

- **Modeled Hurricane Loss Costs** – Statewide average annual hurricane losses for each MH(F) policy form were provided by Aon evaluated as of December 31, 2016. The losses provided are based on an average of the AIR Touchstone v5 hurricane model and the RMS RiskLink v18 hurricane model. The losses had been trended to the proposed policy period and had been loaded for LAE using the selected 6.0% catastrophe LAE factor. On *Section C, Pages 9 and 19*, the modeled hurricane losses are divided by the product of the 2016 earned house years, the 2016 average rating factor and the 2016 exposure trend factor to derive the modeled hurricane base class loss cost for each policy form.
- **Underwriting Expenses** – *Section C, Page 43* shows five years of aggregate premium and aggregate underwriting expenses for all companies writing MH(F) policies in North Carolina. The expense ratios shown for Commission & Brokerage and for Taxes, Licenses & Fees use written premium as the denominator, because these expenses are typically incurred when policies are written. The ratios for Other Acquisition and General Expenses use earned premium as the denominator, because these expenses are typically incurred over the entire length of the policy. The selected expense ratios reflect an average of the historical ratios over the last three years for each expense item. The sum of the expense ratios for Commission & Brokerage expenses and Taxes, Licenses and Fees comprise the prospective policy's variable expense load whereas the sum of the expense ratios for Other Acquisition and General Expense comprise the fixed expense load.
- **Expense Trend** – Trend rates for fixed expenses, similar to loss trend rates, were selected separately for the experience period and the projection period. Indicated expense trend rates were derived from several different expense indices - the Consumer Price Index (including all items), the Consumer Price Index (all items excluding Energy) and the Compensation Cost Index. Additionally, a blended indication was derived by using a weighted average of the three indices with weights of 25%, 25% and 50%, respectively.

The selected expense trend rates are used to calculate expense trend factors by policy form, which are used in the calculation of the fixed expense per policy. *Section C, Page 42* shows the derivation of the expense trend factors, which are calculated in a manner similar to the loss trend factors. The experience period spans from the average date of incurred expense over the most recent three years, or July 1, 2015, to the end date of the experience period, or December 31, 2016. The projection period spans from the end date of the experience period, or December 31, 2016 to the average written date of the prospective policy period, or August 1, 2020.

- **Fixed Expense Per Policy** – To calculate the fixed expense per policy, trended fixed expense ratios were calculated by multiplying the selected fixed expense ratios from *Section C, Page 43* by the expense trend factor and dividing by the 2015 exposure trend factor. The fixed expense per policy was then calculated by multiplying the trended fixed expense ratios by the average current base premiums.
- **Profit** – See pre-filed testimony of G. Zanjani and J. Vander Weide.

- **Contingencies** – See pre-filed testimony of P. Anderson and M. Berry.
- **Policyholder Dividends** – *Section C, Page 45* contains support for the selected policyholder dividends, which was selected using five years of historical homeowners dividend and written premium data. See also the pre-filed testimony of P. Anderson and M. Berry.
- **Compensation for Assessment Risk** – The provisions for compensation for assessment risk are calculated by policy form as $(0.028 \times \text{Current Average Base Rate}) / (1.0 - \text{Commissions \& Brokerage} - \text{Taxes, Licenses, \& Fees})$, as shown in *Section C, Page 46*. The 2.8% compensation for assessment risk provision is based on an analysis completed by Milliman. See also the pre-filed testimony of P. Anderson.
- **Net Cost of Reinsurance** – The provisions for the net cost of reinsurance are based on an analysis performed by Aon. *Section C, Pages 47 and 48* show the average cost of reinsurance by territory group as well as the statewide total as determined based on 2016 house years. The base class net cost of reinsurance is then determined by adjusting the average cost of reinsurance by the average rating factor, exposure trend factor, and variable expenses at both the statewide and territory group level.
- **Net Deviations** – *Section C, Page 49* compares direct written premium (including deviations) to manual premium by calendar year to calculate the average net deviation from manual premiums. A provision of 5.0% was selected for net deviations. See pre-filed testimony of P. Anderson and M. Berry.

Territories

This filing proposes to replace the current Mobile Homeowners MH(F) territory definitions with new territory definitions. The proposed territory definitions are the same definitions currently in use in Homeowners and Dwelling insurance in North Carolina. The proposed territories were combined into six territory groups for ratemaking purposes. Definitions of the proposed territory groups can be found in *Section C, Page 6*.

Indicated Rate Changes by Territory Group

In addition to the statewide rate indications, rate changes by territory group were also calculated for each policy form. The methodology for calculating the indicated rate changes at the territory group level is generally the same as the methodology used to produce the statewide indication. To calculate the indications by territory group, indicated base class loss costs (*Section C, Pages 8-15 and 18-25*), trended fixed expenses, the compensation for assessment risk, and the net cost of reinsurance (*Section C, Pages 47 and 48*) are calculated for each territory group and each policy form. The excess wind losses by policy form calculated at an overall statewide level were allocated to each territory group using the distribution of wind losses by accident year (see *Section C, Pages 16 and 26*). The indicated base rate excluding deviations was then calculated for each territory group for each policy form. The deviation per exposure was then added to the indicated base rates by territory group to derive the indicated required base class rate by territory group. Indicated rate changes were subsequently calculated by comparing the indicated required base class rate to the current base rate. See *Section C, Pages 7 and 17* for more details.

Rating Plan Analysis

With this filing, the North Carolina Rate Bureau is proposing to update the Mobile Homeowners MH(F) rating structure with the following changes:

- **Amount of Insurance** – This filing proposes to update the amount of insurance relativities used for Owners and Tenants. Additionally, this filing proposes to update the base amounts of insurance to \$50,000 and \$20,000 for Owners and Tenants, respectively, to more closely align the base amounts of insurance with the projected average amount of insurance for each policy form.
- **Deductibles** – With this filing, several changes are being proposed related to deductibles:
 1. This filing proposes to revise the current deductible rating factors. Accordingly, the maximum credits are also being revised with this filing.
 2. New deductible options are being introduced, including all peril deductible options of \$750, \$2,000 and \$5,000; optional higher windstorm or hail deductible options of 1%, 2%, and 5%; and optional named storm deductible options of 2% and 5%.
 3. The \$250 deductible option is being proposed as the base deductible for each policy form.
- **Age of Mobile Home** – This filing proposes to introduce a new rating variable, Age of Mobile Home, for each policy form.

The following describes the analysis that was performed and used to select the proposed rating factors associated with the changes described above.

The review of the MH(F) rating plan consisted of one-way pure premium analyses of the following rating variables:

- Amount of Insurance;
- Deductible; and
- Age of Mobile Home.

In order to account for potential correlations between rating variables, an iterative analysis of each variable was performed by adjusting the losses for any rating variables evaluated in previous iterations. The order in which rating variables were evaluated in this iterative analysis followed the order in which the rating variables are listed above.

Amount of Insurance

An Amount of Insurance analysis was performed for the following policy forms:

- MH(F) – Owners; and
- MH(F) – Tenants.

For each policy form, indicated pure premium relativities were developed based on non-catastrophe incurred losses, which were indexed to a base amount of insurance for each policy form. To smooth the volatility in the indicated relativities and ensure there are no reversals in the rating factors, linear regressions were fit to the indicated pure premium relativities. For Tenants, due to the low volume of data available, fitted MH(C) Personal Effects relativities from the North Carolina Rate Bureau's 2019 MH(F) rate filing were relied on.

The amount of insurance analysis can be found on *Section D, Pages 1 and 2*.

Deductible

The fitted Amount of Insurance relativities discussed above were then applied to the non-catastrophe incurred losses to adjust the loss data for the effects of the amount of coverage purchased. The resulting data was then summarized by deductible for the following policy forms:

- MH(F) – Owners; and
- MH(F) – Tenants.

For the above policy forms, the following deductibles were reviewed:

- All Peril Deductible;
- Windstorm and Hail Deductible; and
- Named Storm Deductible.

For the All Peril Deductible analysis, a large proportion of the policies have either a \$250, \$500, or \$1,000 deductible. As a result, the one-way deductible analyses contained volatility, particularly for the deductibles with very few exposures. Because of this volatility, the indicated relativities for the largest segments, in addition to the current relativities and the Miccolis Consistency Test, were relied on to develop proposed relativities. In order to prevent biases in the results, only policies that do not have Windstorm and Hail or Named Storm deductibles were used in the All Peril Deductible analysis.

Because the statistical data provided only contained an identifier for policies that purchased a higher Windstorm or Hail or Named Storm deductible and not the corresponding deductible amount, historical loss information could not be relied on for the Windstorm or Hail and Named Storm analyses. For these analyses, the current Mobile Home deductible relativities as well as the current Homeowners deductible relativities were reviewed. To develop proposed relativities, the proposed All Peril deductible relativities and the proportion of Windstorm and Hail losses were used to develop indicated deductible rating factors for each combination of All Peril and Windstorm or Hail / Named Storm deductible.

The deductible analysis can be found on *Section D, Pages 3 through 7*.

Age of Mobile Home

Following the Deductible analysis, the adjusted non-catastrophe losses were then adjusted again for the proposed deductible factors. The resulting adjusted losses were then used to develop one-way analyses by Age of Mobile Home for the following policy forms:

- MH(F) – Owners; and
- MH(F) – Tenants.

To increase the stability of the results of these analyses, ages were grouped based on earned house years. However, to mimic the one-year increments in the Age of Home rating structure used in Homeowners, the proposed rating structure for mobile homeowners includes individual ages from age 0 to age 19. Because the indicated pure premium relativities indicate large discounts for newer mobile homes, and because Age of Mobile Home is not currently used in the MH(F) rating structure, the proposed pure premium relativities were tempered by applying a constant rate of change to the base age (i.e., age 15).

The Age of Mobile Home analysis can be found on *Section D, Pages 8 and 9*.

**North Carolina Mobile Homeowners
MH(F) Program**

Section A

Summary of Overall Rate Change

**North Carolina
Mobile Homeowners
MH(F)**

Summary of Indicated and Proposed Rate Changes

<u>Policy Form</u>	<u>2016 Earned Premium at Current Rate Level</u>	<u>2016 Earned House Years</u>	<u>Indicated Rate Change</u>	<u>Proposed Rate Change ¹</u>
Owners	\$51,661,941	85,439	87.0%	19.9%
Tenants	66,881	411	5.1%	2.4%
Total: All Policy Forms	\$51,728,821	85,850	86.9%	19.9%

¹ The proposed rate changes by coverage were selected by the North Carolina Rate Bureau and reflect capping of the changes in order to reduce the impact of the rate increases on policyholders.

**North Carolina
Mobile Homeowners
MH(F)**

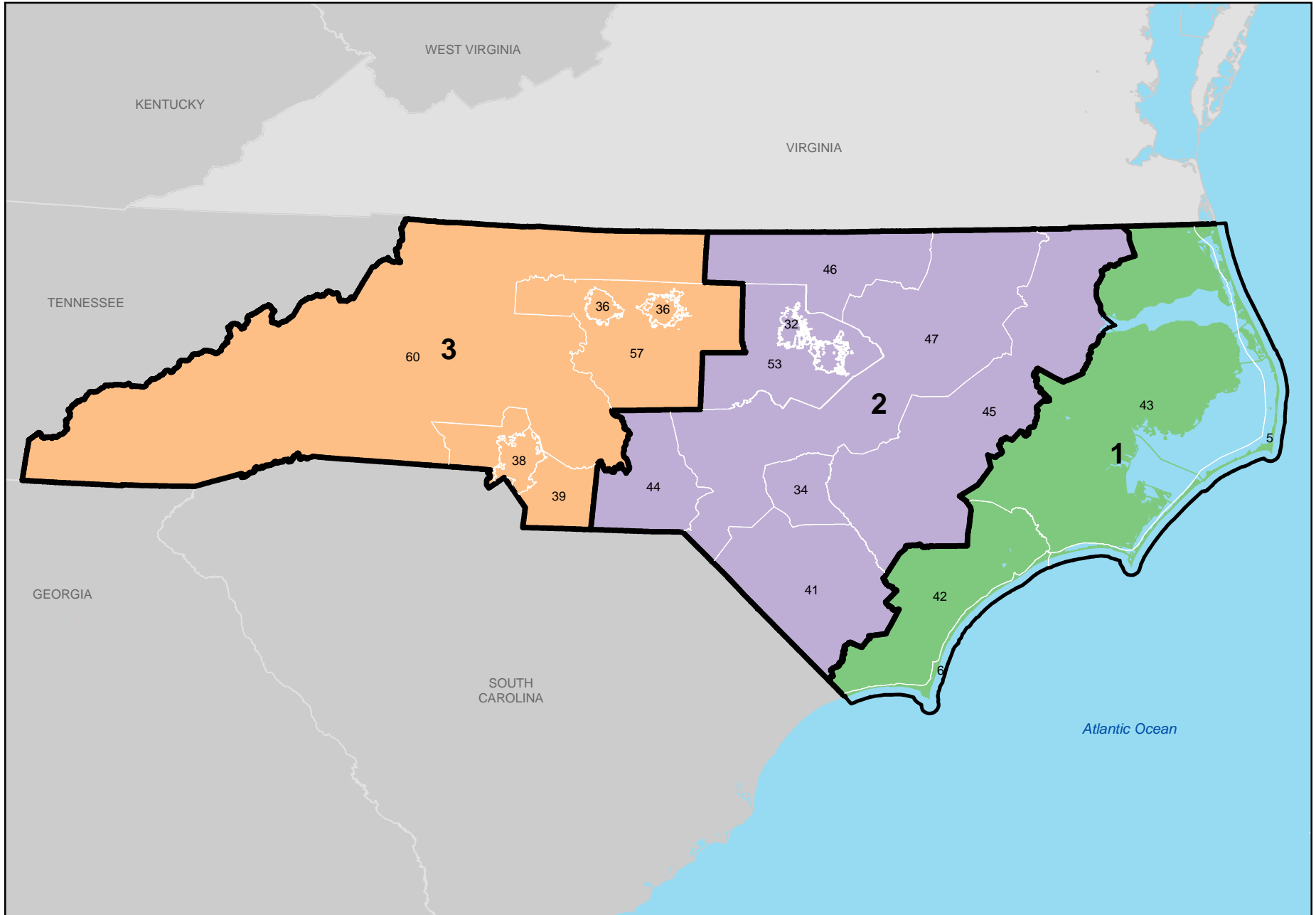
Summary of Indicated and Proposed Rate Changes by Territory Group

Territory Group	2016 Earned Premium at Current Rate Level			2016 Earned House Years		
	Owners	Tenants	Total	Owners	Tenants	Total
1	\$3,939,845	\$2,054	\$3,941,899	4,829	9	4,839
2	3,948,572	3,923	3,952,496	5,096	18	5,114
3	10,180,373	17,401	10,197,774	16,409	111	16,520
4	6,272,611	9,086	6,281,697	9,394	55	9,449
5	6,765,242	7,969	6,773,211	9,760	43	9,803
6	20,555,297	26,446	20,581,744	39,951	174	40,126
Statewide	\$51,661,941	\$66,881	\$51,728,821	85,439	411	85,850

Territory Group	Indicated Rate Change			Proposed Rate Change		
	Owners	Tenants	Total	Owners	Tenants	Total
1	264.0%	105.0%	263.9%	40.0%	40.0%	40.0%
2	121.4%	38.1%	121.3%	30.0%	25.0%	30.0%
3	149.5%	14.2%	149.3%	35.0%	14.2%	35.0%
4	95.9%	-3.9%	95.7%	25.0%	-3.9%	25.0%
5	58.8%	-14.8%	58.7%	20.0%	-14.8%	20.0%
6	22.1%	-4.4%	22.1%	5.0%	-4.4%	5.0%
Statewide	87.0%	5.1%	86.9%	19.9%	2.4%	19.9%

Note: The proposed rate changes by Territory Group were selected by the North Carolina Rate Bureau and reflect capping of the changes in order to reduce the impact of the rate increases on policyholders.

North Carolina
Mobile Homeowners
MH(F)
Current Territory Definitions and Territory Groups



**North Carolina Mobile Homeowners
MH(F) Program**

Section B

Changes to Base Rates and Rating Plan Relativities

North Carolina Mobile Homeowners
MH(F) Program

Changes to Base Rates and Rating Plan Relativities

Table of Contents

Changes to Base Rates and Rating Plan Relativities..... Section B

Base Rates and Territory Relativities Page 1

Amount of Insurance Relativities Pages 2-3

All-Peril Deductible Relativities Pages 4-5

Windstorm or Hail Deductible Relativities Pages 6-7

Named Storm Deductible Relativities Pages 8-9

Age of Mobile Home Relativities Pages 10

Wind Exclusion Credits Pages 11

Mocked Up Rules Pages 12-21

Current Rate Pages and Territory Pages Pages 22-34

Proposed Rate Pages and Territory Pages Pages 35-53

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Proposed Base Rates & Proposed Territory Relativities

Owners

	(1)	(2)	(3)	(4) = (1) x (2) x [1 + (3)]	(5) = (4) / (4), Terr Grp 3
Territory Group	Current Base Rate	Base Rate Off-Balance	Proposed Rate Change	Proposed Base Rate	Proposed Territory Relativity
1	\$574.62	1.339	40.0%	\$1,076.92	1.427
2	552.69	1.309	30.0%	940.43	1.246
3	416.10	1.344	35.0%	754.75	1.000
4	416.10	1.348	25.0%	700.93	0.929
5	416.08	1.347	20.0%	672.65	0.891
6	343.08	1.353	5.0%	487.25	0.646
Statewide	\$399.06	1.345	19.9%	\$643.47	0.853

Tenants

	(6)	(7)	(8)	(9) = (6) x (7) x [1 + (8)]	(10) = (9) / (9), Terr Grp 3
Territory Group	Current Base Rate	Base Rate Off-Balance	Proposed Rate Change	Proposed Base Rate	Proposed Territory Relativity
1	\$222.06	1.053	40.0%	\$327.26	1.729
2	204.10	1.050	25.0%	267.89	1.416
3	157.60	1.051	14.2%	189.22	1.000
4	157.60	1.054	-3.9%	159.68	0.844
5	157.60	1.044	-14.8%	140.19	0.741
6	135.31	1.052	-4.4%	136.13	0.719
Statewide	\$151.63	1.051	2.4%	\$163.15	0.862

(1), (2) From Section C, Page 7

(2), (7) Ratio of the average current on-level premium to the average premium based on proposed rating factors

(6), (7) From Section C, Page 17

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Amount of Insurance Relativities

	(1)	(2)	(3) = (4) / (2) - 1	(4)	(5)
Amount of Insurance	Current Relativity	Reindexed Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Relativity
\$5,000	0.588	0.391	-33.7%	0.259	0.252
6,000	0.608	0.403	-31.1%	0.278	0.270
8,000	0.651	0.432	-27.2%	0.315	0.306
10,000	0.692	0.459	-23.5%	0.351	0.342
12,500	0.744	0.494	-19.8%	0.396	0.386
15,000	0.790	0.524	-15.9%	0.441	0.429
17,500	0.842	0.559	-13.3%	0.485	0.472
20,000	0.895	0.594	-11.0%	0.529	0.514
22,500	0.947	0.629	-9.1%	0.572	0.556
25,000	1.000	0.664	-7.4%	0.615	0.598
27,500	1.053	0.699	-5.9%	0.657	0.639
30,000	1.105	0.733	-4.7%	0.699	0.680
32,500	1.158	0.768	-3.5%	0.741	0.721
35,000	1.210	0.803	-2.5%	0.783	0.761
37,500	1.263	0.838	-1.7%	0.824	0.802
40,000	1.315	0.873	-0.9%	0.865	0.842
42,500	1.368	0.908	-0.2%	0.906	0.882
45,000	1.420	0.943	0.5%	0.947	0.921
47,500	1.473	0.978	1.0%	0.988	0.961
50,000	1.525	1.012	1.5%	1.028	1.000
52,500	1.578	1.047	2.0%	1.068	1.039
55,000	1.630	1.082	2.4%	1.108	1.078
57,500	1.683	1.117	2.8%	1.148	1.117
60,000	1.736	1.152	3.1%	1.188	1.155
62,500	1.788	1.187	3.4%	1.228	1.194
65,000	1.841	1.222	3.7%	1.267	1.232
67,500	1.893	1.257	4.0%	1.306	1.271
70,000	1.946	1.291	4.2%	1.345	1.309
72,500	1.998	1.326	4.4%	1.384	1.347
75,000	2.051	1.361	4.6%	1.423	1.384
77,500	2.103	1.396	4.7%	1.462	1.422
80,000	2.156	1.431	4.9%	1.501	1.460
82,500	2.208	1.466	5.0%	1.539	1.497
85,000	2.261	1.501	5.1%	1.578	1.535
87,500	2.313	1.536	5.3%	1.616	1.572
90,000	2.366	1.570	5.4%	1.655	1.609
92,500	2.419	1.605	5.4%	1.693	1.646
95,000	2.471	1.640	5.5%	1.731	1.683
97,500	2.524	1.675	5.6%	1.769	1.720
100,000	2.576	1.710	5.7%	1.807	1.757
Each Add'l \$1,000	0.021	0.014	10.6%	0.015	0.015
Average	1.507	1.000	0.0%	1.000	0.973

(1) Current relativities reflect a base amount of insurance of \$25,000
(2), (4) Current and proposed relativities are reindexed so the overall average relativity is 1.000;
this allows for an appropriate comparison when estimating the impact due to the change in relativities
(5) Proposed relativities reflect a base amount of insurance of \$50,000

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Amount of Insurance Relativities

	(1)	(2)	(3) = (4) / (2) - 1	(4)	(5)
Amount of Insurance	Current Relativity	Reindexed Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Relativity
\$500	N/A	N/A	N/A	0.080	0.079
1,000	N/A	N/A	N/A	0.104	0.102
2,000	0.595	0.205	-25.8%	0.152	0.150
3,000	0.726	0.250	-20.0%	0.200	0.197
4,000	0.869	0.300	-17.1%	0.248	0.244
5,000	1.000	0.345	-14.0%	0.296	0.291
6,000	1.143	0.394	-12.6%	0.345	0.339
7,000	1.286	0.443	-11.4%	0.393	0.386
8,000	1.405	0.484	-9.0%	0.441	0.433
9,000	1.560	0.538	-9.1%	0.489	0.480
10,000	1.690	0.583	-7.9%	0.537	0.528
12,500	2.018	0.696	-5.6%	0.657	0.646
15,000	2.345	0.809	-3.9%	0.777	0.764
17,500	2.673	0.921	-2.6%	0.897	0.882
20,000	3.000	1.034	-1.6%	1.017	1.000
22,500	3.327	1.147	-0.8%	1.137	1.118
25,000	3.655	1.260	-0.2%	1.258	1.236
27,500	3.982	1.373	0.4%	1.378	1.354
30,000	4.310	1.486	0.8%	1.498	1.472
32,500	4.637	1.599	1.2%	1.618	1.590
35,000	4.964	1.711	1.6%	1.738	1.709
37,500	5.292	1.824	2.4%	1.868	1.836
40,000	5.619	1.937	3.2%	1.999	1.965
42,500	5.946	2.050	3.9%	2.129	2.093
45,000	6.274	2.163	4.5%	2.260	2.222
47,500	6.601	2.276	5.1%	2.392	2.352
50,000	6.929	2.389	5.6%	2.521	2.478
Each Add'l \$1,000	0.131	0.045	14.9%	0.052	0.051
Average	2.901	1.000	0.0%	1.000	0.983

- (1) Current relativities reflect a base amount of insurance of \$5,000
(2), (4) Current and proposed relativities are reindexed so the overall average relativity is 1.000;
this allows for an appropriate comparison when estimating the impact due to the change in relativities
(5) Proposed relativities reflect a base amount of insurance of \$20,000

**North Carolina
Mobile Homeowners
MH(F) - Owners**

All-Peril Deductible Relativities

	(1)	(2)	(3) = (4) / (2) - 1	(4)	(5)
All-Peril Deductible	Current Relativity	Reindexed Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Premium Relativity
50	1.000	1.198	0.6%	1.205	1.133
100	0.955	1.144	1.0%	1.155	1.086
250	0.910	1.090	-2.4%	1.064	1.000
500	0.820	0.982	0.1%	0.983	0.924
750	N/A	N/A	N/A	0.912	0.858
1,000	0.660	0.790	7.7%	0.852	0.801
2,000	N/A	N/A	N/A	0.670	0.630
5,000	N/A	N/A	N/A	0.558	0.525
Average		1.000	0.0%	1.000	

(1) Current relativities reflect a base deductible of \$50

(2), (4) Current and proposed relativities are reindexed so the overall average relativity is 1.000;
this allows for an appropriate comparison when estimating the impact due to the change in relativities

(5) Proposed relativities reflect a base deductible of \$250

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

All-Peril Deductible Relativities

	(1)	(2)	(3) = (4) / (2) - 1	(4)	(5)
All-Peril Deductible	Current Relativity	Reindexed Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Premium Relativity
50	1.000	1.317	-3.9%	1.265	1.190
100	0.900	1.185	-0.1%	1.185	1.114
250	0.800	1.054	0.9%	1.063	1.000
500	0.730	0.961	0.1%	0.962	0.905
750	N/A	N/A	N/A	0.892	0.839
1,000	0.660	0.869	-3.2%	0.841	0.791
2,000	N/A	N/A	N/A	0.659	0.620
5,000	N/A	N/A	N/A	0.548	0.516
Average		1.000	0.0%	1.000	

- (1) Current relativities reflect a base deductible of \$50
(2), (4) Current and proposed relativities are reindexed so the overall average relativity is 1.000;
this allows for an appropriate comparison when estimating the impact due to the change in relativities
(5) Proposed relativities reflect a base deductible of \$250

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Windstorm or Hail Deductible Relativities
Territory Groups 1 and 2 (Territories 110-160)

All-Peril Deductible	Wind/Hail Deductible	(1)	(2)	(3)	(4)
		Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Premium Relativity
50	1,000	1.171	-7.2%	1.087	1.000
	2,000	1.118	-9.5%	1.012	0.932
	5,000	1.079	-10.4%	0.967	0.890
	1%	N/A	N/A	1.154	1.062
	2%	N/A	N/A	1.068	0.983
	5%	N/A	N/A	1.005	0.925
100	1,000	1.079	-2.2%	1.056	0.972
	2,000	1.026	-4.4%	0.981	0.903
	5,000	1.013	-7.6%	0.936	0.861
	1%	N/A	N/A	1.116	1.027
	2%	N/A	N/A	1.037	0.954
	5%	N/A	N/A	0.974	0.896
250	1,000	1.000	0.0%	1.000	0.920
	2,000	0.961	-3.6%	0.926	0.852
	5,000	0.921	-4.4%	0.880	0.810
	1%	N/A	N/A	1.054	0.970
	2%	N/A	N/A	0.981	0.903
	5%	N/A	N/A	0.918	0.845
500	1,000	0.921	3.2%	0.950	0.875
	2,000	0.895	-2.1%	0.876	0.806
	5,000	0.868	-4.3%	0.831	0.764
	1%	N/A	N/A	0.975	0.897
	2%	N/A	N/A	0.913	0.840
	5%	N/A	N/A	0.850	0.782
750	1,000	N/A	N/A	0.907	0.835
	2,000	N/A	N/A	0.833	0.766
	5,000	N/A	N/A	0.787	0.725
	2%	N/A	N/A	0.870	0.801
	5%	N/A	N/A	0.806	0.742
	1,000	2,000	0.789	0.8%	0.796
5,000		0.763	-1.7%	0.750	0.690
2%		N/A	N/A	0.833	0.766
5%		N/A	N/A	0.769	0.708
2,000	5,000	N/A	N/A	0.639	0.588
	2%	N/A	N/A	0.677	0.623
	5%	N/A	N/A	0.625	0.575
5,000	5%	N/A	N/A	0.543	0.500

(1), (3) Current and proposed relativities are reindexed to a common base deductible (\$250 All-Peril / \$1,000 Wind/Hail deductible); this allows for an appropriate comparison when estimating the impact due to the change in relativities

(4) Proposed relativities reflect a base all-peril deductible of \$250

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Windstorm or Hail Deductible Relativities
Territory Groups 1 and 2 (Territories 110-160)

All-Peril Deductible	Wind/Hail Deductible	(1)	(2)	(3)	(4)
		Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Premium Relativity
50	1,000	1.171	-4.0%	1.124	1.030
	2,000	1.118	-6.1%	1.050	0.962
	5,000	1.079	-6.9%	1.004	0.920
	1%	N/A	N/A	1.191	1.091
	2%	N/A	N/A	1.106	1.013
	5%	N/A	N/A	1.042	0.955
100	1,000	1.079	-0.4%	1.075	0.985
	2,000	1.026	-2.6%	1.000	0.916
	5,000	1.013	-5.8%	0.954	0.875
	1%	N/A	N/A	1.133	1.038
	2%	N/A	N/A	1.056	0.968
	5%	N/A	N/A	0.992	0.909
250	1,000	1.000	0.0%	1.000	0.916
	2,000	0.961	-3.7%	0.925	0.848
	5,000	0.921	-4.5%	0.880	0.806
	1%	N/A	N/A	1.050	0.962
	2%	N/A	N/A	0.981	0.899
	5%	N/A	N/A	0.918	0.841
500	1,000	0.921	1.8%	0.938	0.859
	2,000	0.895	-3.5%	0.863	0.791
	5,000	0.868	-5.9%	0.818	0.749
	1%	N/A	N/A	0.959	0.878
	2%	N/A	N/A	0.900	0.825
	5%	N/A	N/A	0.837	0.767
750	1,000	N/A	N/A	0.894	0.820
	2,000	N/A	N/A	0.820	0.751
	5,000	N/A	N/A	0.774	0.709
	2%	N/A	N/A	0.857	0.785
	5%	N/A	N/A	0.793	0.727
	1,000	2,000	0.789	-0.1%	0.789
5,000		0.763	-2.7%	0.743	0.681
2%		N/A	N/A	0.826	0.757
5%		N/A	N/A	0.762	0.698
2,000	5,000	N/A	N/A	0.631	0.578
	2%	N/A	N/A	0.669	0.613
	5%	N/A	N/A	0.617	0.566
5,000	5%	N/A	N/A	0.536	0.491

(1), (3) Current and proposed relativities are reindexed to a common base deductible (\$250 All-Peril / \$1,000 Wind/Hail deductible); this allows for an appropriate comparison when estimating the impact due to the change in relativities

(4) Proposed relativities reflect a base all-peril deductible of \$250

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Named Storm Deductible Relativities
Territory Groups 1 and 2 (Territories 110-160)

		(1)	(2) = (3) / (1) - 1	(3)	(4)
All-Peril Deductible	Named Storm Deductible	Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Relativity
50	1%	1.250	-10.4%	1.120	1.097
	2%	N/A	N/A	1.093	1.071
	5%	N/A	N/A	1.050	1.029
100	1%	1.132	-4.7%	1.078	1.056
	2%	N/A	N/A	1.055	1.033
	5%	N/A	N/A	1.012	0.991
250	1%	1.000	0.0%	1.000	0.979
	2%	N/A	N/A	0.971	0.952
	5%	N/A	N/A	0.935	0.915
500	1%	0.908	2.4%	0.930	0.911
	2%	N/A	N/A	0.901	0.882
	5%	N/A	N/A	0.871	0.853
750	2%	N/A	N/A	0.846	0.829
	5%	N/A	N/A	0.816	0.800
1,000	2%	N/A	N/A	0.800	0.783
	5%	N/A	N/A	0.770	0.754
2,000	2%	N/A	N/A	0.639	0.626
	5%	N/A	N/A	0.615	0.602
5,000	5%	N/A	N/A	0.523	0.512

(1), (3) Current and proposed relativities are reindexed to a common base deductible (\$250 All-Peril / 1% Named Storm deductible); this allows for an appropriate comparison when estimating the impact due to the change in relativities
(4) Proposed relativities reflect a base all-peril deductible of \$250

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Named Storm Deductible Relativities
Territory Groups 1 and 2 (Territories 110-160)

		(1)	(2) = (3) / (1) - 1	(3)	(4)
All-Peril Deductible	Named Storm Deductible	Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Relativity
50	1%	1.250	-6.5%	1.169	1.141
	2%	N/A	N/A	1.142	1.114
	5%	N/A	N/A	1.099	1.073
100	1%	1.132	-2.5%	1.103	1.076
	2%	N/A	N/A	1.079	1.053
	5%	N/A	N/A	1.037	1.012
250	1%	1.000	0.0%	1.000	0.976
	2%	N/A	N/A	0.973	0.950
	5%	N/A	N/A	0.936	0.914
500	1%	0.908	0.7%	0.914	0.892
	2%	N/A	N/A	0.887	0.865
	5%	N/A	N/A	0.857	0.836
750	2%	N/A	N/A	0.832	0.812
	5%	N/A	N/A	0.802	0.783
1,000	2%	N/A	N/A	0.793	0.774
	5%	N/A	N/A	0.763	0.745
2,000	2%	N/A	N/A	0.632	0.617
	5%	N/A	N/A	0.608	0.593
5,000	5%	N/A	N/A	0.516	0.503

(1), (3) Current and proposed relativities are reindexed to a common base deductible (\$250 All-Peril / 1% Named Storm deductible); this allows for an appropriate comparison when estimating the impact due to the change in relativities

(4) Proposed relativities reflect a base all-peril deductible of \$250

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Age of Mobile Home Relativities

	(1)	(2) = (3) / (1) - 1	(3)	(4)
Age of Mobile Home	Current Relativity	Estimated Impact (% Change)	Reindexed Proposed Relativity	Proposed Relativity
0	1.000	-23.1%	0.769	0.739
1	1.000	-21.6%	0.784	0.754
2	1.000	-20.0%	0.800	0.769
3	1.000	-18.3%	0.817	0.785
4	1.000	-16.6%	0.834	0.801
5	1.000	-14.9%	0.851	0.817
6	1.000	-13.2%	0.868	0.834
7	1.000	-11.4%	0.886	0.851
8	1.000	-9.6%	0.904	0.868
9	1.000	-7.8%	0.922	0.886
10	1.000	-5.9%	0.941	0.904
11	1.000	-4.0%	0.960	0.922
12	1.000	-2.0%	0.980	0.941
13	1.000	0.0%	1.000	0.960
14	1.000	2.0%	1.020	0.980
15	1.000	4.1%	1.041	1.000
16	1.000	4.1%	1.041	1.000
17	1.000	4.1%	1.041	1.000
18	1.000	4.1%	1.041	1.000
19	1.000	4.1%	1.041	1.000
20+	1.000	4.1%	1.041	1.000
Average	1.000	0.0%	1.000	

- (1) Age of Mobile Home is not used in the current MH(F) rating plan
- (3) Proposed relativities are reindexed so the overall average relativity is 1.000; this allows for an appropriate comparison of the impact due to the change in relativities
- (4) Proposed relativities reflect a base age of mobile home of 15+ years

**North Carolina
Mobile Homeowners
MH(F)**

Wind Exclusion Credits
Territory Groups 1 and 2 (Territories 110-160)

Owners			
Territory Group	Current Credit	Estimated Impact (% Change)	Proposed Credit
1	73.9%	12.1%	70.7%
2	73.9%	9.6%	71.4%

Tenants			
Territory Group	Current Credit	Estimated Impact (% Change)	Proposed Credit
1	61.3%	3.3%	60.0%
2	61.3%	8.7%	57.9%

Note:

Estimated Impact = (1 - Proposed Credit) / (1 - Current Credit) - 1

**North Carolina Mobile Homeowners
MH(F) Program**

Mocked Up Rules

**MOBILE HOMEOWNERS POLICY PROGRAM MH(F)
RULES**

NORTH CAROLINA

1. General Instructions

The Mobile Homeowners Policy Program provides property and liability coverage using the forms and endorsements herein. This manual also contains the rules governing the writing of the Mobile Homeowners Policy. The rules, rates, forms and endorsements filed by or on behalf of the Company for each coverage shall govern in all cases not specifically provided for herein.

2. Policy and Forms and Description of Coverage

The following is a general description of the coverages provided by the individual Mobile Homeowners Forms. The Policy and Forms should be consulted for exact contract conditions.

a. Section I Coverages – Property Damage

Coverage A – Dwelling

Coverage B - Other Structures

Coverage C - Personal Property

Coverage D - Loss of Use

- (1) Form MH(F)-2 BROAD FORM. Covers dwelling, other structures, personal property and loss of use against loss by:

- Fire or Lighting
- Windstorm or Hail
- Explosion
- Riot or Civil Commotion
- Aircraft
- Vehicles
- Smoke
- Breakage of Glass
- Theft
- Flood
- Falling Objects
- Vandalism or Malicious Mischief
- Weight of ice, snow or sleet
- Collapse of Buildings
- Accidental discharge of Water or Steam
- Freezing of plumbing, heating systems and appliances
- Sudden and Accidental injury from electrical currents
- Sudden and Accidental tearing apart of heating systems and appliances

- (2) Form MH(F)-3 COMPREHENSIVE FORM. Covers dwelling, other structures, and loss of use against all risks of physical loss, with certain exceptions. Personal property is covered for the same perils as provided in Form MH(F)-2 BROAD FORM.

- (3) Form MH(F)-4 CONTENTS BROAD FORM. Covers personal property, including the Insured's interest in building additions and alterations and loss of use, against loss by the same perils as provided in Form MH(F)-2 BROAD FORM.

b. Section II Coverages - Liability - All Forms

Coverage E - Personal Liability

Coverage F - Medical Payments to Others

- (1) Personal Liability - Covers payment on behalf of the Insured of all sums which he shall become legally obligated to pay as damages because of bodily injury or property damage caused by an occurrence arising out of his premises or personal activities.
- (2) Medical Payments to Others - Covers medical expenses incurred by persons, other than the Insured, who sustain bodily injury caused by an accident arising out of the Insured's premises or personal activities.

MOBILE HOMEOWNERS POLICY PROGRAM MH(F)

NORTH CAROLINA

3. ELIGIBILITY

- a. Form MH(F)-1 not filed or approved under this Program.
- b. Form MH(F)-2, MH(F)-3 - A Mobile Homeowners Policy may be issued:
To an owner occupant of a mobile home which is used exclusively for private residential purposes (except as provided in **General** Rule 3.f.) and contains not more than two families and with not more than two boarders or roomers.
- c. Form MH(F)-4, A Mobile-Homeowners Policy may be issued only to:
The Tenant (non-owner) of a mobile home; provided the residence premises occupied by the insured is used exclusively for residential purposes (except as provided in General Rule 3.f.) and is not occupied by more than one additional family or more than two boarders or roomers.
- d. When a mobile home is occupied by co-owners, a Mobile Homeowners Policy providing coverage A & B may be issued to only one of the co-owners and endorsed to cover the interest of the other co-owner in the mobile home and appurtenant private structures and for premises liability.
Attach Endorsement MH(F)-23 Additional Insured - Residence Premises. A separate Mobile Homeowners Policy with FORM MH(F)-4 may be issued to the second co-owner.
- e. It is permissible to extend the Mobile-Homeowners Policy, without additional premium charge, to cover the interest of a non-occupied joint owner(s) in the mobile home(s) and for premises liability.
Attach Endorsement MH(F)-23 - Additional Insured
- f. Subject to all other sections of this rule, a Mobile Homeowners Policy may be issued to cover a seasonal mobile home and such mobile home shall be described as 'Seasonal Mobile Home' in the policy.
- g. Incidental office, professional, private school and studio occupancies are permitted provided:
 - (1) the premises is occupied principally for mobile home purposes;
 - (2) there is no other business conducted on the premises; and
 - (3) there is no increase in the applicable fire rate for such occupancy.
- h. A Mobile-Homeowners Policy shall not be issued covering any property to which farm forms or rates apply under the rules filed by or on behalf of the Company. In no event shall a policy be issued to cover any property situated on premises used for farming purposes, unless farming conducted thereon is only incidental to the occupancy of the premises by the Insured as a mobile home and farming is not the occupation of the Insured.
- i. A Travel Trailer which is defined as "a recreational vehicle equipped with temporary living quarters, including cooking and eating facilities" is not eligible for this program.

4. MANDATORY COVERAGES

- a. It is mandatory that insurance be written for all coverages provided under both Sections I and II of the Mobile Homeowners Policy, except for those optional coverages provided for under General Rule 8 of this manual.
- b. Section II of the policy requires coverage for the following exposures and the additional premium developed must be charged when such exposures exist:
 - (1) All additional residence premises where the Named Insured or spouse maintain a residence other than business or farm properties;
 - (2) All residence employees of the Named Insured or spouse not covered or not required to be covered by Workers' Compensation Insurance (charge required for residence employees in excess of two); and
 - (3) Incidental office, professional private school or studio occupancies by the insured on residential premises of the Insured.

5. OFFICE, PROFESSIONAL, PRIVATE SCHOOL OR STUDIO OCCUPANCY

- a. When the Insured maintains an incidental office, professional, private school or studio occupancy in the mobile home or in a separate structure on the premises, which otherwise meets the eligibility requirements, an additional premium for the increased Coverage C limit and for the liability exposure must be charged. Under a Mobile-Homeowners Policy with Form MH(F)-4, the minimum limit of liability for Coverage C shall be \$2,000.
Attach Endorsement MH(F)-24 Office, Professional, Private School or Studio Use - Residence Premises

MOBILE HOMEOWNERS POLICY PROGRAM MH(F)

NORTH CAROLINA

b. When the insured gives professional instruction, such as music, dancing or similar instruction in the mobile home, employs no assistants and there has been no physical alteration of the mobile home to accommodate the occupancy, the additional premium for the liability exposure must be charged.

Attach Endorsement MH(F)-24 Office, Professional, Private School or Studio Use - Residence Premises

c. When the Insured has permissible office, professional, private school or studio occupancy in an additional residential premises occupied by the insured, other than the described mobile home, the additional premium for the liability exposures must be charged.

Attach Endorsement MH(F)-25 Office, Professional, Private School or Studio Use - Other Residence

6. LIMITS OF LIABILITY

a. The limits of liability required under the Mobile Homeowners Policy are as follows:

Section I Coverage	MH(F)-2	MH(F)-3	MH(F)-4
A. Dwelling Minimum Limit	\$ 52 ,000	\$ 52 ,000	
B. Other Structures	10% of Mobile Home	10% of Mobile Home	
C. Personal Property	30% of Mobile Home	30% of Mobile Home	\$500
D. Loss of Use	10% of Mobile Home	10% of Mobile Home	10% of Unscheduled Personal Property

Section II Coverage	All Forms
E. Personal Liability	\$25,000 Each Occurrence
F. Medical payments to Others	\$ 500 Each Person \$25,000 Each Accident

b. ALL FORMS - The limit of liability for Coverages C of Section I and E or F of Section II may be increased. See General Rule 8.

c. FORM MH(F)-2, MH(F)-3 - Under Coverage B of Section I an additional amount of insurance may be written on a specific private structure. See General Rule 8.

7. DEDUCTIBLES

a. All Mobile Homeowners Forms contain a \$~~50~~~~250~~ Loss Deductible Clause applicable to loss under Section I of the policy except loss under Coverage D, Fire Department Service Charge and Emergency Removal Expense.

b. FORM MH(F)-2, MH(F)-3 & MH(F)-4 - The Mobile Homeowners Policy may be ~~endorsed to provide a flat (non-disappearing) deductible in the amount of \$100 or \$250 at a premium credit modified as provided for in the rate section.~~

~~c. Optional \$100 or \$250 Flat Theft Deductible~~

~~FORM MH(F)-2, MH(F)-3, MH(F)-4 - The Mobile Homeowners Policy may be endorsed to provide a flat (non-disappearing) deductible in the amount of \$100 or \$250 applicable to any loss caused by theft of property only covered under Coverage C of the policy. This deductible shall be applied to the amount of each adjusted loss. A premium credit is applicable.~~

~~d.c.~~ Optional Windstorm or Hail Deductibles - Territory ~~ies 05, 06, 42, 43~~ 110, 120, 130, 140, 150, and 160 Only

In territories 05, 06, 42, 43 110, 120, 130, 140, 150, and 160 only, the Mobile Homeowners Policy may be endorsed to provide an optional Windstorm or Hail Deductible used in conjunction with the deductibles applicable to All Other Perils. This option provides for higher dollar deductible amounts -of \$1,000, \$2,000, ~~and~~ \$5,000, 1%, 2%, and 5% when the higher deductible amount selected exceeds the deductible applicable to All Other Perils.

~~e.d.~~ Optional Named Storm Percentage Deductible – Territory ~~ies 05, 06, 42, 43~~ 110, 120, 130, 140, 150, and 160 Only

In territories 05, 06, 42, 43 110, 120, 130, 140, 150, and 160 only, the Mobile Homeowners Policy may be endorsed to provide a Named Storm Percentage Deductible of 1%, 2%, and 5% of the Coverage A or C limit of liability, whichever is greater, when the dollar amount of the percentage deductible exceeds the deductible applicable to All Other Perils. Use **MH(F)-58**, Named Storm Percentage Deductible.

8. OPTIONAL COVERAGES

a. Section I - Property Damage - The Coverage may be amended as follows:

(1) Other Structures - Increased Limit

An additional amount of insurance may be written on a specific private structure under Coverage B at an additional premium.

Attach Endorsement MH(F)-28 Other Structures.

(2) Credit Card, Forgery and Counterfeit Money Coverage

The Mobile Homeowners Policy may be extended to include coverage against loss by forgery or alteration in connection with credit cards, checks or drafts, or loss due to acceptance of counterfeit paper currency at an additional premium.

Attach Endorsement MH(F)-29 Credit Card , Forgery and Counterfeit Money Coverage

(3) Money and Securities

Increased limits on money, bullion, numismatic property, bank notes, and on securities, accounts, bills, deeds, evidences of debt, letters of credit, notes other than bank notes, passports, railroad and other tickets and stamps, including philatelic property, maybe provided at an additional premium.

The \$100 limit on money may be increased by an amount not exceeding \$400 and the \$500 limit on securities may be increased by an amount not exceeding \$500.

Attach Endorsement MH(F)-32 - Coverage C - Increased Special Limits of Liability

(4) Theft Coverage Extension

FORM MH(F)-2, MH(F)-3, MH(F)-4 - Coverage may be extended to include loss by theft of property while unattended in or on any vehicle or watercraft at an additional premium.

Attach Endorsement MH(F)-27 - Theft Coverage Extension

(5) Personal Property

(a) Increased Limit - All Forms

The limit of liability for Coverage C may be increased at an additional premium.

(b) Away from Premises - FORM MH(F)-2, MH(F)-3, MH(F)-4 The limit of liability on unscheduled personal property away from premises under Coverage C maybe increased at an additional premium.

Attach Endorsement MH(F)-33 - Coverage C - Away from Premises

(6) Earthquake Damage

The Additional Exclusion section may be amended to include direct loss caused by earthquake and volcanic eruption at an additional premium. A deductible in the amount of 2% is mandatory.

Attach Endorsement MH(F)-43 – Earthquake

(7) Fire Department Service Charge

The limit of \$100 in the policy may be increased to \$250 or \$500 at an additional premium.

Attach Endorsement MH(F)-45 Fire Department Service Charge

b. Scheduled Personal Property

Coverage may be provided against all risks of physical loss with certain exceptions on scheduled personal property subject to the rules and rates filed by or on behalf of the Company. This coverage is subject to an annual minimum premium of \$15 irrespective of the term of the Mobile Homeowners Policy.

Attach Endorsement MH(F)-31 Scheduled Personal Property Endorsement

c. Lienholder's Single Interest

Coverage may be provided to cover the interest of the lienholder from the loss caused by collision, upset, conversion, embezzlement or secretion at an additional premium. Repossession and return protection is included. This coverage should be provided only when requested by the lienholder.

Attach Endorsement MH(F)-21 Mobile Home Lienholder's Single Interest

MOBILE HOMEOWNERS POLICY PROGRAM MH(F)

NORTH CAROLINA

d. Trip Collision

This coverage may be provided to protect the Insured from loss caused by collision or upset at an additional premium. A \$100 deductible is mandatory.

Attach Endorsement MH(F)-22 Collision

e. Consent to Move Mobile Home

This extension of coverage may be provided to avoid termination of coverage when the Mobile Home is moved and without reduction of coverage while the Mobile Home is away from the described premises (but not for collision or upset) at an additional premium.

Attach Endorsement MH(F)-20 Consent to Move Mobile Home

f. Scheduled Glass

Coverage may be added for specified glass at the premiums filed by the Company.

Attach Endorsement MH(F)-44 Scheduled Glass

g. Section II - Liability

The Limit of Liability for Coverage E or F may be increased at an additional premium and the following coverage may also be added to the Mobile Homeowners Policy:

Note: Workers' Compensation coverage or liability on a non-comprehensive basis shall not be added to the Mobile Homeowners Policy.

(1) Additional Residence Premises - Rented to Others

Coverage may be provided for additional one or two family residence premises, rented to others, owned by the Named Insured or spouse, at an additional premium.

Attach Endorsement MH(F)-34 Additional Residence - Rented to Others, 1 or 2 Families

(2) Business Pursuits

Coverage may be provided for the liability of an insured arising out of business activities, other than a business of which he is sole owner or a partner, at an additional premium.

Attach Endorsement MH(F)-35 Business Pursuits

(3) Outboard Motors and Watercraft

Coverage is provided for watercraft powered by an outboard motor or combination of outboard motors not exceeding 25 total horsepower. Watercraft not covered under the policy may be insured at an additional premium.

Attach Endorsement MH(F)-36 Watercraft

(4) Owned Snowmobile

Each snowmobile owned by the Named Insured or any other insured who is a resident of the Named Insured's household must be declared. The premium charge shall apply separately to each snowmobile.

Attach Endorsement MH(F)-37 Snowmobile

(5) Farmers Comprehensive Personal Liability

Section II can be amended to provide for this coverage at an additional premium.

Attach Endorsement MH(F)-41 Farmers Comprehensive Personal Liability

9. TIE-DOWN CREDIT

When the mobile home is properly secured in accordance with the regulations of the North Carolina Building Code Council as set forth in the State of North Carolina Regulations for Mobile Homes, a credit of 10% shall be deducted from the applicable basic premium.

Attach Endorsement MH(F)-46 Mobile Home Tie-Down.

MOBILE HOMEOWNERS POLICY PROGRAM MH(F)

NORTH CAROLINA

10. CHANGE ENDORSEMENT

Endorsement MH(F)-26 Change Endorsement, provides the minimum information requirements for any endorsement or change that takes place during the term of the policy. This endorsement must be used or the equivalent information provided.

11. POLICY TERM

The Mobile Homeowners Policy may be written for a term of one year. It is permissible to extend the policy for successive policy terms by extension certificate based upon the premiums in effect on renewal date. The then current editions of the applicable forms and endorsements must be made a part of the policy.

It is permissible to write for one or three year terms on the following bases:

- An annual policy which may be extended for successive terms by Certificate, subject to the rules, premiums, forms and endorsements then in effect.
- A three year policy with the premium payable in installments at the premium in effect on the anniversary dates.
- A three year policy with the premium prepaid at three times the annual premiums in effect at inception.

Endorsement MH(F)-39 Deferred Premium Payment applies.

12. OTHER INSURANCE

Credit for existing insurance is not permitted, except under Section II as provided for in the rate pages.

13. WHOLE DOLLAR PREMIUM RULE

All premiums shown on the policy and endorsements shall be rounded to the nearest whole dollar. A premium of fifty cents (\$.50) or more shall be rounded to the next higher whole dollar. In the event of cancellation by the Company, the return premium may be carried to the next higher whole dollar.

14. INTERPOLATION OF PREMIUMS FOR POLICY AMOUNTS NOT SHOWN ON PREMIUM CHARTS

Premiums for limits of liability in excess of the minimums required, not shown in the premium charts, may be obtained by interpolation.

15. INCREASES IN LIMITS OF LIABILITY OR ADDITION OF COVERAGES

The limits of liability may be increased or coverage may be added during the term of the policy. Any additional premium shall be computed on a pro-rata basis subject to all the rules of this manual.

16. MINIMUM ADDITIONAL PREMIUM

When an endorsement requiring an additional premium is issued subsequent to the inception date of the policy, such total additional premium shall not be less than \$6.00 regardless of the unexpired policy period.

17. CANCELLATION OR REDUCTIONS IN LIMITS OF LIABILITY OR COVERAGES

It shall not be permissible to cancel any of the mandatory coverages in the policy unless the entire policy is cancelled.

If insurance is cancelled or reduced at the request of the Company, or in the event of foreclosure of the mortgage or other lien on the insured mobile home, the earned premium shall be computed on a pro-rata basis.

If insurance is cancelled or reduced at the request of the Insured, the earned premium shall be computed on a short rate basis, using the standard short rate tables subject to a minimum retained premium of \$25.00 unless rewritten by another Mobile Homeowners Policy in this Company.

MOBILE HOMEOWNERS POLICY PROGRAM MH(F)

NORTH CAROLINA

18. TRANSFER OR ASSIGNMENT

Subject to all the rules of this manual, any necessary adjustment of premium, and with permission of the Company, a Mobile Homeowners Policy may be endorsed to effect:

- a. transfer to another location within the same state; or
- b. assignment from one insured to another in the event of transfer of title of the mobile home.

19. RESTRICTION OF INDIVIDUAL POLICIES

If a Mobile Homeowners Policy would not be issued because of unusual circumstances or exposures, the Named Insured may request a restriction of the policy provided no reduction in the premium is allowed. Such requests shall be referred to the Company and must be handled in accordance with consent to rate statutes.

20. REPLACEMENT COST - COVERAGES A AND B

Coverage may be provided on a replacement cost basis for Coverage A and B, at an additional premium.

Attach Endorsement MH(F)-48 Replacement Cost Loss Settlement

21. INFLATION GUARD ENDORSEMENT

Form MH(F)-2 and MH(F)-3 Limits of Liability on Coverage A, B, C & D are automatically increased by the amount of quarterly increase shown on the endorsement for an additional charge.

Attach Endorsement MH(F)-50

22. Personal Property Replacement Cost

Form MH(F)-2 and MH(F)-3 Coverage C may be extended to include full cost of repair or replacement at an additional premium.

Attach Endorsement MH(F)-51

23. Coverage B - Off Premises

Forms MH(F)-2 and MH(F)-3 Coverage B - Other structures may be extended to cover other structures which are located off the residence premises at an additional charge.

Attach Endorsement MH(F)-52

24. WINDSTORM OR HAIL EXCLUSION - TERRITORY ~~05, 06, 42 and 43~~ 110, 120, 130, 140, 150, and 160 ONLY

The peril of Windstorm or hail may be excluded if:

- a. The property is located in an area eligible for such coverage from the North Carolina Insurance Underwriting Association; and
- b. A Windstorm or Hail Rejection form is secured and maintained by the company.

Attach Endorsement MH(F)-54 Windstorm or Hail Exclusion.

When Endorsement MH(F)-54 is attached to the policy, enter the following on the Declaration Page:

“This policy does not provide coverage for the peril of Windstorm or Hail.”

25. Mobile Home Stated Value Loss Settlement

For an additional premium, your policy may be changed to reflect a stated value for the covered mobile home. For rate information, see Rate Section.

Attach MH(F)-310 (Ed. 9-97)

26. Optional Rating Characteristics

Companies may use the following optional rating characteristics or any combination of such optional rating characteristics and Bureau filed characteristics to determine rates, as long as applicable legal requirements are satisfied. The resulting premium shall not exceed the premium that would have been determined using the rates, rating plans, classifications, schedules, rules and standards promulgated by the Bureau, except as provided by statute. The rating factor for any combination of the following optional risk characteristics cannot exceed 1.00, unless the resulting premium does not exceed the Bureau premium.

- a. Policy characteristics not otherwise recognized in this manual. Examples include: account or multi-policy credit; tiers; continuity of coverage; coverages purchased; intra-agency transfers; payment history; payment options; prior insurance; and new and renewal status.
- b. Policyholder/Insured personal characteristics not otherwise recognized in this manual. Examples include: Smoker/non-smoker status; credit information; loss history; loss prevention training/education; age; work status; marital status; number of years owned; owned real estate; household composition; and good student/education.
- c. Dwelling characteristics not otherwise recognized in this manual. Examples include: Gated community; retirement community; limited access community; mobile home community; revitalized/renovated home; security, safety or loss deterrent systems or devices; age of home; occupancy; fire protection/distance to fire department; and construction type and quality.
- d. Affinity group or other group not otherwise recognized in this manual.
- e. Any other rating characteristics or combination of characteristics if filed by a company and approved by the Commissioner.

27. Installment Payment Plan

When a policy is issued on an installment basis, the following rules apply:

The first installment shall be due on the effective date of the policy and the due date of the last installment shall be no later than one month prior to the policy anniversary date.

An additional charge of \$3.00 shall be made for each installment.

The premium calculated for the first installment payment, exclusive of installment charges, shall not be less than the pro rata charge for the period from the inception date of policy to the due date of the next installment.

28. AGE OF MOBILE HOME RULE

The age of mobile home is defined as the difference between the year in which the policy is written and the year in which the mobile home was built.

29. TERRITORY GROUPS

For rating purposes, territories are grouped as follows:

Territory Group 1: Territories 110, 120, 130, and 140

Territory Group 2: Territories 150, and 160

Territory Group 3: Territories 180, 190, 200, 210, 220, and 230

Territory Group 4: Territories 170, 240, and 250

Territory Group 5: Territories 260, 270, 280, 290, and 300

Territory Group 6: Territories 310, 320, 330, 340, 350, 360, 370, 380, and 390

MOBILE HOMEOWNERS POLICY PROGRAM MH(F)

NORTH CAROLINA

30. CALCULATION OF PREMIUM

Manual premiums for Owners and Tenants shall be calculated as the product of the base rate, policy form rating factor, amount of insurance rating factor, territory rating factor, deductible rating factor (subject to the maximum credit), and age of mobile home factor.

**North Carolina Mobile Homeowners
MH(F) Program**

Current Rate Pages and Territory Pages

**MOBILE HOME POLICY PROGRAM MANUAL
MH(F)
RATE PAGES**

NORTH CAROLINA

Territory Group* 1				Surcharge 38.1%	
Territory Group* 3				Discount -17.8%	
TERRITORY GROUP* 2					
OWNERS FORMS					
\$50 DEDUCTIBLE					
Amount of Insurance				Premiums	
A	B	C	D	MH(F)-2	MH(F)-3
\$2,000	\$200	\$600	\$200	\$263.00	\$300.00
3,000	300	900	300	273.00	312.00
4,000	400	1,200	400	283.00	324.00
5,000	500	1,500	500	294.00.	336.00
6,000	600	1,800	600	304.00	347.00
7,000	700	2,100	700	315.00	359.00
8,000	800	2,400	800	325.00	372.00
9,000	900	2,700	900	336.00	384.00
10,000	1,000	3,000	1,000	346.00	395.00
11,000	1,100	3,300	1,100	356.00	407.00
12,000	1,200	3,600	1,200	367.00	419.00
13,000	1,300	3,900	1,300	377.00	431.00
14,000	1,400	4,200	1,400	387.00	443.00
15,000	1,500	4,500	1,500	394.00	451.00
Each Add'l \$1,000				10.00	12.00

Territory Group* 1		Surcharge 40.9%
Territory Group* 3		Discount -14.3%
TERRITORY GROUP* 2		
TENANT FORM		
\$50 DEDUCTIBLE		
Amount of Insurance		Premium
C	D	MH(F)-4
\$ 2,000	\$ 200	\$ 50.00
3,000	300	61.00
4,000	400	73.00
5,000	500	84.00
6,000	600	96.00
7,000	700	108.00
8,000	800	118.00
9,000	900	131.00
10,000	1,000	142.00
Each Add'l \$1,000		11.00

*Territory Group 1: Territory 5, 6, 42, 43
 *Territory Group 2: Territory 32, 34, 41, 44-47, 53
 *Territory Group3: Territory 36, 38, 39, 57, 60

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

1. DEDUCTIBLES

For the purpose of this rule, premium subject to deductible credits shall be the sum of the following:

- (1) the premium developed from the Basic Premium Chart for Section 1 Deductible
- (2) the premiums for amended limits of liability for Coverage C; and
- (3) the premiums developed for all other Structures, Theft Coverage Extension and Coverage C - Increased Limits - Away from Premises, if applicable.

a. Optional Higher Flat Deductible

ALL FORMS - The Mobile-Homeowners Policy may be endorsed to provide a flat (non-disappearing) deductible applicable to any loss under Section 1 of the policy in an amount and at a premium credit developed as follows. The Percentage of premium credit shall be applied to the premium developed above subject to the maximum premium credit indicated.

Owner – Section I Deductible				
Deductible Amount	\$100	\$250	\$500	\$1,000
Percentage Credit	10%	20%	27%	34%
Maximum Credit:				
Territory Group 1*	\$53.80	\$107.59	\$215.19	\$537.97
Territory Group 2*	\$38.95	\$77.90	\$155.81	\$389.51
Territory Group 3*	\$32.02	\$64.04	\$128.08	\$320.20

Tenant – Section I Deductible				
Deductible Amount	\$100	\$250	\$500	\$1,000
Percentage Credit	10%	20%	27%	34%
Maximum Credit:				
Territory Group 1*	\$39.46	\$78.91	\$157.82	\$394.55
Territory Group 2*	\$28.00	\$56.00	\$112.00	\$280.00
Territory Group 3*	\$24.00	\$48.00	\$96.00	\$240.00

b. Optional Flat Theft Deductible

ALL FORMS - The mobile-Homeowners Policy may be endorsed to provide a \$100 or \$250 Flat Theft Deductible applying to loss by Theft of property covered under Coverage C of the policy at a premium credit developed from the table below. The premium subject to this deductible shall be the sum of:

- (1) the premium developed from the Basic Premium Chart;
- (2) the premiums for amended limits of liability for Coverage C; and
- (3) the premiums developed for Theft Coverage Extension and Coverage C Increased Limits Away from Premises, if applicable.

Theft Deductible Amount	Owner		Tenant	
	\$100	\$250	\$100	\$250
Percentage Credit	3%	5%	3%	5%
Maximum Credit:				
Territory Group 1*	\$21.52	\$32.28	\$15.78	\$23.67
Territory Group 2*	\$15.58	\$23.37	\$11.20	\$16.80
Territory Group 3*	\$12.81	\$19.21	\$9.60	\$14.40

*Territory Group 1: Territory 5, 6, 42, 43

*Territory Group 2: Territory 32, 34, 41, 44-47, 53

*Territory Group3: Territory 36, 38, 39, 57, 60

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

c. Optional Windstorm or Hail Deductibles Territory Group 1* Only

The Windstorm or Hail Deductible options are used in conjunction with the deductibles applicable to All Other Perils. This option provides for higher dollar deductible amounts of \$1,000, \$2,000 and \$5,000 when the higher deductible amount selected exceeds the deductible applicable to All Other Perils.

An endorsement is not required. Separately enter on the policy declarations the deductible amounts that apply to Windstorm or Hail and All Other Perils. For example: Deductible - \$500 except \$1000 for Windstorm or Hail.

The Windstorm or Hail Deductible factor applies to the \$50 rate.

\$1,000 WINDSTORM OR HAIL DEDUCTIBLE	
All Other Perils Deductible	Deductible Factors
\$ 50	0.89
100	0.82
250	0.76
500	0.70

The amount of insurance on the structure must be at least \$10,000.

The Maximum \$1000 Windstorm or Hail Deductible credit is \$537.97

\$2,000 WINDSTORM OR HAIL DEDUCTIBLE	
All Other Perils Deductible	Deductible Factor
\$ 50	0.85
100	0.78
250	0.73
500	0.68
1000	0.60

The amount of insurance on the structure must be at least \$20,000.

The Maximum \$2000 Windstorm or Hail Deductible credit is \$1,075.94.

\$5,000 WINDSTORM OR HAIL DEDUCTIBLE	
All Other Perils Deductible	Deductible Factor
\$ 50	0.82
100	0.77
250	0.70
500	0.66
1000	0.58

The amount of insurance on the structure must be at least \$50,000.

The Maximum \$5000 Windstorm or Hail Deductible credit is \$1,721.51.

*Territory Group 1: Territory 5, 6, 42, 43

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

d .Optional Named Storm Percentage Deductibles Territory Group 1*ONLY

ALL FORMS - The Mobile-Homeowners Policy may be endorsed to provide a Named Storm Percentage Deductible of 1% of the Coverage A or C limit of liability, whichever is greater, when the dollar amount of the percentage deductible exceeds the deductible applicable to All Other Perils. Use **MH(F)-58**, Named Storm Percentage Deductible.

The credits displayed incorporate the credits for the All Perils Deductibles. Do not use the credits for the All Perils Deductibles when rating a policy with a higher Named Storm Percentage Deductible.

The Named Storm Percentage Deductible factor applies to the \$50 Deductible rate.

Section 1 Deductible - Owners					
All Other Perils Deductible	\$50	\$100	\$250	\$500	\$1,000
Percentage Credit	5%	14%	24%	31%	37%
Maximum Credit	\$28.32	\$56.62	\$113.26	\$226.52	\$566.29

Section 1 Deductible - Tenants					
All Other Perils Deductible	\$50	\$100	\$250	\$500	\$1,000
Percentage Credit	5%	14%	24%	31%	37%
Maximum Credit	\$20.76	\$41.54	\$83.06	\$166.13	\$415.31

*Territory Group 1: Territory 5, 6, 42, 43

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

2. OPTIONAL COVERAGES

a. Other Structures Increased Limits

When an additional amount of insurance is written on a specific Other Structure, the premiums listed on the following page per \$1,000 of insurance shall apply separately to each such structure.

FORM	INCREASED LIMIT RATE PER \$1,000
MH(F) 2	\$ 9
MH(F) 3	11

Attach Endorsement **MH(F)28** Other Structures

b. Credit Card, Forgery and Counterfeit Money Coverage

When Credit Card, Forgery and Counterfeit Money Coverage is provided the additional premium shall be developed as follows:

Limit of Liability	Premium
\$ 2,500	\$3
5,000	5
10,000	6

For limits in excess of \$10,000 refer to Company

Attach Endorsement **MH(F) 29** Credit Card, Forgery and Counterfeit Money.

c. Money and Securities - Increased Limit

When the limit of liability is increased on money or securities, the additional premium shall be developed as follows:

All Forms	Money	Securities
Per \$100 of Insurance	\$6	\$4

The special limit of liability for theft of jewelry, watches and furs may be increased to \$1,000 but not exceeding \$500 for any one article. The additional premium shall be \$9.

Attach Endorsement **MH(F) 32** Coverage C - Increased Special Limits of Liability.

d. Theft Coverage Extension

ALL FORMS - When the peril of Theft is extended to cover loss of property from unattended vehicles or watercraft, the additional premium shall be \$3.

Attach Endorsement **MH(F) 27** Theft Coverage Extension.

e. Personal Property

(1) Increased Limit

When the limit of liability for Coverage C is increased, the additional premium shall be developed as follows:

Form	Per \$1,000 of insurance
MH(F)2 or MH(F)3	\$10

(2) Increased Limits - Away from Premises

When the limit of liability on personal property away from the premises under Coverage C is increased, the additional premium shall be developed as follows:

All Forms	Each Additional \$1,000
Without Theft Extension	\$ 9
With Theft Extension	13

Minimum Premium - \$9 Minimum Retained Premium for this endorsement when cancelled separately.

Attach Endorsement **MH(F) 33** - Coverage C Away From Premises

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

f. Mobile Home Lienholders Single Interest

\$10 per year, not subject to Short Rate adjustment. Covers lienholders interest from loss by collision, upset, conversion, embezzlement or secretion and repossession return expense.

Attach endorsement **MH(F) 21** Mobilehome Leinholder's single Interest.

g. Trip Collision Coverage

In consideration of a fully earned premium of \$15, the policy is extended to cover loss from collision or upset for a period of 30 days – Subject to a mandatory \$100 deductible.

Attach endorsement **MH(F) 22** Collision.

h. Consent to Move Mobile Home

In consideration of a fully earned premium of \$10, the on premises limits are extended to wherever the Mobile Home may be, for a period of 30 days.

Attach endorsement **MH(F) 20** Consent to Move Mobile Home.

i. Earthquake Coverage

When Earthquake Coverage is provided it shall apply to all Section 1 Coverages for the same limits as provided under the policy. The premium for each \$1,000 of insurance shall be developed as follows:

Form	Frame	Applied to:
MH(F) 2, MH(F) 3	.40	Coverage A Limit
MH(F) 4	.30	Coverage C Limit
MH(F) 2, MH(F) 3	.30	Amount of Coverage C Increase Only
All Forms	.40	Private Structure or Coverage D Increased or added limits

Attach endorsement **MH(F) 43** Earthquake.

j. Fire Department Service Charge

The limit may be increased as follows:

- Increase to \$250 \$2
- Increase to \$500 \$5

Attach endorsement **MH(F) 45** Fire Department Service Charge.

k. Tie-Down Credit

See general rule 9.

Attach endorsement **MH(F) 46** Mobile Home Tie-Down.

l. Replacement Cost Coverages A and B

When coverage is provided on a replacement cost basis, charge 5% of the premium from the Basic Premium Chart.

Attach **MH(F) 48** Replacement Cost Loss Settlement

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

m. Inflation Guard Coverage - Form MH(F) 2 and Form MH(F) 3

When the Limits of Liability on Coverages A, B, C & D are automatically increased in accordance with the provisions of the Inflation Guard Endorsement the annual additional premium shall be developed by applying the following charges to the annual premium for Coverage A.

Amount of Quarterly Increase	Charge
1%	1.5%
1½%	2.25%
2%	3.0%
Each Add'l ½% add	¾%

Minimum Annual Premium \$1.00. Additional premium for three year policies shall be three times the annual premium.

Attach Endorsement **MH(F)50** Mobile Homeowners Inflation Guard.

n. Personal Property Replacement Cost MH(F) 2 and MH(F) 3

When Coverage C is extended to include full cost of repair or replacement without deduction for depreciation the additional premium shall be developed as follows:

- Manual charge to increase Coverage C limit to 40% of Coverage A.
- 5% surcharge to the adjusted total base premium (including the additional premium for the increased Coverage C limit). The surcharge shall be applied to the Total Adjusted Basic Premium before credit for optional higher deductible is applied. The minimum additional premium is \$20.

Attach Endorsement **MH(F) 51** Personal Property Replacement Cost.

o. Coverage B - Off Premises Form MH(F)-2 and MH(F)-3

When Coverage B - Off Premises is provided to cover other structures which are located off the residence premises, the additional charge shall be \$33.

Attach Endorsement **MH(F) 52** Coverage B - Off Premises

p. Windstorm or Hail Exclusion Credit – Territory Group* 1 Only - 5, 6, 42, 43

When the perils of windstorm or hail are excluded from coverage under Section I of the policy the following credits shall be deducted from the applicable basic premium.

FORM	Territory Group* 1 - Territories 5, 6, 42, 43
MH(F) 2 and MH(F) 3	73.9%
MH(F) 4	61.3%

q. Mobile Home Stated Value Loss Settlement

When coverage is provided on a stated value basis, charge 3% of the premium from the premium rate table.

Attach endorsement **MH(F) 310** Stated Value Loss Settlement.

*Territory Group 1: Territory 5, 6, 42, 43

HOMEOWNERS POLICY PROGRAM MANUAL
RATE PAGES

NORTH CAROLINA

SECTION II COVERAGES – LIABILITY

3. GENERAL INSTRUCTIONS

When the limit of liability for Coverage E or F is increased or coverage for additional exposures is provided, the additional premium shall be developed from the following tables. The respective limits of liability for Coverage E and for Coverage F must be uniform for all exposures covered under the policy. Coverage F limits indicated below are “each person” limits and contemplate the basic limit of \$25,000 each accident. Refer to Company for Limits in Excess of those shown.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Residence Premises			3		1	4		2	5		4	7		6	9
Additional Residence Premises															
Occupied by Insured (1 or 2 Family)		3	4	\$	4	5		5	6		6	7		7	8
Rented to Others* (1 Family)	3	6	7	4	7	8	5	8	9	6	9	10	7	10	11
Rented to Others* (2 Family)	5	8	9	6	9	10	7	10	11	8	11	12	9	12	13
Residence Employees**		2	3		3	4		4	5		5	6		6	7
*Attach Endorsement MH(F) 34 - Additional Residence Premises - Rented to Others.															
**Charge for each employee in excess of two other than employees whose time of employment is not more than half of the customary full time or to whom the Worker’s Compensation exclusion applies as set forth in Section II of the policy.															

When coverage is provided by a Mobile-Homeowners for a Secondary Residence premises of an insured whose Primary Residence is covered by a Homeowners, Farmowners or Mobile Homeowners Policy in the same company, the secondary premises shall be endorsed on Section II of the Primary policy at the appropriate charge, and a \$7 credit allowed on the Secondary policy if the Primary policy number is shown on the Declarations page of the Secondary policy.

Office, Professional, Private School or Studio Occupancy

When the insured maintains an incidental office, professional, private school or studio occupancy on the premises, the additional premium shall be calculated by adding the appropriate charge from the following table to the premium developed for any required increased in the Coverage C Limit of Liability.

Submit to Company for Medical Payments charges on incidental day nurseries or nursery schools.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Residence Premises															
General Rule 5.a.*	9	11	13	10	12	14	11	13	15	12	14	16	13	15	17
General Rule 5.b.*		3	4		4	5		5	6		6	7		7	8
General Rule 5.c.**	4	6	8	5	7	9	6	8	10	7	9	11	8	10	12
*Attach Endorsement MH(F)-24 - Office, Professional, Private School or Studio Use – Residence Premises.															
**Attach Endorsement MH(F)-25 - Office, Professional, Private School or Studio Use – Other Residence.															

**HOMEOWNERS POLICY PROGRAM MANUAL
RATE PAGES**

NORTH CAROLINA

SECTION II COVERAGES – LIABILITY

Watercraft

Coverage must be written to expiration of the policy, but it is permissible to stipulate for inboard motor boats or inboard-outboard motor boats or sailboats (not outboard motors) the navigational period of each year. Premium shall be adjusted on a short rate basis. For boats not described below, coverage is not permitted under the Mobile-Homeowners policy. The premium applicable in the state in which the insured's initial residence premises is located shall apply except that if the insured owns another premises where he maintains a residence and operates his boat principally from such other premises, the premiums applicable in the state where the latter premises are located shall apply.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Outboard Motor*										
Less than 50 HP	5	6	6	7	7	8	8	9	9	10
50 HP and over	8	10	10	12	11	13	13	15	14	16
Inboard or Inboard-Outboard Motor Boats and Sailboats **										
• Under 16 MPH										
Less than 26 feet	11	12	13	14	15	16	17	18	19	20
26 to 40 feet	30	33	34	37	39	42	44	47	50	53
Over 40 feet	58	65	67	74	76	83	87	94	99	106
• 16 to 30 MPH										
Less than 26 feet	23	26	27	30	30	33	35	38	40	43
26 to 40 feet	47	53	54	60	61	67	70	76	80	86
Over 40 feet	87	98	100	111	114	125	131	142	149	160
• Over 30 MPH										
Less than 26 feet	58	65	67	74	76	83	87	94	99	106
26 to 40 feet	87	98	100	111	114	125	131	142	149	160
Sailboats No Auxiliary Power 26 to 40 feet	23	26	27	30	30	33	35	38	40	43
*Where two or more outboard motors are regularly used together in connection with any single watercraft owned by the Insured, the horsepower of all such outboards shall be accumulated for rating purposes.										
**Sailboats 26 to 40 feet inclusive equipped with Auxiliary Power are classed as Inboard Motor Boats.										
Attach Endorsement MH(F) 36 Watercraft										

**HOMEOWNERS POLICY PROGRAM MANUAL
RATE PAGES**

NORTH CAROLINA

SECTION II COVERAGES – LIABILITY

Business Pursuits

Classify and apply charge separately for each person insured:

A - Clerical Office Employees - Defines as those employees whose duties are confined to keeping the books or records, conducting correspondence, or who are engaged wholly in office work where such books or records are kept or where such correspondence is conducted, having no other duty or any nature in or about the employer's premises. This classification applies only to persons who are employed exclusively in separate buildings or on separate floors of buildings or in departments on such floors which are separated from all other work places of the employer by structural partitions and within which no work is performed other than clerical office duties.

B - Salesmen, Collectors or Messengers - Including installation, demonstration or servicing operations.

C - Teachers - Athletic, laboratory, manual training, physical training and swimming instruction, excluding liability for corporal punishment of pupils.

D - Teachers - Not otherwise classified, excluding liability for corporal punishment of pupils.

E - Teachers - Liability for corporal punishment of pupils. Additional premium for this coverage must be added to premium for classification C or D.

Occupations not otherwise classified - Refer to Company.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Class															
A	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
B	2	3	4	2	3	4	3	4	5	3	4	5	3	4	5
C	3	5	6	3	6	7	4	7	8	5	8	9	6	9	10
D	1	2	3	1	2	3	1	2	3	2	3	4	2	3	4
E		2			3			4			5			6	
*Attach Endorsement MH(F)-35 – Business Pursuits															

**HOMEOWNERS POLICY PROGRAM MANUAL
RATE PAGES**

NORTH CAROLINA

SECTION II COVERAGES – LIABILITY

Farmers Comprehensive Personal Liability

Coverage must be written to expiration of the policy, but it is permissible to stipulate for inboard motor boats or inboard-outboard motor boats or sailboats (not outboard motors) the navigational period of each year. Premium shall be adjusted on a short rate basis. For boats not described below, coverage is not permitted under the Mobile-Homeowners policy. The premium applicable in the state in which the insured's initial residence premises is located shall apply except that if the insured owns another premises where he maintains a residence and operates his boat principally from such other premises, the premiums applicable in the state where the latter premises are located shall apply.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Initial Farm Premises	21	23	23	26	26	29	29	32	32	35
Each Additional Farm Premises Occupied or Rented	12	13	14	15	15	16	17	18	19	20
Total Acreage for All Locations Occupied or Rented Over 500	5		6		7		8		9	
Farm Employees*										
• Per 100 Days or Fraction	6	7	7	8	8	9	9	10	10	11
• Each Farm Employee Part Time	8	9	9	10	10	11	11	13	12	14
• Each Farm Employee Full Time	18	20	20	22	22	25	25	28	28	31
Minimum Premium Per Policy	11	13	13	15	14	17	16	19	18	21
Animal Collision Coverage G	\$300 Limit - \$3									
Attach Endorsement MH(F) 41 Farmer's Comprehensive Personal Liability										

Owned Snowmobile

Each snowmobile owned by the Named Insured or any other Insured who is a resident of the Named Insured's household must be declared. The premium charge shall apply separately to each snowmobile. The minimum charge for each snowmobile for any period of coverage within a policy year shall be as indicated below for the respective Limits of Liability.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Each Snowmobile	-	-	-	-	-	-	-	-	-	-
Annual Minimum Premium	34	35	39	40	42	44	48	50	54	55
Attach Endorsement MH(F)-37 - Snowmobile										

**MOBILE HOME POLICY PROGRAM MANUAL
TERRITORY PAGES**

NORTH CAROLINA (32)

1. TERRITORY DEFINITIONS – (For all Coverages and Perils Other than Earthquake).

A. Cities

City of	County of	Code
Charlotte	Mecklenburg	38
Durham	Durham	32
Greensboro	Guilford	36
Raleigh	Wake	32
Winston-Salem	Forsyth	36

B. Other Than Cities

County of	Code
Alamance	57
Alexander	60
Alleghany	60
Anson	44
Ashe	60
Avery	60
Beaufort	43
Bertie	45
Bladen	41
Brunswick	42
Buncombe	60
Burke	60
Cabarrus	60
Caldwell	60
Camden	43
Carteret	43
Caswell	46
Catawba	60
Chatham	53
Cherokee	60
Chowan	43
Clay	60
Cleveland	60
Columbus	41
Craven	43
Cumberland	34
Currituck	43
Dare	43
Davidson	57
Davie	60
Duplin	45
Durham	53
Edgecombe	47
Forsyth	57
Franklin	47
Gaston	39
Gates	45
Graham	60
Granville	46
Greene	45
Guilford	57
Halifax	47
Harnett	47
Haywood	60

County of	Code
Henderson	60
Hertford	45
Hoke	47
Hyde	43
Iredell	60
Jackson	60
Johnston	47
Jones	43
Lee	47
Lenoir	45
Lincoln	60
Macon	60
Madison	60
Martin	45
McDowell	60
Mecklenburg	39
Mitchell	60
Montgomery	44
Moore	47
Nash	47
New Hanover	42
Northampton	47
Onslow	42
Orange	53
Pamlico	43
Pasquotank	43
Pender	42
Perquimans	43
Person	46
Pitt	45
Polk	60
Randolph	57
Richmond	44
Robeson	41
Rockingham	60
Rowan	60
Rutherford	60
Sampson	45
Scotland	47
Stanly	60
Stokes	60
Surry	60
Swain	60
Transylvania	60
Tyrrell	43
Union	39
Vance	46
Wake	53
Warren	46
Washington	43
Watauga	60
Wayne	45
Wilkes	60
Wilson	47
Yadkin	57
Yancey	60

Beach Area – Localities south and east of the Inland Waterway from the South Carolina Line to Fort Macon (Beaufort Inlet), thence south and east of Core, Pamlico, Roanoke and Currituck Sounds to the Virginia Line, being those portions of land generally known as the "Outer Banks."

Beach Areas in Carteret, Currituck, Dare and Hyde Counties: 05

Beach areas in Brunswick, New Hanover, Onslow and Pender Counties: 06

MH-F-T-1

ED 12-08

**North Carolina Mobile Homeowners
MH(F) Program**

Proposed Rate Pages and Territory Pages

**MOBILE HOMEOWNERS POLICY PROGRAM
MANUAL MH(F)
RATE PAGES**

NORTH CAROLINA

BASE RATE

Policy Form	Form(s)	Base Rate
Owners	MH(F)-2, MH(F)-3	\$754.75
Tenants	MH(F)-4	189.22

POLICY FORM

Policy Form Factor		
MH(F)-2	MH(F)-3	MH(F)-4
1.000	1.143	1.000

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

NORTH CAROLINA

AMOUNT OF INSURANCE

Owners

Tenants

Amount of Insurance	Factor
\$5,000	0.252
6,000	0.270
8,000	0.306
10,000	0.342
12,500	0.386
15,000	0.429
17,500	0.472
20,000	0.514
22,500	0.556
25,000	0.598
27,500	0.639
30,000	0.680
32,500	0.721
35,000	0.761
37,500	0.802
40,000	0.842
42,500	0.882
45,000	0.921
47,500	0.961
50,000	1.000
52,500	1.039
55,000	1.078
57,500	1.117
60,000	1.155
62,500	1.194
65,000	1.232
67,500	1.271
70,000	1.309
72,500	1.347
75,000	1.384
77,500	1.422
80,000	1.460
82,500	1.497
85,000	1.535
87,500	1.572
90,000	1.609
92,500	1.646
95,000	1.683
97,500	1.720
100,000	1.757
Each Add'l \$1,000	0.015

Amount of Insurance	Factor
\$500	0.079
1,000	0.102
2,000	0.150
3,000	0.197
4,000	0.244
5,000	0.291
6,000	0.339
7,000	0.386
8,000	0.433
9,000	0.480
10,000	0.528
12,500	0.646
15,000	0.764
17,500	0.882
20,000	1.000
22,500	1.118
25,000	1.236
27,500	1.354
30,000	1.472
32,500	1.590
35,000	1.709
37,500	1.836
40,000	1.965
42,500	2.093
45,000	2.222
47,500	2.352
50,000	2.478
Each Add'l \$1,000	0.051

**MOBILE HOMEOWNERS POLICY
 PROGRAM MH(F)**

TERRITORY

Territory	Owners	Tenants
110	1.427	1.729
120	1.427	1.729
130	1.427	1.729
140	1.427	1.729
150	1.246	1.416
160	1.246	1.416
170	0.929	0.844
180	1.000	1.000
190	1.000	1.000
200	1.000	1.000
210	1.000	1.000
220	1.000	1.000
230	1.000	1.000
240	0.929	0.844
250	0.929	0.844
260	0.891	0.741
270	0.891	0.741
280	0.891	0.741
290	0.891	0.741
300	0.891	0.741
310	0.646	0.719
320	0.646	0.719
330	0.646	0.719
340	0.646	0.719
350	0.646	0.719
360	0.646	0.719
370	0.646	0.719
380	0.646	0.719
390	0.646	0.719

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

AGE OF MOBILE HOME

Age of Mobile Home	Owners	Tenants
0	0.739	1.000
1	0.754	1.000
2	0.769	1.000
3	0.785	1.000
4	0.801	1.000
5	0.817	1.000
6	0.834	1.000
7	0.851	1.000
8	0.868	1.000
9	0.886	1.000
10	0.904	1.000
11	0.922	1.000
12	0.941	1.000
13	0.960	1.000
14	0.980	1.000
15	1.000	1.000
16	1.000	1.000
17	1.000	1.000
18	1.000	1.000
19	1.000	1.000
20+	1.000	1.000

1. DEDUCTIBLES

For the purpose of this rule, premium subject to deductible credits shall be the sum of the following:

- (1) the premium developed from the Basic Premium Chart for Section 1 Deductible
- (2) the premiums for amended limits of liability for Coverage C; and
- (3) the premiums developed for all other Structures, Theft Coverage Extension and Coverage C - Increased Limits - Away from Premises, if applicable.

a. Optional Higher Flat Deductible

ALL FORMS - The Mobile Homeowners Policy may be endorsed to provide a flat (non-disappearing) deductible applicable to any loss under Section 1 of the policy in an amount and at a premium credit developed. The Percentage of premium credit shall be applied to the premium developed above subject to the maximum premium credit indicated.

b. Optional Windstorm or Hail Deductibles (Territory Groups 1 and 2 ONLY)

The Windstorm or Hail Deductible options are used in conjunction with the deductibles applicable to All Other Perils. This option provides for higher dollar deductible amounts of \$1,000, \$2,000, \$5,000, 1%, 2%, and 5% when the higher deductible amount selected exceeds the deductible applicable to All Other Perils.

An endorsement is not required. Separately enter on the policy declarations the deductible amounts that apply to Windstorm or Hail and All Other Perils. For example: Deductible - \$500 except \$1,000 for Windstorm or Hail.

The Windstorm or Hail Deductible factor applies to the \$250 rate.

c. Optional Named Storm Percentage Deductibles (Territory Groups 1 and 2 ONLY)

ALL FORMS - The Mobile Homeowners Policy may be endorsed to provide a Named Storm Percentage Deductible of 1%, 2%, and 5% of the Coverage A or C limit of liability, whichever is greater, when the dollar amount of the percentage deductible exceeds the deductible applicable to All Other Perils. Use MH(F)-58, Named Storm Percentage Deductible.

The credits incorporate the credits for the All Perils Deductibles. Do not use the credits for the All Perils Deductibles when rating a policy with a higher Named Storm Percentage Deductible.

The Named Storm Percentage Deductible factor applies to the \$250 Deductible rate.

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

DEDUCTIBLE (Territory Groups 3, 4, 5, and 6 ONLY)

Deductible	Owners		Tenants	
	Factor	Max Credit	Factor	Max Credit
50	1.133	--	1.190	--
100	1.086	--	1.114	--
250	1.000	--	1.000	--
500	0.924	\$75	0.905	\$75
750	0.858	156	0.839	156
1,000	0.801	243	0.791	243
2,000	0.630	585	0.620	585
5,000	0.525	1,628	0.516	1,628

DEDUCTIBLE (Territory Groups 1 and 2 ONLY)

Owners					
All-Peril Deductible	Windstorm or Hail Deductible	Named Storm Deductible	Factor	Maximum Credit	Minimum Amount of Insurance Required
50	--	--	1.133	--	--
	1,000	--	1.000	--	\$10,000
	2,000	--	0.932	\$68	20,000
	5,000	--	0.890	117	50,000
	1%	--	1.062	--	25,000
	2%	--	0.983	17	50,000
	5%	--	0.925	74	50,000
	--	1%	1.097	--	25,000
	--	2%	1.071	--	25,000
	--	5%	1.029	--	25,000
100	--	--	1.086	--	--
	1,000	--	0.972	\$28	\$10,000
	2,000	--	0.903	100	20,000
	5,000	--	0.861	151	50,000
	1%	--	1.027	--	25,000
	2%	--	0.954	45	50,000
	5%	--	0.896	109	50,000
	--	1%	1.056	--	25,000
	--	2%	1.033	--	25,000
	--	5%	0.991	9	25,000
250	--	--	1.000	--	--
	1,000	--	0.920	\$80	\$10,000
	2,000	--	0.852	165	20,000
	5,000	--	0.810	229	50,000
	1%	--	0.970	30	25,000
	2%	--	0.903	100	50,000
	5%	--	0.845	175	50,000
	--	1%	0.979	20	50,000
	--	2%	0.952	48	50,000
	--	5%	0.915	85	50,000

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

DEDUCTIBLE (Territory Groups 1 and 2 ONLY)

Owners (Cont.)

All-Peril Deductible	Windstorm or Hail Deductible	Named Storm Deductible	Factor	Maximum Credit	Minimum Amount of Insurance Required
500	--	--	0.924	\$75	--
	1,000	--	0.875	135	\$10,000
	2,000	--	0.806	234	20,000
	5,000	--	0.764	315	50,000
	1%	--	0.897	107	50,000
	2%	--	0.840	182	50,000
	5%	--	0.782	280	50,000
	--	1%	0.911	91	50,000
	--	2%	0.882	126	50,000
	--	5%	0.853	163	50,000
750	--	--	0.858	\$156	--
	1,000	--	0.835	191	\$10,000
	2,000	--	0.766	311	20,000
	5,000	--	0.725	395	50,000
	2%	--	0.801	243	50,000
	5%	--	0.742	360	50,000
	--	2%	0.829	200	50,000
	--	5%	0.800	245	50,000
1,000	--	--	0.801	\$243	--
	2,000	--	0.732	380	\$20,000
	5,000	--	0.690	463	50,000
	2%	--	0.766	311	50,000
	5%	--	0.708	429	50,000
	--	2%	0.783	277	50,000
	--	5%	0.754	336	50,000
2,000	--	--	0.630	\$585	--
	5,000	--	0.588	1,002	\$50,000
	2%	--	0.623	655	100,000
	5%	--	0.575	1,128	100,000
	--	2%	0.626	620	100,000
	--	5%	0.602	856	100,000
5,000	--	--	0.525	\$1,628	--
	5%	--	0.500	1,880	\$100,000
	--	5%	0.512	1,754	100,000

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

NORTH CAROLINA

DEDUCTIBLE (Territory Groups 1 and 2 ONLY)

Tenants					
All-Peril Deductible	Windstorm or Hail Deductible	Named Storm Deductible	Factor	Maximum Credit	Minimum Amount of Insurance Required
50	--	--	1.190	--	--
	1,000	--	1.030	--	\$10,000
	2,000	--	0.962	\$30	20,000
	5,000	--	0.920	63	50,000
	1%	--	1.091	--	25,000
	2%	--	1.013	N/A	50,000
	5%	--	0.955	36	50,000
	--	1%	1.141	--	25,000
	--	2%	1.114	--	25,000
	--	5%	1.073	--	25,000
100	--	--	1.114	--	--
	1,000	--	0.985	\$12	\$10,000
	2,000	--	0.916	66	20,000
	5,000	--	0.875	99	50,000
	1%	--	1.038	--	25,000
	2%	--	0.968	26	50,000
	5%	--	0.909	72	50,000
	--	1%	1.076	--	25,000
	--	2%	1.053	--	25,000
	--	5%	1.012	--	25,000
250	--	--	1.000	--	--
	1,000	--	0.916	\$66	\$10,000
	2,000	--	0.848	144	20,000
	5,000	--	0.806	215	50,000
	1%	--	0.962	30	25,000
	2%	--	0.899	82	50,000
	5%	--	0.841	153	50,000
	--	1%	0.976	19	50,000
	--	2%	0.950	40	50,000
	--	5%	0.914	68	50,000
500	--	--	0.905	\$75	--
	1,000	--	0.859	131	\$10,000
	2,000	--	0.791	243	20,000
	5,000	--	0.749	327	50,000
	1%	--	0.878	107	50,000
	2%	--	0.825	180	50,000
	5%	--	0.767	292	50,000
	--	1%	0.892	91	50,000
	--	2%	0.865	124	50,000
	--	5%	0.836	161	50,000

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

DEDUCTIBLE (Territory Groups 1 and 2 ONLY)

Tenants (Cont.)

All-Peril Deductible	Windstorm or Hail Deductible	Named Storm Deductible	Factor	Maximum Credit	Minimum Amount of Insurance Required
750	--	--	0.839	\$156	--
	1,000	--	0.820	191	\$10,000
	2,000	--	0.751	323	20,000
	5,000	--	0.709	406	50,000
	2%	--	0.785	254	50,000
	5%	--	0.727	372	50,000
	--	2%	0.812	205	50,000
	--	5%	0.783	260	50,000
1,000	--	--	0.791	\$243	--
	2,000	--	0.723	380	\$20,000
	5,000	--	0.681	463	50,000
	2%	--	0.757	311	50,000
	5%	--	0.698	429	50,000
	--	2%	0.774	277	50,000
	--	5%	0.745	336	50,000
2,000	--	--	0.620	\$585	--
	5,000	--	0.578	1,002	\$50,000
	2%	--	0.613	655	100,000
	5%	--	0.566	1,126	100,000
	--	2%	0.617	620	100,000
	--	5%	0.593	855	100,000
5,000	--	--	0.516	\$1,628	--
	5%	--	0.491	1,875	\$100,000
	--	5%	0.503	1,751	100,000

2. OPTIONAL COVERAGES

a. Other Structures Increased Limits

When an additional amount of insurance is written on a specific Other Structure, the premiums listed on the following page per \$1,000 of insurance shall apply separately to each such structure.

Form	INCREASED LIMIT RATE PER \$1,000
MH(F)-2	\$ 9
MH(F)-3	11

Attach Endorsement **MH(F)28** Other Structures

b. Credit Card, Forgery and Counterfeit Money Coverage

When Credit Card, Forgery and Counterfeit Money Coverage is provided the additional premium shall be developed as follows:

Limit of Liability	Premium
\$ 2,500	\$3
5,000	5
10,000	6

For limits in excess of \$10,000 refer to Company

Attach Endorsement **MH(F) 29** Credit Card, Forgery and Counterfeit Money.

c. Money and Securities - Increased Limit

When the limit of liability is increased on money or securities, the additional premium shall be developed as follows:

All Forms	Money	Securities
Per \$100 of Insurance	\$6	\$4

The special limit of liability for theft of jewelry, watches and furs may be increased to \$1,000 but not exceeding \$500 for any one article. The additional premium shall be \$9.

Attach Endorsement **MH(F) 32** Coverage C - Increased Special Limits of Liability.

d. Theft Coverage Extension

ALL FORMS - When the peril of Theft is extended to cover loss of property from unattended vehicles or watercraft, the additional premium shall be \$3.

Attach Endorsement **MH(F) 27** Theft Coverage Extension.

e. Personal Property

(1) Increased Limit

When the limit of liability for Coverage C is increased, the additional premium shall be developed as follows:

Form	Per \$1,000 of insurance
MH(F)-2 or MH(F)-3	\$10

(2) Increased Limits - Away from Premises

When the limit of liability on personal property away from the premises under Coverage C is increased, the additional premium shall be developed as follows:

All Forms	Each Additional \$1,000
Without Theft Extension	\$ 9
With Theft Extension	13

Minimum Premium - \$9 Minimum Retained Premium for this endorsement when cancelled separately.

Attach Endorsement **MH(F) 33** - Coverage C Away From Premises

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

NORTH CAROLINA

f. Mobile Home Lienholder's Single Interest

\$10 per year, not subject to Short Rate adjustment. Covers lienholders interest from loss by collision, upset, conversion, embezzlement or secretion and repossession return expense.

Attach endorsement **MH(F) 21** Mobile Home Lienholder's Single Interest.

g. Trip Collision Coverage

In consideration of a fully earned premium of \$15, the policy is extended to cover loss from collision or upset for a period of 30 days – Subject to a mandatory \$100 deductible.

Attach endorsement **MH(F) 22** Collision.

h. Consent to Move Mobile Home

In consideration of a fully earned premium of \$10, the on premises limits are extended to wherever the Mobile Home may be, for a period of 30 days.

Attach endorsement **MH(F) 20** Consent to Move Mobile Home.

i. Earthquake Coverage

When Earthquake Coverage is provided, it shall apply to all Section 1 Coverages for the same limits as provided under the policy. The premium for each \$1,000 of insurance shall be developed as follows:

Form	Frame	Applied to:
MH(F) 2, MH(F) 3	\$0.40	Coverage A Limit
MH(F) 4	0.30	Coverage C Limit
MH(F) 2, MH(F) 3	0.30	Amount of Coverage C Increase Only
All Forms	0.40	Private Structure or Coverage D Increased or added limits

Attach endorsement **MH(F) 43** Earthquake.

j. Fire Department Service Charge

The limit may be increased as follows:

- Increase to \$250 \$2
- Increase to \$500 \$5

Attach endorsement **MH(F) 45** Fire Department Service Charge.

k. Tie-Down Credit

See general rule 9.

Attach endorsement **MH(F) 46** Mobile Home Tie-Down.

l. Replacement Cost Coverages A and B

When coverage is provided on a replacement cost basis, charge 5% of the premium from the Basic Premium Chart.

Attach **MH(F) 48** Replacement Cost Loss Settlement

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

NORTH CAROLINA

m. Inflation Guard Coverage – Forms MH(F)-2 and MH(F)-3

When the Limits of Liability on Coverages A, B, C & D are automatically increased in accordance with the provisions of the Inflation Guard Endorsement the annual additional premium shall be developed by applying the following charges to the annual premium for Coverage A.

Amount of Quarterly Increase	Charge
1.0%	1.50%
1.5%	2.25%
2.0%	3.00%
Each Additional 0.5%	Add 0.75%

Minimum Annual Premium \$1.00. Additional premium for three year policies shall be three times the annual premium.

Attach Endorsement **MH(F) 50** Mobile Homeowners Inflation Guard.

n. Personal Property Replacement Cost – Forms MH(F)-2 and MH(F)-3

When Coverage C is extended to include full cost of repair or replacement without deduction for depreciation the additional premium shall be developed as follows:

- Manual charge to increase Coverage C limit to 40% of Coverage A.
- 5% surcharge to the adjusted total base premium (including the additional premium for the increased Coverage C limit). The surcharge shall be applied to the Total Adjusted Basic Premium before credit for optional higher deductible is applied. The minimum additional premium is \$20.

Attach Endorsement **MH(F) 51** Personal Property Replacement Cost.

o. Coverage B - Off Premises – Forms MH(F)-2 and MH(F)-3

When Coverage B - Off Premises is provided to cover other structures which are located off the residence premises, the additional charge shall be \$33.

Attach Endorsement **MH(F) 52** Coverage B - Off Premises

p. Windstorm or Hail Exclusion Credit – Territories 110, 120, 130, 140, 150, and 160 Only

When the perils of windstorm or hail are excluded from coverage under Section I of the policy the following credits shall be deducted from the applicable basic premium.

Form	Territories 110, 120, 130, & 140	Territories 150 & 160
MH(F)-2 and MH(F)-3	70.7%	71.4%
MH(F)-4	60.0%	57.9%

q. Mobile Home Stated Value Loss Settlement

When coverage is provided on a stated value basis, charge 3% of the premium from the premium rate table.

Attach endorsement **MH(F) 310** Stated Value Loss Settlement.

SECTION II COVERAGES – LIABILITY

3. GENERAL INSTRUCTIONS

When the limit of liability for Coverage E or F is increased or coverage for additional exposures is provided, the additional premium shall be developed from the following tables. The respective limits of liability for Coverage E and for Coverage F must be uniform for all exposures covered under the policy. Coverage F limits indicated below are “each person” limits and contemplate the basic limit of \$25,000 each accident. Refer to Company for Limits in Excess of those shown.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Residence Premises			3		1	4		2	5		4	7		6	9
Additional Residence Premises															
Occupied by Insured (1 or 2 Family)		3	4	\$	4	5		5	6		6	7		7	8
Rented to Others* (1 Family)	3	6	7	4	7	8	5	8	9	6	9	10	7	10	11
Rented to Others* (2 Family)	5	8	9	6	9	10	7	10	11	8	11	12	9	12	13
Residence Employees**		2	3		3	4		4	5		5	6		6	7
*Attach Endorsement MH(F) 34 - Additional Residence Premises - Rented to Others.															
**Charge for each employee in excess of two other than employees whose time of employment is not more than half of the customary full time or to whom the Worker’s Compensation exclusion applies as set forth in Section II of the policy.															

When coverage is provided by a Mobile Homeowners for a Secondary Residence premises of an insured whose Primary Residence is covered by a Homeowners, Farmowners or Mobile Homeowners Policy in the same company, the secondary premises shall be endorsed on Section II of the Primary policy at the appropriate charge, and a \$7 credit allowed on the Secondary policy if the Primary policy number is shown on the Declarations page of the Secondary policy.

Office, Professional, Private School or Studio Occupancy

When the insured maintains an incidental office, professional, private school or studio occupancy on the premises, the additional premium shall be calculated by adding the appropriate charge from the following table to the premium developed for any required increased in the Coverage C Limit of Liability.

Submit to Company for Medical Payments charges on incidental day nurseries or nursery schools.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Residence Premises															
General Rule 5.a.*	9	11	13	10	12	14	11	13	15	12	14	16	13	15	17
General Rule 5.b.*		3	4		4	5		5	6		6	7		7	8
General Rule 5.c.**	4	6	8	5	7	9	6	8	10	7	9	11	8	10	12
*Attach Endorsement MH(F)-24 - Office, Professional, Private School or Studio Use – Residence Premises.															
**Attach Endorsement MH(F)-25 - Office, Professional, Private School or Studio Use – Other Residence.															

SECTION II COVERAGES – LIABILITY

Watercraft

Coverage must be written to expiration of the policy, but it is permissible to stipulate for inboard motor boats or inboard-outboard motor boats or sailboats (not outboard motors) the navigational period of each year. Premium shall be adjusted on a short rate basis. For boats not described below, coverage is not permitted under the Mobile Homeowners policy. The premium applicable in the state in which the insured's initial residence premises is located shall apply except that if the insured owns another premises where he maintains a residence and operates his boat principally from such other premises, the premiums applicable in the state where the latter premises are located shall apply.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Outboard Motor*										
Less than 50 HP	5	6	6	7	7	8	8	9	9	10
50 HP and over	8	10	10	12	11	13	13	15	14	16
Inboard or Inboard-Outboard Motor Boats and Sailboats **										
· Under 16 MPH										
Less than 26 feet	11	12	13	14	15	16	17	18	19	20
26 to 40 feet	30	33	34	37	39	42	44	47	50	53
Over 40 feet	58	65	67	74	76	83	87	94	99	106
· 16 to 30 MPH										
Less than 26 feet	23	26	27	30	30	33	35	38	40	43
26 to 40 feet	47	53	54	60	61	67	70	76	80	86
Over 40 feet	87	98	100	111	114	125	131	142	149	160
· Over 30 MPH										
Less than 26 feet	58	65	67	74	76	83	87	94	99	106
26 to 40 feet	87	98	100	111	114	125	131	142	149	160
Sailboats No Auxiliary Power 26 to 40 feet	23	26	27	30	30	33	35	38	40	43
*Where two or more outboard motors are regularly used together in connection with any single watercraft owned by the Insured, the horsepower of all such outboards shall be accumulated for rating purposes.										
**Sailboats 26 to 40 feet inclusive equipped with Auxiliary Power are classed as Inboard Motor Boats.										
Attach Endorsement MH(F) 36 Watercraft										

SECTION II COVERAGES – LIABILITY

Business Pursuits

Classify and apply charge separately for each person insured:

A - Clerical Office Employees - Defines as those employees whose duties are confined to keeping the books or records, conducting correspondence, or who are engaged wholly in office work where such books or records are kept or where such correspondence is conducted, having no other duty or any nature in or about the employer's premises. This classification applies only to persons who are employed exclusively in separate buildings or on separate floors of buildings or in departments on such floors which are separated from all other work places of the employer by structural partitions and within which no work is performed other than clerical office duties.

B - Salesmen, Collectors or Messengers - Including installation, demonstration or servicing operations.

C - Teachers - Athletic, laboratory, manual training, physical training and swimming instruction, excluding liability for corporal punishment of pupils.

D - Teachers - Not otherwise classified, excluding liability for corporal punishment of pupils.

E - Teachers - Liability for corporal punishment of pupils. Additional premium for this coverage must be added to premium for classification C or D.

Occupations not otherwise classified - Refer to Company.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Class															
A	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
B	2	3	4	2	3	4	3	4	5	3	4	5	3	4	5
C	3	5	6	3	6	7	4	7	8	5	8	9	6	9	10
D	1	2	3	1	2	3	1	2	3	2	3	4	2	3	4
E		2			3			4			5			6	

*Attach Endorsement MH(F)-35 – Business Pursuits

**MOBILE HOMEOWNERS POLICY
PROGRAM MH(F)**

SECTION II COVERAGES – LIABILITY

Farmers Comprehensive Personal Liability

Coverage must be written to expiration of the policy, but it is permissible to stipulate for inboard motor boats or inboard-outboard motor boats or sailboats (not outboard motors) the navigational period of each year. Premium shall be adjusted on a short rate basis. For boats not described below, coverage is not permitted under the Mobile Homeowners policy. The premium applicable in the state in which the insured's initial residence premises is located shall apply except that if the insured owns another premises where he maintains a residence and operates his boat principally from such other premises, the premiums applicable in the state where the latter premises are located shall apply.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Initial Farm Premises	21	23	23	26	26	29	29	32	32	35
Each Additional Farm Premises Occupied or Rented	12	13	14	15	15	16	17	18	19	20
Total Acreage for All Locations Occupied or Rented Over 500	5		6		7		8		9	
Farm Employees*										
· Per 100 Days or Fraction	6	7	7	8	8	9	9	10	10	11
· Each Farm Employee Part Time	8	9	9	10	10	11	11	13	12	14
· Each Farm Employee Full Time	18	20	20	22	22	25	25	28	28	31
Minimum Premium Per Policy	11	13	13	15	14	17	16	19	18	21
Animal Collision Coverage G	\$300 Limit - \$3									
Attach Endorsement MH(F) 41 Farmer's Comprehensive Personal Liability										

Owned Snowmobile

Each snowmobile owned by the Named Insured or any other Insured who is a resident of the Named Insured's household must be declared. The premium charge shall apply separately to each snowmobile. The minimum charge for each snowmobile for any period of coverage within a policy year shall be as indicated below for the respective Limits of Liability.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$500	\$1,000	\$500	\$1,000	\$500
Each Snowmobile	-	-	-	-	-	-	-	-	-	-
Annual Minimum Premium	34	35	39	40	42	44	48	50	54	55
Attach Endorsement MH(F)-37 - Snowmobile										

**MOBILE HOMEOWNERS POLICY PROGRAM
TERRITORY PAGES**

NORTH CAROLINA

1. TERRITORY ASSIGNMENTS

If a territory shown is defined in terms of United States Postal Service (USPS) ZIP code:

A. Determine the applicable rating territory based on the location of the dwelling.

B. An insured's rates shall not be changed solely because the USPS changed his or her ZIP code and the physical boundaries of a rating territory shall be determined by the ZIP code boundaries in effect at the time of the latest rate filing defining the territory. Territory boundaries in North Carolina are concurrent with USPS ZIP code boundaries in effect as of **July 1, 2013**. If the USPS introduces a new ZIP code or realigns a ZIP code boundary after **July 1, 2013**, the new ZIP code may not yet be listed in Rule **2.C**. If this is the case, assign the rating territory based on the ZIP code boundary that formerly applied to the dwelling before the USPS changed the ZIP code.

2. TERRITORY DEFINITIONS – (For all Coverages and Perils Other than Earthquake).

Assign the applicable territory using the following order of priority:

A. Counties

County of	Code
Alamance	310
Alexander	340
Alleghany	360
Anson	300
Ashe	360
Avery	370
Beaufort	150
Bertie	180
Bladen	230
Buncombe	360
Burke	360
Cabarrus	320
Caldwell	360
Camden	150
Caswell	310
Catawba	360
Chatham	280
Cherokee	390
Chowan	150
Clay	390
Cleveland	350
Columbus	200
Craven	150
Cumberland	220
Currituck (other than Beach Areas)	130
Dare (other than Beach Areas)	130
Davidson	320
Davie	310
Duplin	190
Durham	270
Edgecombe	210
Forsyth	310
Franklin	240
Gaston	350

County of	Code
Gates	170
Graham	390
Granville	260
Greene	180
Guilford	310
Halifax	240
Harnett	250
Haywood	380
Henderson	360
Hertford	170
Hoke	250
Hyde (other than Beach Areas)	130
Iredell	340
Jackson	390
Johnston	240
Jones	150
Lee	290
Lenoir	190
Lincoln	350
Macon	390
Madison	380
Martin	180
McDowell	360
Mecklenburg	340
Mitchell	370
Montgomery	300
Moore	290
Nash	240
Northampton	240
Orange	280
Pamlico	130
Pasquotank	150
Perquimans	150
Person	260
Pitt	180
Polk	360
Randolph	320
Richmond	300
Robeson	230
Rockingham	310
Rowan	320
Rutherford	350
Sampson	220
Scotland	250
Stanly	340
Stokes	310
Surry	310
Swain	380
Transylvania	380
Tyrrell	150
Union	340
Vance	260
Wake	270
Warren	260
Washington	150
Watauga	360
Wayne	180
Wilkes	340
Wilson	210
Yadkin	330
Yancey	360

MHC-T-1

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**MOBILE HOMEOWNERS POLICY PROGRAM
TERRITORY PAGES**

NORTH CAROLINA

B. Beach Areas

Beach Area – Localities south and east of the Inland Waterway from the South Carolina Line to Fort Macon (Beaufort Inlet), thence south and east of Core, Pamlico, Roanoke and Currituck Sounds to the Virginia Line, being those portions of land generally known as the "Outer Banks".
Beach areas in Currituck, Dare, and Hyde Counties: 110
Beach areas in Brunswick, Carteret, New Hanover, Onslow, and Pender Counties: 120

C. Other than Beach Areas of Brunswick, Carteret, New Hanover, Onslow, and Pender Counties

For areas of Brunswick, Carteret, New Hanover, Onslow and Pender Counties, other than the Beach Areas, refer to the following ZIP codes. If portions of these ZIP codes fall in Counties other than Brunswick, Carteret, New Hanover, Onslow and Pender Counties use the territory code for those Counties.

1. Eastern Coastal Territory

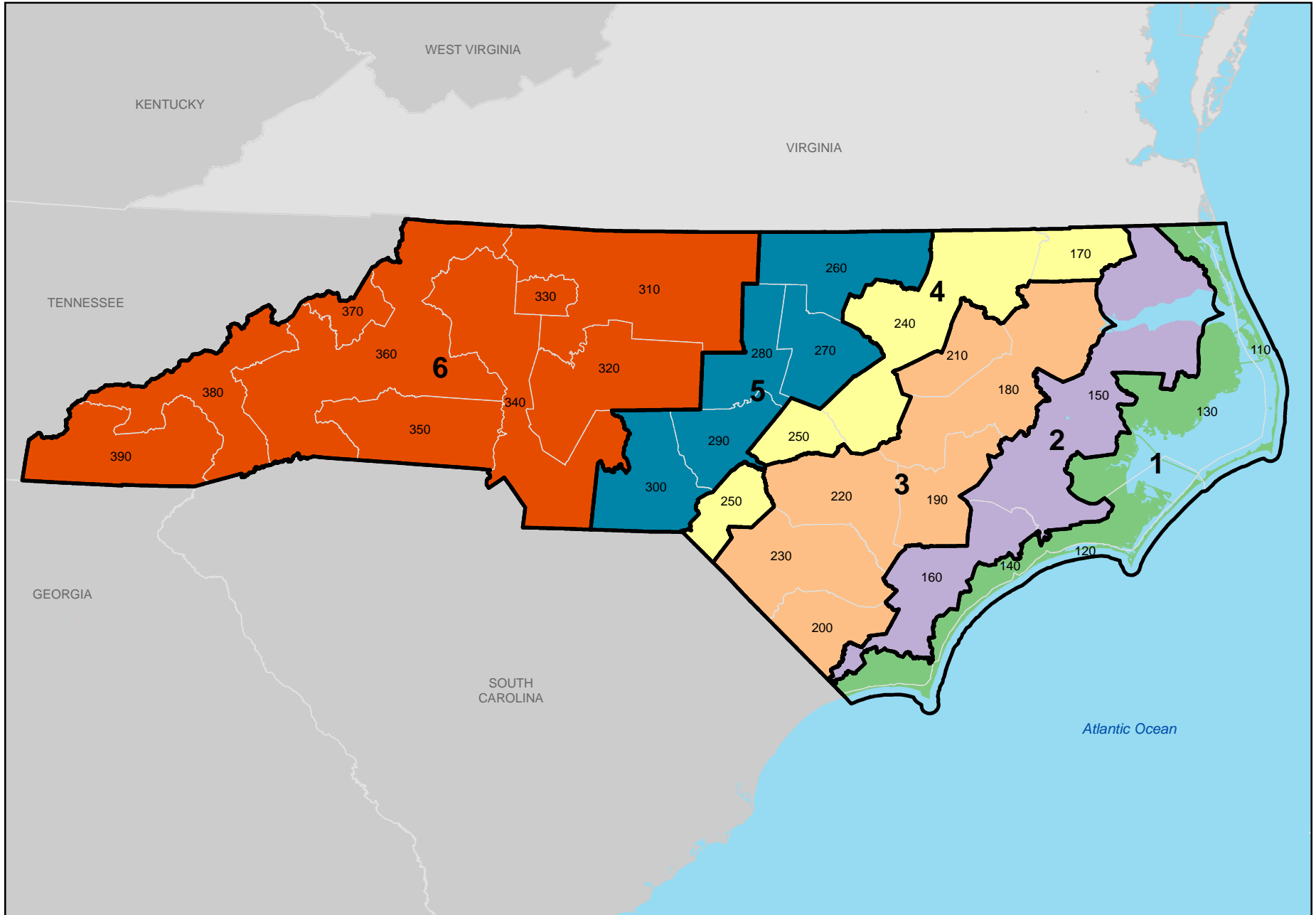
ZIP Code	USPS ZIP Code Name	Code
28403	Wilmington	140
28404	Wilmington	140
28405	Wilmington	140
28406	Wilmington	140
28407	Wilmington	140
28408	Wilmington	140
28409	Wilmington	140
28410	Wilmington	140
28411	Wilmington	140
28412	Wilmington	140
28422	Bolivia	140
28428	Carolina Beach	140
28443	Hampstead	140
28445	Holly Ridge	140
28459	Shallotte	140
28460	Sneads Ferry	140
28461	Southport	140
28462	Supply	140
28467	Calabash	140
28468	Sunset Beach	140
28469	Ocean Isle Beach	140
28470	Shallotte	140
28480	Wrightsville Beach	140
28511	Atlantic	140
28516	Beaufort	140
28520	Cedar Island	140
28524	Davis	140
28528	Gloucester	140

ZIP Code	USPS ZIP Code Name	Code
28531	Harkers Island	140
28532	Havelock	140
28533	Cherry Point	140
28539	Hubert	140
28553	Marshallberg	140
28557	Morehead City	140
28570	Newport	140
28577	Sealevel	140
28579	Smyrna	140
28581	Stacy	140
28584	Swansboro	140
28589	Williston	140

2. Western Coastal Territory

ZIP Code	USPS ZIP Code Name	Code
28401	Wilmington	160
28402	Wilmington	160
28420	Ash	160
28421	Atkinson	160
28425	Burgaw	160
28429	Castle Hayne	160
28435	Currie	160
28436	Delco	160
28447	Ivanhoe	160
28448	Kelly	160
28451	Leland	160
28452	Longwood	160
28454	Maple Hill	160
28456	Riegelwood	160
28457	Rocky Point	160
28466	Wallace	160
28478	Willard	160
28479	Winnabow	160
28518	Beulaville	160
28521	Chinquapin	160
28540	Jacksonville	160
28541	Jacksonville	160
28542	Camp Lejeune	160
28543	Tarawa Terrace	160
28544	Midway Park	160
28545	McCutcheon Field	160
28546	Jacksonville	160
28547	Camp Lejeune	160
28555	Maysville	160
28574	Richlands	160
28582	Stella	160

North Carolina
Mobile Homeowners
MH(F)
Proposed Territory Definitions and Territory Groups



**North Carolina Mobile Homeowners
MH(F) Program**

Section C

Exhibits Supporting the Rate Indications

North Carolina Mobile Homeowners
MH(F) Program

Exhibits Supporting the Rate Indications

Table of Contents

Exhibits Supporting the Rate Indications Section C

Statewide Indicated Rate Changes by Policy Form Page 1

Determination of Base Class Loss Cost – Owners Pages 2-3

Determination of Base Class Loss Cost – Tenants Pages 4-5

Territory Group Definitions..... Page 6

Indicated Rate Changes by Territory Group – Owners Pages 7-16

Indicated Rate Changes by Territory Group – Tenants Pages 17-26

Excess Wind Loss Factor & Excess Wind Losses..... Pages 27-28

Loss Development Factors Pages 29-30

Loss Trend..... Pages 31-36

Exposure Trend..... Pages 37-39

Modeled Hurricane Base Class Loss Costs..... Page 40

Expense Trend Page 41

Fixed Expenses Per Policy Page 42

Underwriting Expense Ratios Page 43

Loss Adjustment Expense Ratios Page 44

Policyholder Dividends Page 45

Compensation for Assessment Risk..... Page 46

Net Cost of Reinsurance..... Pages 47-48

Net Deviations Page 49

**North Carolina
Mobile Homeowners
MH(F)**

Determination of Statewide Indicated Rate Changes

	Owners	Tenants
(1) Total Base Class Loss Cost	\$324.18	\$74.94
(2) (a) Fixed Expense per Policy	\$49.19	\$16.26
(b) Variable Expense per Policy	19.5%	19.5%
(c) Profit	6.5%	6.5%
(d) Contingencies	1.0%	1.0%
(e) Policyholder Dividends	0.4%	0.4%
(3) Base Rate excl. Reinsurance Cost; = [(1) + (2a)] / [1 - (2b) - (2c) - (2d) - (2e)]	\$514.28	\$125.63
(4) Compensation for Assessment Risk per Policy	\$14.07	\$5.34
(5) Net Reinsurance Cost per Policy	\$180.65	\$20.38
(6) Indicated Manual Base Rate; = (3) + (4) + (5)	\$709.00	\$151.35
(7) Net Deviations	5.0%	5.0%
(8) Required Base Rate; = (6) / [1 - (7)]	\$746.31	\$159.31
(9) Average Current Base Rate	\$399.06	\$151.57
(10) Indicated Rate Change; = (8) / (9) - 1	87.0%	5.1%
(11) Proposed Rate Change	19.9%	2.4%
(12) Proposed Base Rate; = (9) x [1 + (11)]	\$478.41	\$155.14

(1) From Section C, Pages 2 and 4

(2a), (9) From Section C, Page 42

(2b) From Section C, Page 43

(2c) See pre-filed testimony from G. Zanjani and J. Vander Weide for support of the Profit provision

(2d) See pre-filed testimony from P. Anderson for support of the Contingencies provision

(2e) From Section C, Page 45

(4) From Section C, Page 46

(5) From Section C, Pages 47 and , Page 48

(7) From Section C, Page 49

(11) Reflects caps selected by the North Carolina Rate Bureau

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Determination of Base Class Loss Cost

	(1)	(2)	(3)	(4)	(5) = [(1) x (2)] / [(3) x (4)]	(6)	(7) = (5) / (6)	(8)
Accident Year	Non-Hurricane Ultimate Loss and LAE	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	\$24,219,186	0.838	73,272	0.949	\$291.90	1.503	\$194.23	10.0%
2013	23,023,338	0.877	79,062	0.952	268.26	1.544	173.71	15.0%
2014	23,431,853	0.918	80,449	0.960	278.74	1.534	181.66	20.0%
2015	23,068,906	0.961	83,080	0.968	275.67	1.523	181.01	25.0%
2016	35,900,818	1.006	85,439	0.975	433.43	1.515	286.05	30.0%

(9) Weighted Average Non-Hurricane Base Class Loss Cost: \$212.88

(10) Credibility: 100.0%

(11) Complement of Credibility: \$136.81

(12) Credibility-Weighted Loss Cost: \$212.88

(13) Modeled Hurricane Base Class Loss Cost: \$111.30

(14) Total Base Class Loss Cost: \$324.18

(1) From Section C, Page 3

(2) From Section C, Page 31

(3) Based on available statistical data

(4) From Section C, Page 37

(6) Ratio of the average premium at current manual level to the average current base rate.

(9) Average of (7) based on the weights in (8)

(10) Based on the Square Root Rule using a Full-Credibility Standard of 30,000 earned house years

(11) Based on the MH(F) - Owners credibility-weighted loss cost from page C-1 of the 2014 NCRB MH(F) rate filing, trended based on a proposed effective date of 2/1/2020

(12) = (9) x (10) + (11) x [1 - (10)]

(13) From Section C, Page 40

(14) = (12) + (13)

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Determination of Non-Hurricane Ultimate Loss & LAE

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) = (4) x (5)	(7)	(8) = (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$21,048,938	\$2,330,294	1.075	\$20,128,657	0.998	\$20,088,400	1.206	\$24,219,186
2013	18,127,725	333,335	1.075	19,134,783	0.998	19,096,513	1.206	23,023,338
2014	18,091,997	0	1.075	19,454,807	0.999	19,435,352	1.206	23,431,853
2015	19,981,219	2,187,268	1.075	19,134,309	1.000	19,134,309	1.206	23,068,906
2016	27,042,682	0	1.075	29,079,717	1.024	29,777,630	1.206	35,900,818

(1) Based on available statistical data

(2) From Section C, Page 28

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Determination of Base Class Loss Cost

	(1)	(2)	(3)	(4)	(5) = [(1) x (2)] / [(3) x (4)]	(6)	(7) = (5) / (6)	(8)
Accident Year	Non-Hurricane Ultimate Loss and LAE	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	\$27,020	0.860	635	0.993	\$36.87	1.071	\$34.42	20.0%
2013	184,789	0.905	590	1.156	245.44	1.096	223.98	20.0%
2014	532	0.953	554	1.132	0.81	1.093	0.74	20.0%
2015	6,132	1.003	486	1.112	11.39	1.091	10.44	20.0%
2016	5,497	1.056	411	1.096	12.88	1.074	12.00	20.0%
(9) Weighted Average Non-Hurricane Base Class Loss Cost:							\$56.32	
(10) Credibility:							10.6%	
(11) Complement of Credibility:							\$64.77	
(12) Credibility-Weighted Loss Cost:							\$63.88	
(13) Modeled Hurricane Base Class Loss Cost:							\$11.07	
(14) Total Base Class Loss Cost:							\$74.94	

(1) From Section C, Page 5

(2) From Section C, Page 31

(3) Based on available statistical data

(4) From Section C, Page 38

(6) Ratio of the average premium at current manual level to the average current base rate.

(9) Average of (7) based on the weights in (8); an even distribution of weights was used in (8) due to the low volume of business in this segment and potential variability in loss costs by year

(10) Based on the Square Root Rule using a Full-Credibility Standard of 240,000 earned house years

(11) Based on the MH(F) - Tenants credibility-weighted loss cost from page C-2 of the 2014 NCRB MH(F) rate filing, trended based on a proposed effective date of 2/1/2020

(12) = (9) x (10) + (11) x [1 - (10)]

(13) From Section C, Page 40

(14) = (12) + (13)

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Determination of Non-Hurricane Ultimate Loss & LAE

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) = (4) x (5)	(7)	(8) = (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$20,883	\$0	1.075	\$22,456	0.998	\$22,411	1.206	\$27,020
2013	142,821	0	1.075	153,579	0.998	153,272	1.206	184,789
2014	411	0	1.075	442	0.999	442	1.206	532
2015	5,125	395	1.075	5,086	1.000	5,086	1.206	6,132
2016	4,140	0	1.075	4,452	1.024	4,559	1.206	5,497

(1) Based on available statistical data

(2) From Section C, Page 28

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

**North Carolina
Mobile Homeowners
MH(F)**

Proposed Territory Group Definitions

Territory	2016 Earned House Years		Proposed Territory Group
	Owners	Tenants	
110	803	0	1
120	985	0	1
130	418	1	1
140	2,623	8	1
150	2,385	7	2
160	2,711	11	2
170	602	5	4
180	4,961	42	3
190	1,965	17	3
200	1,170	6	3
210	1,718	10	3
220	2,242	16	3
230	4,352	21	3
240	5,634	33	4
250	3,158	17	4
260	3,321	11	5
270	1,743	9	5
280	1,105	5	5
290	1,797	9	5
300	1,795	9	5
310	7,363	34	6
320	6,060	29	6
330	690	3	6
340	5,293	22	6
350	4,569	18	6
360	11,413	49	6
370	550	2	6
380	2,033	9	6
390	1,980	8	6

Note: Earned House Years based on available statistical data

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Determination of Indicated Rate Change by Territory Group

	(1)	(2)	(3)	(4)	(5) = [(1) + (2)] / [1 - (3)]	(6)	(7)	(8) = (5) + (6) + (7)	(9)	(10) = (8) + (9)	(11) = (10) / (4) - 1	(12)	(13)	(14)	(15)
Territory Group	Indicated Base Class Loss Cost	Trended Fixed Expenses	Variable Expenses	Average Current Base Rate	Indicated Net Base Rate	Compensation for Assessment Risk	Net Cost of Reinsurance	Indicated Base Rate Excluding Deviation	Net Deviation Per Exposure	Indicated Required Base Class Rate	Indicated Rate Change	Balanced Indicated Rate Change	Proposed Rate Change	Proposed Base Rate	Base Rate Off-Balance
1	\$779.22	\$52.50	27.4%	\$574.62	\$1,145.62	\$20.26	\$816.54	\$1,982.42	\$104.34	\$2,086.76	263.2%	264.0%	40.0%	\$1,076.92	1.339
2	451.88	53.16	27.4%	552.69	695.65	19.49	444.85	1,159.99	61.05	1,221.04	120.9%	121.4%	30.0%	940.43	1.309
3	434.40	49.99	27.4%	416.10	667.20	14.67	302.18	984.05	51.79	1,035.85	148.9%	149.5%	35.0%	754.75	1.344
4	366.92	46.45	27.4%	416.10	569.38	14.67	188.42	772.47	40.66	813.13	95.4%	95.9%	25.0%	700.93	1.348
5	311.40	44.74	27.4%	416.08	490.55	14.67	121.11	626.33	32.96	659.29	58.5%	58.8%	20.0%	672.65	1.347
6	200.68	49.70	27.4%	343.08	344.88	12.10	40.17	397.15	20.90	418.05	21.9%	22.1%	5.0%	487.25	1.353
Statewide	\$324.18	\$49.19	27.4%	\$399.06	\$514.28	\$14.07	\$180.65	\$709.00	\$37.32	\$746.31	86.6%	87.0%	19.9%	\$643.47	1.345

(1) From Section C, Page 8

(2) Based on statewide average fixed expense per policy from Section C, Page 42, allocated to territory group based on ratio of statewide average rating factor to territory group average rating factor

(3) From Section C, Page 1. Includes Commission and Brokerage expense; Taxes, Licenses, and Fees; Profit; Contingencies; and Policyholder Dividends

(6) = Section C, Page 46, Row (5) x (4)

(7) From Section C, Page 47

(9) = (8) / [1 - 0.05] - (8); Reflects 5% Net Deviation selected on Section C, Page 49

(12) = [1 + (11)] / [1 + (11) Statewide] x [1 + (12) Statewide]; Statewide (12) from Section C, Page 1

(13) Reflects caps selected by the North Carolina Rate Bureau

(14) From Section B, Page 1

(15) Based on proposed Amount of Insurance, Deductible, and Age of Mobile Home factors

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Determination of Indicated Base Class Loss Cost by Territory Group

	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4) + (5)	(8) = (7) / (7) Statewide	(9)
Territory Group	Non-Hurricane Base Class Loss Cost	Five Year Earned House Years	Credibility	Credibility Weighted Non-Hurricane Base Class Loss Cost	Modeled Hurricane Base Class Loss Cost	2016 Earned House Years	Total Loss Cost	Indicated Relativity	Indicated Base Class Loss Cost
1	\$119.29	20,769	83.2%	\$135.01	\$648.26	4,829	\$783.27	2.404	\$779.22
2	171.54	24,161	89.7%	175.78	278.45	5,096	454.23	1.394	451.88
3	268.94	77,978	100.0%	268.94	167.72	16,409	436.66	1.340	434.40
4	270.51	44,458	100.0%	270.51	98.32	9,394	368.83	1.132	366.92
5	251.89	47,990	100.0%	251.89	61.13	9,760	313.02	0.961	311.40
6	178.44	185,944	100.0%	178.44	23.29	39,951	201.73	0.619	200.68
Statewide	\$212.88	401,299			\$111.30	85,438	\$325.86	1.000	\$324.18

(1) From Section C, Page 2 and Section C, Pages 10 through 15

(2), (6) Based on available statistical data

(3) Based on the Square Root Rule using a Full-Credibility Standard of 30,000 earned house years

(4) = (1) x (3) + (1) Statewide x [1 - (3)]

(5) From Section C, Page 9

(7) Statewide = weighted average of (7) using (6) as weights

(9) = (8) x (9) Statewide; (9) Statewide From Section C, Page 2

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Determination of Modeled Hurricane Base Class Lost Cost by Territory Group

	(1)	(2)	(3)	(4)	(5) = (1) / [(2) x (3) x (4)]
Territory Group	Trended Modeled Hurricane Loss & LAE	2016 Earned House Years	Exposure Trend Factor	2016 Average Rating Factor	Modeled Hurricane Base Class Loss Cost
1	\$4,333,878	4,829	0.975	1.420	\$648.26
2	1,939,691	5,096	0.975	1.402	278.45
3	4,001,180	16,409	0.975	1.491	167.72
4	1,445,156	9,394	0.975	1.605	98.32
5	969,121	9,760	0.975	1.666	61.13
6	1,360,445	39,951	0.975	1.500	23.29
Statewide	\$14,049,472	85,438	0.975	1.515	\$111.30

(1) Provided by Aon

(2) Based on available statistical data

(3) From Section C, Page 37

(4) Ratio of the average premium at current manual level to the average current base rate

**North Carolina
Mobile Homeowners
MH(F) - Owners
Territory Group 1**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$584,770	\$36,778	1.075	\$589,270	0.998	\$588,092	1.206	\$709,021
2013	432,549	3,408	1.075	461,467	0.998	460,544	1.206	555,246
2014	604,412	0	1.075	649,940	0.999	649,290	1.206	782,804
2015	604,014	18,348	1.075	629,783	1.000	629,783	1.206	759,286
2016	595,460	0	1.075	640,314	1.024	655,682	1.206	790,510

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.838	3,489	0.949	\$179.47	1.359	\$132.04	10.0%
2013	0.877	3,840	0.952	133.20	1.386	96.09	15.0%
2014	0.918	4,129	0.960	181.42	1.393	130.24	20.0%
2015	0.961	4,481	0.968	168.21	1.404	119.79	25.0%
2016	1.006	4,829	0.975	168.84	1.420	118.93	30.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$119.29

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 16

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 37

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Owners
Territory Group 2**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$1,073,992	\$79,043	1.075	\$1,069,895	0.998	\$1,067,755	1.206	\$1,287,318
2013	715,943	7,954	1.075	761,320	0.998	759,798	1.206	916,035
2014	1,042,260	0	1.075	1,120,770	0.999	1,119,649	1.206	1,349,883
2015	772,779	45,458	1.075	782,107	1.000	782,107	1.206	942,932
2016	1,057,938	0	1.075	1,137,629	1.024	1,164,932	1.206	1,404,477

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.838	4,495	0.949	\$252.93	1.349	\$187.53	10.0%
2013	0.877	4,767	0.952	177.01	1.376	128.66	15.0%
2014	0.918	4,835	0.960	267.17	1.379	193.73	20.0%
2015	0.961	4,968	0.968	188.44	1.389	135.64	25.0%
2016	1.006	5,096	0.975	284.30	1.402	202.78	30.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$171.54

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 16

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 37

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Owners
Territory Group 3**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$4,466,658	\$481,054	1.075	\$4,285,826	0.998	\$4,277,254	1.206	\$5,156,788
2013	3,490,278	69,523	1.075	3,678,430	0.998	3,671,073	1.206	4,425,957
2014	3,829,230	0	1.075	4,117,674	0.999	4,113,556	1.206	4,959,428
2015	4,196,468	478,593	1.075	3,997,930	1.000	3,997,930	1.206	4,820,026
2016	7,918,601	0	1.075	8,515,083	1.024	8,719,445	1.206	10,512,429

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.838	14,506	0.949	\$313.94	1.498	\$209.61	10.0%
2013	0.877	15,472	0.952	263.51	1.534	171.79	15.0%
2014	0.918	15,562	0.960	305.00	1.528	199.63	20.0%
2015	0.961	16,030	0.968	298.53	1.513	197.29	25.0%
2016	1.006	16,409	0.975	660.86	1.491	443.21	30.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$268.94

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 16

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 37

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Owners
Territory Group 4**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$2,598,842	\$254,786	1.075	\$2,520,626	0.998	\$2,515,585	1.206	\$3,032,866
2013	2,501,864	43,388	1.075	2,643,665	0.998	2,638,377	1.206	3,180,908
2014	2,127,261	0	1.075	2,287,500	0.999	2,285,213	1.206	2,755,122
2015	4,291,467	633,510	1.075	3,933,500	1.000	3,933,500	1.206	4,742,347
2016	3,886,212	0	1.075	4,178,947	1.024	4,279,242	1.206	5,159,184

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.838	8,050	0.949	\$332.71	1.606	\$207.11	10.0%
2013	0.877	8,829	0.952	331.87	1.668	198.93	15.0%
2014	0.918	8,972	0.960	293.89	1.647	178.38	20.0%
2015	0.961	9,213	0.968	511.05	1.630	313.51	25.0%
2016	1.006	9,394	0.975	566.51	1.605	353.02	30.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$270.51

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 16

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 37

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Owners
Territory Group 5**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$2,627,338	\$248,884	1.075	\$2,557,615	0.998	\$2,552,500	1.206	\$3,077,372
2013	2,619,065	63,581	1.075	2,747,980	0.998	2,742,484	1.206	3,306,422
2014	2,557,055	0	1.075	2,749,670	0.999	2,746,920	1.206	3,311,771
2015	3,042,627	459,679	1.075	2,777,513	1.000	2,777,513	1.206	3,348,655
2016	4,647,664	0	1.075	4,997,757	1.024	5,117,703	1.206	6,170,058

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.838	9,072	0.949	\$299.55	1.667	\$179.65	10.0%
2013	0.877	9,814	0.952	310.38	1.720	180.45	15.0%
2014	0.918	9,637	0.960	328.89	1.708	192.61	20.0%
2015	0.961	9,707	0.968	342.47	1.682	203.63	25.0%
2016	1.006	9,760	0.975	652.11	1.666	391.43	30.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$251.89

- (1), (10) Based on available statistical data
- (2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 16
- (3) From Section C, Page 27
- (5) From Section C, Page 30
- (7) From Section C, Page 44
- (9) From Section C, Page 31
- (11) From Section C, Page 27
- (13) Ratio of the average premium at current manual level to the average current base rate
- (16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Owners
Territory Group 6**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$9,697,338	\$1,229,749	1.075	\$9,105,424	0.998	\$9,087,213	1.206	\$10,955,821
2013	8,368,026	145,481	1.075	8,841,921	0.998	8,824,237	1.206	10,638,770
2014	7,931,779	0	1.075	8,529,254	0.999	8,520,724	1.206	10,272,845
2015	7,073,863	551,681	1.075	7,013,476	1.000	7,013,476	1.206	8,455,661
2016	8,936,807	0	1.075	9,609,987	1.024	9,840,627	1.206	11,864,159

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.838	33,660	0.949	\$287.44	1.480	\$194.25	10.0%
2013	0.877	36,339	0.952	269.69	1.519	177.54	15.0%
2014	0.918	37,314	0.960	263.47	1.509	174.58	20.0%
2015	0.961	38,680	0.968	217.03	1.499	144.76	25.0%
2016	1.006	39,951	0.975	306.33	1.500	204.26	30.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$178.44

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 16

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 37

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Allocation of Excess Wind Losses to Territory Group

(1) (2) (3) (4) (5) (6) (7)

Distribution of Wind & Hail Losses by Territory Group by Year

Accident Year	Territory Group 1	Territory Group 2	Territory Group 3	Territory Group 4	Territory Group 5	Territory Group 6	Statewide
2012	1.6%	3.4%	20.6%	10.9%	10.7%	52.8%	100.0%
2013	1.0%	2.4%	20.9%	13.0%	19.1%	43.6%	100.0%
2014	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2015	0.8%	2.1%	21.9%	29.0%	21.0%	25.2%	100.0%
2016	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

(8) (9) (10) (11) (12) (13) (14)
 = (1) x (8) = (2) x (8) = (3) x (8) = (4) x (8) = (5) x (8) = (6) x (8)

Excess Wind Losses

Accident Year	Statewide	Territory Group 1	Territory Group 2	Territory Group 3	Territory Group 4	Territory Group 5	Territory Group 6
2012	\$2,330,294	\$36,778	\$79,043	\$481,054	\$254,786	\$248,884	\$1,229,749
2013	333,335	3,408	7,954	69,523	43,388	63,581	145,481
2014	0	0	0	0	0	0	0
2015	2,187,268	18,348	45,458	478,593	633,510	459,679	551,681
2016	0	0	0	0	0	0	0

(1) - (6) Based on available statistical data

(7) = Sum of (1) through (6)

(8) From Section C, Page 28

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Determination of Indicated Rate Change by Territory Group

	(1)	(2)	(3)	(4)	(5) = [(1) + (2)] / [1 - (3)]	(6)	(7)	(8) = (5) + (6) + (7)	(9)	(10) = (8) + (9)	(11) = (10) / (4) - 1	(12)	(13)	(14)	(15)
Territory Group	Indicated Base Class Loss Cost	Trended Fixed Expenses	Variable Expenses	Average Current Base Rate	Indicated Net Base Rate	Compensation for Assessment Risk	Net Cost of Reinsurance	Indicated Base Rate Excluding Deviation	Net Deviation Per Exposure	Indicated Required Base Class Rate	Indicated Rate Change	Balanced Indicated Rate Change	Proposed Rate Change	Proposed Base Rate	Base Rate Off-Balance
1	\$176.54	\$17.23	27.4%	\$222.06	\$266.90	\$7.83	\$156.87	\$431.60	\$22.72	\$454.31	104.6%	105.0%	40.0%	\$327.26	1.053
2	110.78	16.52	27.4%	204.10	175.34	7.20	84.59	267.13	14.06	281.19	37.8%	38.1%	25.0%	267.89	1.050
3	78.12	17.54	27.4%	157.60	131.75	5.56	33.28	170.59	8.98	179.57	13.9%	14.2%	14.2%	189.22	1.051
4	71.00	16.77	27.4%	157.60	120.89	5.56	17.14	143.59	7.56	151.15	-4.1%	-3.9%	-3.9%	159.68	1.054
5	65.87	14.79	27.4%	157.60	111.10	5.56	10.59	127.24	6.70	133.94	-15.0%	-14.8%	-14.8%	140.19	1.044
6	67.35	15.58	27.4%	135.31	114.23	4.77	3.64	122.64	6.45	129.10	-4.6%	-4.4%	-4.4%	136.13	1.052
Statewide	\$74.94	\$16.26	27.4%	\$151.63	\$125.63	\$5.35	\$20.38	\$151.35	\$7.97	\$159.32	4.9%	5.1%	2.4%	\$163.15	1.051

(1) From Section C, Page 18

(2) Based on statewide average fixed expense per policy from Section C, Page 42, allocated to territory group based on ratio of statewide average rating factor to territory group average rating factor

(3) From Section C, Page 1. Includes Commission and Brokerage expense; Taxes, Licenses, and Fees; Profit; Contingencies; and Policyholder Dividends

(6) = Section C, Page 46, Row (5) x (4)

(7) From Section C, Page 48

(9) = (8) / [1 - 0.05] - (8); Reflects 5% Net Deviation selected on Section C, Page 49

(12) = [1 + (11)] / [1 + (11) Statewide] x [1 + (12) Statewide]; Statewide (12) from Section C, Page 1

(13) Reflects caps selected by the North Carolina Rate Bureau

(14) From Section B, Page 1

(15) Based on proposed Amount of Insurance, Deductible, and Age of Mobile Home factors

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Determination of Indicated Base Class Loss Cost by Territory Group

	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4) + (5)	(8) = (7) / (7) Statewide	(9)
Territory Group	Non-Hurricane Base Class Loss Cost	Five Year Earned House Years	Credibility	Credibility Weighted Non-Hurricane Base Class Loss Cost	Modeled Hurricane Base Class Loss Cost	2016 Earned House Years	Total Loss Cost	Indicated Relativity	Indicated Base Class Loss Cost
1	\$74.20	50	1.4%	\$56.57	\$104.30	9	\$160.88	2.356	\$176.54
2	43.43	112	2.2%	56.04	44.91	18	100.95	1.478	110.78
3	11.89	748	5.6%	53.84	17.35	111	71.19	1.042	78.12
4	52.31	372	3.9%	56.16	8.54	55	64.70	0.947	71.00
5	14.34	305	3.6%	54.82	5.20	43	60.03	0.879	65.87
6	102.46	1,090	6.7%	59.43	1.95	174	61.37	0.899	67.35
Statewide	\$56.32	2,675			\$11.07	411	\$68.29	1.000	\$74.94

(1) From Section C, Page 4 and Section C, Pages 20 through 25

(2), (6) Based on available statistical data

(3) Based on the Square Root Rule using a Full-Credibility Standard of 240,000 earned house years

(4) = (1) x (3) + (1) Statewide x [1 - (3)]

(5) From Section C, Page 19

(7) Statewide = weighted average of (7) using (6) as weights

(9) = (8) x (9) Statewide; (9) Statewide From Section C, Page 4

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Determination of Modeled Hurricane Base Class Lost Cost by Territory Group

	(1)	(2)	(3)	(4)	(5) = (1) / [(2) x (3) x (4)]
Territory Group	Trended Modeled Hurricane Loss & LAE	2016 Earned House Years	Exposure Trend Factor	2016 Average Rating Factor	Modeled Hurricane Base Class Loss Cost
1	\$1,058	9	1.096	1.013	\$104.30
2	947	18	1.096	1.057	44.91
3	2,100	111	1.096	0.996	17.35
4	540	55	1.096	1.041	8.54
5	288	43	1.096	1.181	5.20
6	418	174	1.096	1.120	1.95
Statewide	\$5,351	411	1.096	1.074	\$11.07

(1) Provided by Aon

(2) Based on available statistical data

(3) From Section C, Page 38

(4) Ratio of the average premium at current manual level to the average current base rate

**North Carolina
Mobile Homeowners
MH(F) - Tenants
Territory Group 1**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$0	\$0	1.075	\$0	0.998	\$0	1.206	\$0
2013	2,316	0	1.075	2,490	0.998	2,485	1.206	2,996
2014	0	0	1.075	0	0.999	0	1.206	0
2015	747	0	1.075	804	1.000	804	1.206	969
2016	0	0	1.075	0	1.024	0	1.206	0

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.860	14	0.993	\$0.00	0.933	\$0.00	20.0%
2013	0.905	9	1.156	251.13	0.935	268.64	20.0%
2014	0.953	9	1.132	0.00	0.945	0.00	20.0%
2015	1.003	8	1.112	108.83	1.063	102.34	20.0%
2016	1.056	9	1.096	0.00	1.013	0.00	20.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$74.20

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 26

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 38

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Tenants
Territory Group 2**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$0	\$0	1.075	\$0	0.998	\$0	1.206	\$0
2013	2,648	0	1.075	2,847	0.998	2,842	1.206	3,426
2014	0	0	1.075	0	0.999	0	1.206	0
2015	1,597	0	1.075	1,717	1.000	1,717	1.206	2,070
2016	28	0	1.075	30	1.024	30	1.206	37

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.860	32	0.993	\$0.00	0.969	\$0.00	20.0%
2013	0.905	23	1.156	116.74	0.990	117.90	20.0%
2014	0.953	21	1.132	0.00	0.993	0.00	20.0%
2015	1.003	18	1.112	105.27	1.081	97.40	20.0%
2016	1.056	18	1.096	1.93	1.057	1.83	20.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$43.43

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 26

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 38

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Tenants
Territory Group 3**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$1,769	\$0	1.075	\$1,903	0.998	\$1,899	1.206	\$2,289
2013	6,603	0	1.075	7,100	0.998	7,086	1.206	8,543
2014	60	0	1.075	64	0.999	64	1.206	78
2015	191	58	1.075	144	1.000	144	1.206	173
2016	861	0	1.075	926	1.024	948	1.206	1,143

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.860	186	0.993	\$10.69	1.008	\$10.61	20.0%
2013	0.905	173	1.156	38.72	1.040	37.25	20.0%
2014	0.953	150	1.132	0.44	1.047	0.42	20.0%
2015	1.003	128	1.112	1.22	1.019	1.19	20.0%
2016	1.056	111	1.096	9.93	0.996	9.97	20.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$11.89

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 26

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 38

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Tenants
Territory Group 4**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$8,808	\$0	1.075	\$9,471	0.998	\$9,453	1.206	\$11,396
2013	9,559	0	1.075	10,279	0.998	10,259	1.206	12,368
2014	298	0	1.075	321	0.999	320	1.206	386
2015	953	287	1.075	716	1.000	716	1.206	863
2016	1,878	0	1.075	2,020	1.024	2,068	1.206	2,493

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.860	89	0.993	\$111.48	1.084	\$102.80	20.0%
2013	0.905	85	1.156	114.47	1.117	102.47	20.0%
2014	0.953	78	1.132	4.15	1.090	3.81	20.0%
2015	1.003	65	1.112	11.99	1.109	10.82	20.0%
2016	1.056	55	1.096	43.36	1.041	41.64	20.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$52.31

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 26

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 38

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Tenants
Territory Group 5**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$1,562	\$0	1.075	\$1,679	0.998	\$1,676	1.206	\$2,021
2013	1,640	0	1.075	1,764	0.998	1,761	1.206	2,123
2014	53	0	1.075	57	0.999	57	1.206	68
2015	169	51	1.075	127	1.000	127	1.206	153
2016	1,144	0	1.075	1,230	1.024	1,259	1.206	1,518

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.860	74	0.993	\$23.64	1.218	\$19.42	20.0%
2013	0.905	69	1.156	24.21	1.197	20.22	20.0%
2014	0.953	66	1.132	0.88	1.181	0.74	20.0%
2015	1.003	54	1.112	2.58	1.069	2.41	20.0%
2016	1.056	43	1.096	34.14	1.181	28.91	20.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$14.34

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 26

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 38

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Tenants
Territory Group 6**

Determination of Non-Hurricane Base Class Loss Cost

	(1)	(2)	(3)	(4) = [(1) - (2)] x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) x (7)
Accident Year	Non-Hurricane Incurred Loss	Excess Wind Loss	Excess Wind Loss Factor	Adjusted Non-Hurricane Incurred Loss	Loss Development Factor	Non-Hurricane Ultimate Loss	LAE Factor	Non-Hurricane Ultimate Loss and LAE
2012	\$8,744	\$0	1.075	\$9,403	0.998	\$9,384	1.206	\$11,313
2013	120,055	0	1.075	129,098	0.998	128,840	1.206	155,334
2014	0	0	1.075	0	0.999	0	1.206	0
2015	1,468	0	1.075	1,579	1.000	1,579	1.206	1,903
2016	230	0	1.075	247	1.024	253	1.206	305

	(9)	(10)	(11)	(12) = [(8) x (9)] / [(10) x (11)]	(13)	(14) (12) / (13)	(15)
Accident Year	Loss Trend Factor	Earned House Years	Exposure Trend Factor	Trended Average Loss Cost	Average Rating Factor	Trended Base Class Loss Cost	Accident Year Weights
2012	0.860	241	0.993	\$40.64	1.103	\$36.85	20.0%
2013	0.905	231	1.156	526.10	1.127	466.91	20.0%
2014	0.953	230	1.132	0.00	1.125	0.00	20.0%
2015	1.003	213	1.112	8.06	1.143	7.05	20.0%
2016	1.056	174	1.096	1.69	1.120	1.50	20.0%

(16) Weighted Average Non-Hurricane Base Class Loss Cost: \$102.46

(1), (10) Based on available statistical data

(2) Excess Wind losses from Section C, Page 28 allocated to Territory based on Non-Hurricane Wind & Hail losses on Section C, Page 26

(3) From Section C, Page 27

(5) From Section C, Page 30

(7) From Section C, Page 44

(9) From Section C, Page 31

(11) From Section C, Page 38

(13) Ratio of the average premium at current manual level to the average current base rate

(16) Average of (14) based on the weights in (15)

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Allocation of Excess Wind Losses to Territory Group

(1) (2) (3) (4) (5) (6) (7)

Distribution of Wind & Hail Losses by Territory Group by Year

Accident Year	Territory Group 1	Territory Group 2	Territory Group 3	Territory Group 4	Territory Group 5	Territory Group 6	Statewide
2012	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2013	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2014	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2015	0.0%	0.0%	14.6%	72.6%	12.9%	0.0%	100.0%
2016	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

(8) (9) (10) (11) (12) (13) (14)
 = (1) x (8) = (2) x (8) = (3) x (8) = (4) x (8) = (5) x (8) = (6) x (8)

Excess Wind Losses

Accident Year	Statewide	Territory Group 1	Territory Group 2	Territory Group 3	Territory Group 4	Territory Group 5	Territory Group 6
2012	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
2015	395	0	0	58	287	51	0
2016	0	0	0	0	0	0	0

(1) - (6) Based on available statistical data

(7) = Sum of (1) through (6)

(8) From Section C, Page 28

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Excess Wind Loss Factor (Excluding Hurricane Losses)

	(1)	(2)	(3) = (2) - (1)	(4) = (1) / (3)	(5) = Min [(4), 5 x Median (4)]	(6) = (5) - Avg (5)	(7) = (3) x (6)	(8) = (4) - (5)	(9) = (3) x (8)	(10) = (7) + (9)
Accident Year	Incurred Wind Losses	Total Incurred Losses Excl Liability	Total Losses Excl Wind	Wind Losses / Total Losses Excl Wind	Capped Wind Ratio	Capped Excess Wind Ratio	Capped Excess Wind Losses	Excess Wind Ratio Above Cap	Excess Wind Losses Above Cap	Total Non-Hurricane Excess Wind Losses
2000	\$2,638,389	\$16,567,551	\$13,929,162	0.189	0.189	0.000	\$0	0.000	\$0	\$0
2001	1,212,549	18,079,627	16,867,078	0.072	0.072	0.000	0	0.000	0	0
2002	2,186,891	19,163,073	16,976,182	0.129	0.129	0.000	0	0.000	0	0
2003	8,723,033	23,896,208	15,173,175	0.575	0.575	0.176	2,670,479	0.000	0	2,670,479
2004	2,423,276	17,677,162	15,253,886	0.159	0.159	0.000	0	0.000	0	0
2007	2,655,248	14,282,549	11,627,301	0.228	0.228	0.000	0	0.000	0	0
2008	5,258,658	18,637,634	13,378,976	0.393	0.393	0.000	0	0.000	0	0
2009	5,000,380	19,030,275	14,029,895	0.356	0.356	0.000	0	0.000	0	0
2010	4,275,270	17,217,172	12,941,902	0.330	0.330	0.000	0	0.000	0	0
2011	19,245,054	33,751,759	14,506,705	1.327	1.327	0.928	13,462,222	0.000	0	13,462,222
2012	7,677,326	21,069,821	13,392,495	0.573	0.573	0.174	2,330,294	0.000	0	2,330,294
2013	5,449,973	18,270,546	12,820,573	0.425	0.425	0.026	333,335	0.000	0	333,335
2014	4,362,963	18,092,408	13,729,446	0.318	0.318	0.000	0	0.000	0	0
2015	7,267,369	19,986,344	12,718,974	0.571	0.571	0.172	2,187,664	0.000	0	2,187,664
2016	6,771,410	27,046,822	20,275,413	0.334	0.334	0.000	0	0.000	0	0
Total	\$85,147,789	\$302,768,951	\$217,621,163	0.391	0.391	0.000	\$20,983,994	0.000	\$0	\$20,983,994
			Average:	0.399	0.399	0.098		0.000		
			Median of Column (4):	0.334						
			Median of Column (4) x 5:	1.670						

Excess Loss Factor = 1 + [(Avg(6) + Avg(8)) / (1.0 + Avg(5) - Avg(6))]: 1.075

(1), (2) Based on available statistical data

Note: Mobile Homeowners loss data was not available for accident years 2005 and 2006

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Excess Wind Losses by Policy Form (Excluding Hurricane Losses)

Accident Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Non-Hurricane Excess Wind Losses	Incurred Wind Losses			Distribution of Wind Losses by Form		Allocated Non-Hurricane Excess Wind Losses by Form	
		Owners	Tenants	Total	Owners	Tenants	Owners	Tenants
2012	\$2,330,294	\$7,677,326	\$0	\$7,677,326	100.00%	0.00%	\$2,330,294	\$0
2013	333,335	5,449,973	0	5,449,973	100.00%	0.00%	333,335	0
2014	0	4,362,963	0	4,362,963	100.00%	0.00%	0	0
2015	2,187,664	7,266,056	1,313	7,267,369	99.98%	0.02%	2,187,268	395
2016	0	6,771,410	0	6,771,410	100.00%	0.00%	0	0
Total	\$4,851,293	\$31,527,728	\$1,313	\$31,529,041			\$4,850,897	\$395

(1) From Section C, Page 27, Column (10)

(2), (3) Based on available statistical data

**North Carolina
Mobile Homeowners
MH(F) - Owners & Tenant Combined**

Derivation of Loss Development Factors - All Companies Combined ¹

	<u>Months of Development</u>											
	<u>15</u>	<u>27</u>	<u>39</u>	<u>51</u>	<u>63</u>	<u>75</u>	<u>87</u>	<u>99</u>	<u>111</u>	<u>123</u>	<u>135</u>	<u>147</u>
2005	12,106,105	12,275,858	12,298,070	12,342,739	12,461,662	12,448,615	12,487,991	12,487,991	12,487,991	12,491,283	12,491,283	12,491,283
2006	12,966,934	12,940,790	13,057,224	12,980,402	12,962,221	12,960,812	12,897,670	12,896,267	12,896,267	12,896,267	12,896,267	12,896,267
2007	12,602,520	12,350,598	12,492,050	12,591,276	12,591,470	12,594,238	12,500,738	12,500,738	12,491,238	12,490,738		
2008	16,489,256	16,382,090	16,482,697	16,391,236	16,388,239	16,388,239	16,388,424	16,388,424	16,383,131	16,383,341		
2009	17,271,749	17,440,279	17,489,282	17,530,431	17,536,428	17,528,130	17,512,474	17,508,277				
2010	18,208,457	18,287,389	18,530,724	18,365,961	18,364,022	18,364,497	18,368,389					
2011	58,513,833	58,791,370	58,935,611	59,028,495	59,040,140	59,051,744						
2012	19,456,066	19,801,320	19,709,834	19,734,464	19,734,799							
2013	16,449,557	16,785,716	16,677,743	16,693,335								
2014	15,981,428	16,629,396	16,690,452									
2015	17,730,549	18,381,475										
2016	39,778,694											
	<u>Loss Development Factors</u>											
	<u>15-27</u>	<u>27-39</u>	<u>39-51</u>	<u>51-63</u>	<u>63-75</u>	<u>75-87</u>	<u>87-99</u>	<u>99-111</u>	<u>111-123</u>	<u>123-135</u>	<u>135-147</u>	
2005	1.014	1.002	1.004	1.010	0.999	1.003	1.000	1.000	1.000	1.000	1.000	
2006	0.998	1.009	0.994	0.999	1.000	0.995	1.000	1.000	1.000	1.000	1.000	
2007	0.980	1.011	1.008	1.000	1.000	0.993	1.000	0.999	1.000	1.000	1.000	
2008	0.994	1.006	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2009	1.010	1.003	1.002	1.000	1.000	0.999	1.000					
2010	1.004	1.013	0.991	1.000	1.000	1.000						
2011	1.005	1.002	1.002	1.000	1.000							
2012	1.018	0.995	1.001	1.000								
2013	1.020	0.994	1.001									
2014	1.041	1.004										
2015	1.037											
5-Yr Avg	1.024	1.002	0.999	1.000	1.000	0.997	1.000	-	-	-	-	
Avg	1.011	1.004	1.000	1.001	1.000	0.998	1.000	1.000	1.000	1.000	1.000	
5-Yr Excl Hi/Lo	1.025	1.001	1.001	1.000	1.000	0.998	1.000	-	-	-	-	
5-Yr Wtd Avg	1.018	1.002	1.000	1.000	1.000	0.998	1.000	-	-	-	-	
Wtd Avg	1.011	1.003	1.000	1.001	1.000	0.999	1.000	1.000	1.000	1.000	1.000	
Selected	1.025	1.001	1.001	1.000	1.000	0.998	1.000	1.000	1.000	1.000	1.000	
Cumulative	1.025	1.000	0.999	0.998	0.998	0.998	1.000	1.000	1.000	1.000	1.000	
	<u>20-32</u>	<u>32-44</u>	<u>44-56</u>	<u>56-68</u>	<u>68-80</u>	<u>80-92</u>	<u>92-104</u>	<u>104-116</u>	<u>116-128</u>	<u>128-140</u>	<u>140-152</u>	
Interpolated	1.015	1.001	1.001	1.000	0.999	0.999	1.000	1.000	1.000	1.000	1.000	
	<u>20-Ult</u>	<u>32-Ult</u>	<u>44-Ult</u>	<u>56-Ult</u>	<u>68-Ult</u>	<u>80-Ult</u>	<u>92-Ult</u>	<u>104-Ult</u>	<u>116-Ult</u>	<u>128-Ult</u>	<u>140-Ult</u>	
Cumulative	1.015	1.000	0.999	0.998	0.998	0.999	1.000	1.000	1.000	1.000	1.000	

¹ Companies included represent 90.2% of the MH(F) market in North Carolina

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Weighted Average Loss Development Factors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Accident Year	Incurred Losses			Development Factor to Ultimate						Weighted Average
				NISS		PCIAA		Member Company		
	NISS	PCIAA	Member Co	Months of Development	Development Factor	Months of Development	Development Factor	Months of Development	Development Factor	
2012	\$0	\$20,031,973	\$1,101,323	63	0.998	63	0.998	80	0.999	0.998
2013	0	17,480,286	724,895	51	0.998	51	0.998	68	0.998	0.998
2014	0	17,398,128	737,276	39	0.999	39	0.999	56	0.998	0.999
2015	0	19,242,429	743,915	27	1.000	27	1.000	44	0.999	1.000
2016	0	44,685,642	1,384,915	15	1.025	15	1.025	32	1.000	1.024

(1), (2), (3) Based on available statistical data

(4), (6) Based on available loss data evaluated as of 3/31/2017

(5), (7) From MH(F) - Owners & Tenants Combined loss development triangles

(8) Based on available loss data evaluated as of 9/8/2018

(9) From MH(F) - Owners & Tenants Combined loss development triangles, interpolated loss development factors

(10) = [(1)x(5) + (2)x(7) + (3)x(9)] / [(1) + (2) + (3)]

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Loss Trend Factors

Owners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Year	Average Date of Accident	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Loss Cost Trend	Selected Projection Period Loss Cost Trend	Loss Trend Factor
2012	7/1/2012	12/31/2016	4.50	2/1/2021	4.09	-4.4%	0.7%	0.838
2013	7/1/2013	12/31/2016	3.50	2/1/2021	4.09	-4.4%	0.7%	0.877
2014	7/1/2014	12/31/2016	2.50	2/1/2021	4.09	-4.4%	0.7%	0.918
2015	7/1/2015	12/31/2016	1.50	2/1/2021	4.09	-4.4%	0.7%	0.961
2016	7/1/2016	12/31/2016	0.50	2/1/2021	4.09	-4.4%	0.7%	1.006

Tenants

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Accident Year	Average Date of Accident	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Loss Cost Trend	Selected Projection Period Loss Cost Trend	Loss Trend Factor
2012	7/1/2012	12/31/2016	4.50	2/1/2021	4.09	-5.0%	2.0%	0.860
2013	7/1/2013	12/31/2016	3.50	2/1/2021	4.09	-5.0%	2.0%	0.905
2014	7/1/2014	12/31/2016	2.50	2/1/2021	4.09	-5.0%	2.0%	0.953
2015	7/1/2015	12/31/2016	1.50	2/1/2021	4.09	-5.0%	2.0%	1.003
2016	7/1/2016	12/31/2016	0.50	2/1/2021	4.09	-5.0%	2.0%	1.056

(3) difference (in years) between (1) and (2)

(4), (12) based on a proposed effective date of February 1, 2020; rates assumed to be in effect for 1 year

(5) difference (in years) between (2) and (4)

(6), (7), (14), (15) from Section C, Pages 32 and 34

(8) = [1 + (6)] ^ (3) x [1 + (7)] ^ (5)

(11) difference (in years) between (9) and (10)

(13) difference (in years) between (10) and (12)

(16) = [1 + (14)] ^ (11) x [1 + (15)] ^ (13)

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Loss Trend Selection

Quarter Ending	(1)	(2)	(3)	(4)	(5)	Year Ending	(7)		(8)	
	CoreLogic Residential Index (CRI)	Consumer Price Index (CPI) Expenditure Category					Industry-Based Annual Pure Premium		Paid Claims Frequency	Ultimate Severity
		Household Furnishings	Apparel	Recreation Commodities	Medical Care					
3/31/2012	99.3	100.4	98.4	100.8	98.8					
6/30/2012	99.9	100.3	100.7	100.4	99.7					
9/30/2012	100.3	99.9	98.9	99.7	100.6					
12/31/2012	100.6	99.5	102.1	99.0	100.9	12/31/2012	6.17%		\$3,948	
3/31/2013	101.9	99.5	100.1	98.9	101.9					
6/30/2013	102.2	99.4	101.1	98.9	102.1					
9/30/2013	102.7	98.4	100.2	97.9	102.8					
12/31/2013	102.8	97.5	102.2	97.1	103.1	12/31/2013	5.16%		3,972	
3/31/2014	104.4	97.4	100.0	96.7	104.1					
6/30/2014	104.7	97.0	101.9	96.5	104.8					
9/30/2014	105.0	96.1	100.5	95.3	105.1					
12/31/2014	105.5	95.8	101.6	94.6	105.7	12/31/2014	4.94%		4,165	
3/31/2015	106.4	95.6	99.1	93.9	106.7					
6/30/2015	106.9	95.9	100.5	93.6	107.7					
9/30/2015	106.8	94.9	99.2	92.9	107.7					
12/31/2015	106.6	94.6	100.1	92.1	108.7	12/31/2015	4.43%		4,411	
3/31/2016	106.1	94.6	99.0	91.5	110.1					
6/30/2016	106.2	94.0	100.6	90.9	111.1					
9/30/2016	106.2	93.1	99.3	89.7	112.6					
12/31/2016	106.2	92.7	100.4	88.6	113.1	12/31/2016	3.85%		4,801	
3/31/2017	106.2	93.1	99.6	88.4	114.1					
6/30/2017	107.2	92.7	100.2	87.7	114.2					
9/30/2017	108.9	91.5	98.9	86.9	114.8					
12/31/2017	109.6	90.9	99.2	85.9	115.1					
3/31/2018	110.7	91.6	99.6	85.4	116.3					
6/30/2018	111.9	91.7	101.1	85.0	116.9					
						Credibility:	100.0%		100.0%	
Indicated Annual Exponential Trends:										
						(6)	(9)	(10)		
						Blended Index	Frequency	Severity	Pure Premium	
2012-2016:	1.6%	-1.7%	-0.1%	-2.6%	2.7%	1.1%	2012-2015:	-9.9%	3.9%	
2013-2016:	1.2%	-1.8%	-0.3%	-2.8%	2.9%	0.8%	2012-2016:	-10.4%	5.1%	
2014-2016:	0.6%	-1.6%	-0.4%	-3.0%	3.1%	0.3%	2013-2016:	-9.4%	6.5%	
							Selected Experience Period Trend:	-9.0%	5.0%	-4.4%
14-point:	1.3%	-1.6%	0.1%	-3.2%	2.9%	0.9%	5-point:	-10.4%	5.1%	
10-point:	2.5%	-1.5%	0.2%	-3.3%	2.5%	1.8%	4-point:	-9.4%	6.5%	
6-point:	4.2%	-1.3%	0.7%	-3.2%	2.0%	3.3%	3-point:	-11.6%	7.4%	
(11) First Dollar of Loss Adjustment:	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	Selected Projection Period Trend:	-5.0%	6.0%	0.7%

(1) From CoreLogic Residential Cost Index indexed to 2012 (i.e., 2012 index = 100)

(2), (3), (4), (5) From Bureau of Labor Statistics - Consumer Price Index for All Urban Consumers - U.S. City Average; each expenditure indexed to 2012 (i.e., 2012 index = 100)

(6) = (1) x 80% + [(2) x 48% + (3) x 16% + (4) x 16% + (5) x 20%] x 20%

(7), (8) From Section C, Page 33

(9), (10) From Section C, Page 33; Selections made by the North Carolina Rate Bureau

(11) From Section C, Page 36

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Industry-Based Loss Trend

	(1)	(2)	(3) = (2) / (1)	(4)	(5)	(6)	(7) = (5) x (6) / (2)	(8)
Accident Year	Earned Exposure	Paid Claims	Paid Claims Frequency	Percent Change over Prior Year	Incurred Loss	Development Factor to Ultimate	Ultimate Severity	Percent Change over Prior Year
2012	73,272	4,522	6.17%	N/A	\$17,887,667	0.998	\$3,948	N/A
2013	79,062	4,081	5.16%	-16.3%	16,244,471	0.998	3,972	0.6%
2014	80,449	3,971	4.94%	-4.4%	16,556,988	0.999	4,165	4.9%
2015	83,080	3,682	4.43%	-10.2%	16,243,493	1.000	4,411	5.9%
2016	85,439	3,293	3.85%	-13.0%	15,439,222	1.024	4,801	8.8%
				Annual Exponential Trend				Annual Exponential Trend
				2012-2015:			2012-2015:	3.9%
				2012-2016:			2012-2016:	5.1%
				2013-2016:			2013-2016:	6.5%
				5-Point:			5-Point:	5.1%
				4-Point:			4-Point:	6.5%
				3-Point:			3-Point:	7.4%
				(9) Credibility:	100.0%		(10) Credibility:	100.0%

(1), (2), (5) Based on available statistical data

(2), (5) Adjusted to exclude catastrophe losses

(9) Based on a full credibility standard of 20,000 exposures over the experience period and square root rule

(10) Based on a full credibility standard of 1,082 claims over the experience period and square root rule

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Loss Trend Selection

Quarter Ending	(1) (2) (3) (4)				Year Ending	(6) (7)		
	Consumer Price Index (CPI) Expenditure Category					Industry-Based Annual Pure Premium		
	Household Furnishings	Apparel	Recreation Commodities	Medical Care		Paid Claims Frequency	Ultimate Severity	
3/31/2012	100.4	98.4	100.8	98.8				
6/30/2012	100.3	100.7	100.4	99.7				
9/30/2012	99.9	98.9	99.7	100.6				
12/31/2012	99.5	102.1	99.0	100.9	12/31/2012	1.26%	\$2,605	
3/31/2013	99.5	100.1	98.9	101.9				
6/30/2013	99.4	101.1	98.9	102.1				
9/30/2013	98.4	100.2	97.9	102.8				
12/31/2013	97.5	102.2	97.1	103.1	12/31/2013	1.72%	13,142	
3/31/2014	97.4	100.0	96.7	104.1				
6/30/2014	97.0	101.9	96.5	104.8				
9/30/2014	96.1	100.5	95.3	105.1				
12/31/2014	95.8	101.6	94.6	105.7	12/31/2014	0.18%	411	
3/31/2015	95.6	99.1	93.9	106.7				
6/30/2015	95.9	100.5	93.6	107.7				
9/30/2015	94.9	99.2	92.9	107.7				
12/31/2015	94.6	100.1	92.1	108.7	12/31/2015	0.58%	1,765	
3/31/2016	94.6	99.0	91.5	110.1				
6/30/2016	94.0	100.6	90.9	111.1				
9/30/2016	93.1	99.3	89.7	112.6				
12/31/2016	92.7	100.4	88.6	113.1	12/31/2016	1.57%	597	
3/31/2017	93.1	99.6	88.4	114.1				
6/30/2017	92.7	100.2	87.7	114.2				
9/30/2017	91.5	98.9	86.9	114.8				
12/31/2017	90.9	99.2	85.9	115.1				
3/31/2018	91.6	99.6	85.4	116.3				
6/30/2018	91.7	101.1	85.0	116.9				
					Credibility:	16.4%	16.2%	
Indicated Annual Exponential Trends:					(5)	(8)	(9)	
	Severity				Modified CPI	Frequency	Severity	Pure Premium
2012-2016:	-1.7%	-0.1%	-2.6%	2.7%	-1.1%	2012-2015:	-36.7%	-37.1%
2013-2016:	-1.8%	-0.3%	-2.8%	2.9%	-1.2%	2012-2016:	-6.2%	-39.1%
2014-2016:	-1.6%	-0.4%	-3.0%	3.1%	-1.2%	2013-2016:	9.5%	-54.2%
						Selected Experience Period Trend:	-5.0%	0.0%
14-point:	-1.6%	0.1%	-3.2%	2.9%	-1.1%	5-point:	-6.2%	-39.1%
10-point:	-1.5%	0.2%	-3.3%	2.5%	-1.1%	4-point:	9.5%	-54.2%
6-point:	-1.3%	0.7%	-3.2%	2.0%	-1.0%	3-point:	195.0%	20.6%
(10) First Dollar of Loss Adjustment:	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	Selected Projection Period Trend:	-1.0%	3.0%
								2.0%

(1), (2), (3), (4) From Bureau of Labor Statistics - Consumer Price Index for All Urban Consumers - U.S. City Average; each expenditure indexed to 2012 (i.e., 2012 index = 100)

(5) =(1) x 54% + (2) x 18% + (3) x 18% + (4) x 10%

(6), (7) From Section C, Page 35

(8), (9) From Section C, Page 35; Selections made by the North Carolina Rate Bureau

(10) From Section C, Page 36

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Industry-Based Loss Trend

	(1)	(2)	(3) = (2) / (1)	(4)	(5)	(6)	(7) = (5) x (6) / (2)	(8)
Accident Year	Earned Exposure	Paid Claims	Paid Claims Frequency	Percent Change over Prior Year	Incurred Loss	Development Factor to Ultimate	Ultimate Severity	Percent Change over Prior Year
2012	635	8	1.26%	N/A	\$20,883	0.998	\$2,605	N/A
2013	590	10	1.72%	36.2%	133,259	0.998	13,142	404.4%
2014	554	1	0.18%	-89.5%	411	0.999	411	-96.9%
2015	486	3	0.58%	222.1%	4,984	1.000	1,765	329.9%
2016	411	6	1.57%	170.1%	3,760	1.024	597	-66.2%
				Annual Exponential Trend				Annual Exponential Trend
				2012-2015:				2012-2015:
				2012-2016:				2012-2016:
				2013-2016:				2013-2016:
				5-Point:				5-Point:
				4-Point:				4-Point:
				3-Point:				3-Point:
				(9) Credibility:	16.4%			(10) Credibility:
								16.2%

(1), (2), (5) Based on available statistical data

(2), (5) Adjusted to exclude catastrophe losses

(9) Based on a full credibility standard of 100,000 exposures over the experience period and square root rule

(10) Based on a full credibility standard of 1,082 claims over the experience period and square root rule

**North Carolina
Mobile Homeowners
MH(F)**

First Dollar of Loss Adjustment Factors

	<u>Owners</u>	<u>Tenants</u>
(1) Loss Trend Factor	0.892	0.880
(2) Loss Projection Factor	1.027	1.076
(3) Total Loss Trend; = (1) x (2)	0.916	0.946
<u>Incurred Loss (2012-2016)</u>		
(4) \$50 Deductible	\$285,897	---
(5) \$100 Deductible	1,200,345	---
(6) \$250 Deductible	41,772,816	\$27,459
(7) \$500 Deductible	28,590,803	142,311
(8) \$1,000 Deductible	20,464,390	4,289
(9) All Deductibles; Sum of (4) through (8)	\$92,314,251	\$174,059
<u>Incurred Claims (2012-2016)</u>		
(10) \$50 Deductible	102	---
(11) \$100 Deductible	361	---
(12) \$250 Deductible	10,542	10
(13) \$500 Deductible	6,415	18
(14) \$1,000 Deductible	3,765	4
(15) All Deductibles; Sum of (10) through (14)	21,185	32
<u>Losses Eliminated</u>		
(16) \$50 Deductible; = (10) x \$50	\$5,100	---
(17) \$100 Deductible; = (11) x \$100	36,100	---
(18) \$250 Deductible; = (12) x \$250	2,635,500	\$2,500
(19) \$500 Deductible; = (13) x \$500	3,207,500	9,000
(20) \$1000 Deductible; = (14) x \$1,000	3,765,000	4,000
(21) All Deductibles; Sum of (16) through (20)	\$9,649,200	\$15,500
<u>First Dollar Factor</u>		
(22) \$50 Deductible	0.998	---
(23) \$100 Deductible	0.997	---
(24) \$250 Deductible	0.994	0.995
(25) \$500 Deductible	0.990	0.996
(26) \$1,000 Deductible	0.983	0.947
(27) All Deductibles	0.990	0.995

(1),(2) From Loss Trend analysis

(4) through (8) Based on available statistical data; excludes catastrophe losses

(10) through (14) Based on available statistical data; excludes catastrophe claims

(22) = { [(4) + (16)] x (3) - (16) } / [(4) x (3)]

(23) = { [(5) + (17)] x (3) - (17) } / [(5) x (3)]

(24) = { [(6) + (18)] x (3) - (18) } / [(6) x (3)]

(25) = { [(7) + (19)] x (3) - (19) } / [(7) x (3)]

(26) = { [(8) + (20)] x (3) - (20) } / [(8) x (3)]

(27) = { [(9) + (21)] x (3) - (21) } / [(9) x (3)]

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Derivation of Exposure Trend Factors

\$250 Deductible

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Accident Year	Average Written Date	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Exposure Trend	Selected Projection Period Exposure Trend	On-Level Earned Premium	Exposure Trend Factor
2012	1/1/2012	12/31/2016	5.00	8/1/2020	3.59	-1.5%	-1.1%	23,160,296	0.891
2013	1/1/2013	12/31/2016	4.00	8/1/2020	3.59	-1.5%	-1.1%	26,996,924	0.905
2014	1/1/2014	12/31/2016	3.00	8/1/2020	3.59	-1.5%	-1.1%	27,170,635	0.918
2015	1/1/2015	12/31/2016	2.00	8/1/2020	3.59	-1.5%	-1.1%	28,131,029	0.932
2016	1/1/2016	12/31/2016	1.00	8/1/2020	3.59	-1.5%	-1.1%	29,136,856	0.947

\$500 Deductible

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Accident Year	Average Written Date	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Exposure Trend	Selected Projection Period Exposure Trend	On-Level Earned Premium	Exposure Trend Factor
2012	1/1/2012	12/31/2016	5.00	8/1/2020	3.59	-0.4%	-1.0%	12,898,923	0.945
2013	1/1/2013	12/31/2016	4.00	8/1/2020	3.59	-0.4%	-1.0%	13,470,253	0.949
2014	1/1/2014	12/31/2016	3.00	8/1/2020	3.59	-0.4%	-1.0%	13,561,815	0.953
2015	1/1/2015	12/31/2016	2.00	8/1/2020	3.59	-0.4%	-1.0%	12,825,492	0.957
2016	1/1/2016	12/31/2016	1.00	8/1/2020	3.59	-0.4%	-1.0%	12,377,332	0.961

\$1,000 Deductible

	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
Accident Year	Average Written Date	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Exposure Trend	Selected Projection Period Exposure Trend	On-Level Earned Premium	Exposure Trend Factor
2012	1/1/2012	12/31/2016	5.00	8/1/2020	3.59	1.6%	1.7%	6,963,116	1.150
2013	1/1/2013	12/31/2016	4.00	8/1/2020	3.59	1.6%	1.7%	7,423,988	1.132
2014	1/1/2014	12/31/2016	3.00	8/1/2020	3.59	1.6%	1.7%	7,778,291	1.114
2015	1/1/2015	12/31/2016	2.00	8/1/2020	3.59	1.6%	1.7%	8,883,882	1.097
2016	1/1/2016	12/31/2016	1.00	8/1/2020	3.59	1.6%	1.7%	9,637,269	1.079

Total

Accident Year	(28) Weighted Average Exposure Trend Factor
2012	0.949
2013	0.952
2014	0.960
2015	0.968
2016	0.975

(3) difference (in years) between (1) and (2)
 (4), (13), (22) based on a proposed effective date of February 1, 2020; rates assumed to be in effect for 1 year
 (5) difference (in years) between (2) and (4)
 (6), (7), (15), (16), (24), (25) From Section C, Page 39
 (9) = [1 + (6)] ^ (3) x [1 + (7)] ^ (5)
 (8), (17), (26) calculated based on available statistical data and the extension of exposures method
 (12) difference (in years) between (10) and (11)
 (14) difference (in years) between (11) and (13)
 (18) = [1 + (15)] ^ (12) x [1 + (16)] ^ (14)
 (21) difference (in years) between (19) and (20)
 (23) difference (in years) between (20) and (22)
 (27) = [1 + (24)] ^ (21) x [1 + (25)] ^ (23)
 (28) weighted average of (9), (18) and (27) using (8), (17), and (26) as weights

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Derivation of Exposure Trend Factors

\$250 Deductible

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Accident Year	Average Written Date	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Exposure Trend	Selected Projection Period Exposure Trend	On-Level Earned Premium	Exposure Trend Factor
2012	1/1/2012	12/31/2016	5.00	8/1/2020	3.59	1.8%	2.7%	14,303	1.203
2013	1/1/2013	12/31/2016	4.00	8/1/2020	3.59	1.8%	2.7%	55,912	1.182
2014	1/1/2014	12/31/2016	3.00	8/1/2020	3.59	1.8%	2.7%	51,690	1.161
2015	1/1/2015	12/31/2016	2.00	8/1/2020	3.59	1.8%	2.7%	49,934	1.140
2016	1/1/2016	12/31/2016	1.00	8/1/2020	3.59	1.8%	2.7%	46,118	1.120

\$500 Deductible

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Accident Year	Average Written Date	End Date of Experience Period	Experience Period	Trend-to Date	Projection Period	Selected Experience Period Exposure Trend	Selected Projection Period Exposure Trend	On-Level Earned Premium	Exposure Trend Factor
2012	1/1/2012	12/31/2016	5.00	8/1/2020	3.59	-0.4%	-1.7%	42,454	0.922
2013	1/1/2013	12/31/2016	4.00	8/1/2020	3.59	-0.4%	-1.7%	6,354	0.925
2014	1/1/2014	12/31/2016	3.00	8/1/2020	3.59	-0.4%	-1.7%	7,238	0.929
2015	1/1/2015	12/31/2016	2.00	8/1/2020	3.59	-0.4%	-1.7%	7,880	0.933
2016	1/1/2016	12/31/2016	1.00	8/1/2020	3.59	-0.4%	-1.7%	6,897	0.937

Total

Accident Year	(19) Weighted Average Exposure Trend Factor
2012	0.993
2013	1.156
2014	1.132
2015	1.112
2016	1.096

- (3) difference (in years) between (1) and (2)
- (4), (13) based on a proposed effective date of February 1, 2020; rates assumed to be in effect for 1 year
- (5) difference (in years) between (2) and (4)
- (6), (7), (15), (16) From Section C, Page 39
- (9) = $[1 + (6)]^3 \times [1 + (7)]^5$
- (8), (17) calculated based on available statistical data and the extension of exposures method
- (12) difference (in years) between (10) and (11)
- (14) difference (in years) between (11) and (13)
- (18) = $[1 + (15)]^{12} \times [1 + (16)]^{14}$
- (19) weighted average of (9) and (18) using (8) and (17) as weights

**North Carolina
Mobile Homeowners
MH(F)**

Development of Indicated Industry-Based Exposure Trends

Calendar Year	(1)	(2)	(3)	(4)	(5)
	Owners			Tenants	
	Deductible			Deductible	
	\$250	\$500	\$1,000	\$250	\$500
2012	3.408	2.942	3.365	2.295	2.616
2013	3.327	2.962	3.438	2.371	2.594
2014	3.280	2.956	3.473	2.366	2.654
2015	3.239	2.931	3.531	2.395	2.599
2016	3.211	2.897	3.593	2.496	2.562
5-Point:	-1.5%	-0.4%	1.6%	1.8%	-0.4%
4-Point:	-1.2%	-0.7%	1.5%	1.7%	-0.6%
3-Point:	-1.1%	-1.0%	1.7%	2.7%	-1.7%
Trend Selections					
Experience Period :	-1.5%	-0.4%	1.6%	1.8%	-0.4%
Projection Period :	-1.1%	-1.0%	1.7%	2.7%	-1.7%

(1) through (5) Average amount of insurance relativities based on available statistical data

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Modeled Hurricane Base Class Lost Cost

	Owners	Tenants
(1) Trended Modeled Hurricane Loss & LAE	\$14,049,472	\$5,351
(2) 2016 Earned House Years	85,439	411
(3) 2016 Average Rating Factor	1.515	1.074
(4) Exposure Trend Factor	0.975	1.096
(5) Modeled Hurricane Base Class Loss Cost; = (1) / [(2) x (3) x (4)]	\$111.30	\$11.07

(1) Provided by Aon

(2) Based on available statistical data

(3) Ratio of the average premium at current manual level to the average current base rate

**North Carolina
Mobile Homeowners
MH(F)**

Index-Based Expense Trend

Quarter Ending	(1)	(2)	(3)	(4)
	Quarterly Average CPI All Items	Quarterly Average CPI All Items Less Energy	Quarterly Compensation Cost Index (CCI)	
3/31/2012	99.3	99.3	99.1	
6/30/2012	100.1	99.9	100.0	
9/30/2012	100.3	100.2	100.8	
12/31/2012	100.3	100.6	100.1	
3/31/2013	100.9	101.1	100.8	
6/30/2013	101.5	101.6	102.4	
9/30/2013	101.9	101.9	103.6	
12/31/2013	101.6	102.2	103.9	
3/31/2014	102.4	102.7	104.4	
6/30/2014	103.6	103.5	105.4	
9/30/2014	103.7	103.9	105.0	
12/31/2014	102.8	104.2	105.4	
3/31/2015	102.3	104.7	106.3	
6/30/2015	103.5	105.4	107.2	
9/30/2015	103.8	105.7	107.4	
12/31/2015	103.3	106.2	108.4	
3/31/2016	103.4	106.8	109.1	
6/30/2016	104.6	107.4	110.2	
9/30/2016	105.0	107.7	111.3	
12/31/2016	105.2	108.1	111.3	
3/31/2017	106.0	108.8	112.4	
6/30/2017	106.6	109.2	114.1	
9/30/2017	107.0	109.5	113.9	
12/31/2017	107.4	109.9	114.0	
3/31/2018	108.4	110.8	115.3	
6/30/2018	109.5	111.5	117.1	
	Annual Trends (Exponential)			Blended CPI and CCI Trends
2012-2016:	1.1%	1.8%	2.5%	2.0%
2013-2016:	0.9%	1.9%	2.4%	1.9%
2014-2016:	0.8%	1.9%	2.5%	1.9%
	Selected Experience Period Trend:			2.0%
14-point:	1.9%	1.9%	2.9%	2.4%
10-point:	2.3%	1.8%	2.9%	2.5%
6-point:	2.5%	2.0%	2.7%	2.5%
	Selected Projection Period Trend:			2.5%

(1), (2), From Bureau of Labor Statistics - Consumer Price Index for All Urban Consumers - U.S. City Average; each expenditure indexed to 2012 (i.e., 2012 index = 100)

(3) From Bureau of Labor Statistics - Employment Cost Index for Insurance Carriers and Related Activities

(4) = (1) x 25% + (2) x 25% + (3) x 50%

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Fixed Expense Per Policy

	Owners	Tenants
(1) Experience Period Expense Trend	2.0%	2.0%
(2) Projection Period Expense Trend	2.5%	2.5%
(3) (a) Average Date of Expenses	7/1/2015	7/1/2015
(b) End Date of Experience Period	12/31/2016	12/31/2016
(c) Experience Period (Years)	1.500	1.500
(4) (a) Trend-to Date	8/1/2020	8/1/2020
(b) Projection Period (Years)	3.590	3.590
(5) Expense Trend Factor	1.126	1.126
(6) Fixed Expenses	10.6%	10.6%
(7) 2015 Exposure Trend Factor	0.968	1.112
(8) Trended Fixed Expenses	12.3%	10.7%
(9) 2016 Manual-Level Base Premium	\$34,094,937	\$62,294
(10) 2016 Earned Exposures	85,439	411
(11) Average Current Base Premium	\$399.06	\$151.57
(12) Fixed Expense Per Policy	\$49.19	\$16.26

(1), (2) From Section C, Page 41

(3a), (3b) Based on experience period used to select expenses

(3c) Difference in years between (3a) and (3b)

(4a) Based on a proposed policy period effective date of 2/1/2020

(4b) Difference in years between (3b) and (4a)

(5) = $[1 + (1)]^{(3c)} \times [1 + (2)]^{(4b)}$

(6) From Section C, Page 43

(7) From Section C, Pages 37 and 38

(8) = (5) x (6) / (7)

(9) Calculated based on available statistical data and the extension of exposures method

(10) Based on available statistical data

(11) = (9) / (10)

(12) = (8) x (11)

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Underwriting Expense Ratios

	2012		2013		2014		2015		2016		Average: 2014-2016	Selected
	\$	%	\$	%	\$	%	\$	%	\$	%		
(1) Direct Premiums Written	\$42,929,382	xxx	\$43,838,745	xxx	\$43,605,715	xxx	\$43,641,582	xxx	\$48,995,038	xxx		
(2) Direct Premiums Earned	42,503,850	xxx	43,768,790	xxx	43,674,432	xxx	43,499,185	xxx	47,526,462	xxx		
(3) Commission & Brokerage	\$6,769,635	15.8%	\$6,910,446	15.8%	\$7,018,485	16.1%	\$7,508,570	17.2%	\$8,064,299	16.5%	16.6%	16.6%
(4) Taxes, Licenses, & Fees	1,312,060	3.1%	1,265,801	2.9%	1,288,719	3.0%	1,197,629	2.7%	1,515,980	3.1%	2.9%	2.9%
(5) Other Acquisition	2,302,706	5.4%	2,118,896	4.8%	2,435,411	5.6%	2,660,755	6.1%	2,913,518	6.1%	5.9%	5.9%
(6) General Expenses	1,715,192	4.0%	1,250,242	2.9%	2,071,389	4.7%	2,096,503	4.8%	2,159,291	4.5%	4.7%	4.7%
(7) Total		28.3%		26.3%		29.4%		30.9%		30.2%	30.2%	30.1%
(8) Variable Expenses		18.8%		18.7%		19.1%		19.9%		19.6%	19.5%	19.5%
(9) Fixed Expenses		9.5%		7.7%		10.3%		10.9%		10.7%	10.6%	10.6%

(1) through (6) Provided by the North Carolina Rate Bureau

(3) & (4) Relative to written premium

(5) & (6) Relative to earned premium

(7) = (3) + (4) + (5) + (6)

(8) = (3) + (4)

(9) = (5) + (6)

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Loss Adjustment Expense (LAE) to Loss Ratio

Calendar Year	(1) Incurred LAE	(2) Incurred Loss	(3) = (1) / (2) Ratio of Incurred LAE to Incurred Loss
2012	\$3,518,426	\$18,008,328	19.5%
2013	3,770,456	18,739,191	20.1%
2014	3,770,750	17,115,913	22.0%
2015	4,461,668	19,890,872	22.4%
2016	8,080,448	51,996,939	15.5%
Total	\$23,601,748	\$125,751,243	18.8%
		Average:	19.9%
		Average Excluding High & Low:	20.6%
		Selected Ratio of Incurred LAE to Incurred Loss (Non-Cat):	20.6%
		Selected Ratio of Incurred LAE to Incurred Loss (Catastrophe):	6.0%

(1) = Defense & Cost Containment Expenses + Adjusting & Other Expenses

(1), (2) Provided by the North Carolina Rate Bureau

Note: See pre-filed testimony of S. Fiete for support of the Catastrophe LAE Ratio, which is applied by Aon to the modeled hurricane wind and storm surge losses

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Policyholder Dividends

	(1)	(2)	(3) = (2) / (1)
Calendar Year	Total Written Premium: Homeowners (\$000)	Dividends (\$000)	Dividends as Percent of Total Written Premium
2012	\$2,007,280	\$7,621	0.38%
2013	2,180,304	9,201	0.42%
2014	2,314,547	9,526	0.41%
2015	2,376,336	10,331	0.43%
2016	2,461,554	9,334	0.38%
Total	\$11,340,021	\$46,013	0.41%
		Average (2012-2016):	0.41%
		Average (2012-2016) Excluding High & Low:	0.40%
		Average (2014-2016):	0.41%
		Selected Policyholder Dividends:	0.40%

(1), (2) From industry Annual Statements, Statutory Page 14, Homeowners Multiple Peril

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Compensation for Assessment Risk per Policy

	<u>Owners</u>	<u>Tenants</u>
(1) Current Base Rate	\$399.06	\$151.57
(2) Compensation for Assessment Risk	2.8%	2.8%
(3) Commission & Brokerage	16.6%	16.6%
(4) Taxes, Licenses, & Fees	2.9%	2.9%
(5) Compensation for Assessment Risk (Adj for Expenses)	3.5%	3.5%
(6) Compensation for Assessment Risk per Policy	\$14.07	\$5.34

(1) From Section C, Page 42

(2) From Milliman's 2018 Analysis of Compensation for Assessment Risk

(3), (4) From Section C, Page 43

(5) = (2) / [1 - (3) - (4)]

(6) = (1) x (5)

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Derivation of Base Class Net Cost of Reinsurance by Territory Group

	(1)	(2)	(3) = (1) / (2)	(4)	(5)	(6)	(7) = (3) / {(4) x (5) x [1-(6)]}
Territory Group	Estimated Net Cost of Reinsurance	2016 House Years	Average Net Cost of Reinsurance	2016 Average Rating Factor	2016 Exposure Trend Factor	Variable Expenses	Base Class Net Cost of Reinsurance
1	\$3,963,143	4,829	\$820.62	1.420	0.975	0.274	\$816.54
2	2,249,817	5,096	441.50	1.402	0.975	0.274	444.85
3	5,233,549	16,409	318.95	1.491	0.975	0.274	302.18
4	2,010,743	9,394	214.05	1.605	0.975	0.274	188.42
5	1,393,973	9,760	142.83	1.666	0.975	0.274	121.11
6	1,703,864	39,951	42.65	1.500	0.975	0.274	40.17
Statewide	\$16,555,089	85,438	\$193.77	1.515	0.975	0.274	\$180.65

(1) Provided by Aon

(2) Based on available statistical data

(4) Ratio of the average premium at current manual level to the average current base rate

(5) From Section C, Page 37

(6) From Section C, Page 1. Includes Commission and Brokerage expense; Taxes, Licenses, and Fees; Profit; Contingencies; and Policyholder Dividends

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Derivation of Base Class Net Cost of Reinsurance by Territory Group

	(1)	(2)	(3) = (1) / (2)	(4)	(5)	(6)	(7) = (3) / [(4) x (5) x [1-(6)]]
Territory Group	Estimated Net Cost of Reinsurance	2016 House Years	Average Net Cost of Reinsurance	2016 Average Rating Factor	2016 Exposure Trend Factor	Variable Expenses	Base Class Net Cost of Reinsurance
1	\$1,155	9	\$126.49	1.013	1.096	0.274	\$156.87
2	1,294	18	71.17	1.057	1.096	0.274	84.59
3	2,924	111	26.37	0.996	1.096	0.274	33.28
4	787	55	14.21	1.041	1.096	0.274	17.14
5	426	43	9.95	1.181	1.096	0.274	10.59
6	567	174	3.25	1.120	1.096	0.274	3.64
Statewide	\$7,153	411	\$17.41	1.074	1.096	0.274	\$20.38

(1) Provided by Aon

(2) Based on available statistical data

(4) Ratio of the average premium at current manual level to the average current base rate

(5) From Section C, Page 38

(6) From Section C, Page 1. Includes Commission and Brokerage expense; Taxes, Licenses, and Fees; Profit; Contingencies; and Policyholder Dividends

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Net Deviations

	(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (4) + (5)	(7) = (4) / (6)	(8) = (1) / (4) -1	(9) = (2) / (5) -1	(10) = (3) / (6) -1
Calendar Year	Direct Written Premium (Including Net Deviations)			Manual Premium (Excluding Net Deviations)				Deviation from Manual Premium		
	Standard	Non-Standard	Total	Standard	Non-Standard	Total	% Standard	Standard	Non-Standard	Total
2012	\$42,043,698	\$885,684	\$42,929,382	\$52,129,850	\$526,982	\$52,656,832	99.0%	-19.3%	68.1%	-18.5%
2013	43,010,531	828,214	43,838,745	57,757,275	429,015	58,186,290	99.3%	-25.5%	93.1%	-24.7%
2014	42,972,208	633,507	43,605,715	57,684,609	333,137	58,017,746	99.4%	-25.5%	90.2%	-24.8%
2015	43,473,735	167,847	43,641,582	56,552,411	133,212	56,685,623	99.8%	-23.1%	26.0%	-23.0%
2016	48,459,981	535,057	48,995,038	55,531,313	430,110	55,961,423	99.2%	-12.7%	24.4%	-12.4%
Total	\$219,960,153	\$3,050,309	\$223,010,462	\$279,655,458	\$1,852,456	\$281,507,914	99.3%	-21.3%	64.7%	-20.8%
								Average (2012-2016):		-20.7%
								Average (2012-2016) Excluding High & Low:		-22.0%
								Average (2014-2016):		-20.1%
								Selected Net Deviations:		-5.0%

(1), (2), (4), (5) Provided by the North Carolina Rate Bureau

**North Carolina Mobile Homeowners
MH(F) Program**

Section D

Exhibits Supporting the Rating Plan Revisions

North Carolina Mobile Homeowners
MH(F) Program

Exhibits Supporting the Rating Plan Revisions

Table of Contents

Exhibits Supporting the Rating Plan Revisions	Section D
Amount of Insurance Analysis	Pages 1-2
All-Peril Deductible Analysis	Pages 3-4
Windstorm or Hail Deductible Analysis	Pages 5-6
Named Storm Deductible Analysis	Pages 7-8
Age of Mobile Home Analysis	Pages 9-10
Wind Exclusion Credits	Page 11

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Amount of Insurance Analysis
Losses Excluding Catastrophes

	(1)	(2)	(3)	(4)	(5)	(6) = (3) / (5) - 1	(7)
Amount of Insurance	Earned House Years	Incurred Pure Premium Relativity	Fitted Pure Premium Relativity	Credibility	Current Relativity	Proposed % Change	Proposed Premium Relativity
1 - 3,999	679	0.032	0.341	5.5%	0.533	-36.1%	0.204
4,000 - 5,999	1,492	0.350	0.409	16.5%	0.580	-29.5%	0.245
6,000 - 7,999	2,673	0.240	0.467	18.7%	0.618	-24.4%	0.279
8,000 - 9,999	3,932	0.336	0.524	24.4%	0.660	-20.5%	0.313
10,000 - 11,999	10,731	0.713	0.580	51.2%	0.698	-16.8%	0.347
12,000 - 13,999	9,286	0.648	0.642	43.2%	0.742	-13.5%	0.384
14,000 - 15,999	15,464	0.770	0.708	64.9%	0.785	-9.9%	0.423
16,000 - 17,999	11,639	0.652	0.758	49.8%	0.820	-7.5%	0.453
18,000 - 19,999	12,527	0.494	0.814	50.0%	0.861	-5.4%	0.487
20,000 - 21,999	19,782	0.956	0.868	79.4%	0.901	-3.6%	0.519
22,000 - 23,999	11,035	0.834	0.928	55.8%	0.946	-1.9%	0.555
24,000 - 25,999	14,807	0.967	0.991	67.6%	0.993	-0.2%	0.592
26,000 - 27,999	9,376	1.145	1.040	58.2%	1.031	0.9%	0.622
28,000 - 29,999	8,571	0.937	1.095	54.5%	1.072	2.1%	0.654
30,000 - 32,499	20,286	1.513	1.157	90.9%	1.120	3.3%	0.692
32,500 - 34,999	7,998	1.137	1.233	54.3%	1.178	4.6%	0.737
35,000 - 37,499	16,279	1.182	1.295	80.7%	1.227	5.6%	0.774
37,500 - 39,999	7,535	1.443	1.367	55.7%	1.283	6.6%	0.817
40,000 - 42,499	18,100	1.391	1.426	86.5%	1.330	7.3%	0.853
42,500 - 44,999	7,116	1.633	1.501	54.4%	1.389	8.1%	0.897
45,000 - 47,499	13,674	1.655	1.561	81.4%	1.436	8.7%	0.933
47,500 - 49,999	6,380	1.824	1.631	54.5%	1.492	9.3%	0.975
50,000 - 52,499	19,721	1.874	1.687	96.1%	1.536	9.8%	1.008
52,500 - 54,999	6,138	1.979	1.764	57.6%	1.599	10.3%	1.054
55,000 - 57,499	11,016	1.902	1.823	75.5%	1.646	10.7%	1.090
57,500 - 59,999	5,596	2.064	1.893	56.2%	1.703	11.1%	1.132
60,000 - 62,499	14,438	2.086	1.948	87.7%	1.748	11.5%	1.165
62,500 - 64,999	5,503	2.448	2.023	56.7%	1.809	11.8%	1.209
65,000 - 67,499	10,602	2.528	2.080	76.2%	1.856	12.1%	1.244
67,500 - 69,999	4,956	2.203	2.150	54.1%	1.914	12.4%	1.285
70,000 - 72,499	10,670	3.167	2.208	80.9%	1.961	12.6%	1.320
72,500 - 74,999	4,484	2.828	2.278	52.5%	2.019	12.8%	1.362
75,000 - 79,999	14,068	3.014	2.354	91.4%	2.082	13.0%	1.407
80,000 - 84,999	12,323	2.752	2.481	86.5%	2.188	13.4%	1.483
85,000 - 89,999	9,470	3.185	2.610	78.5%	2.297	13.6%	1.560
90,000 - 94,999	8,173	3.507	2.734	73.5%	2.402	13.8%	1.635
95,000 - 99,999	6,502	2.890	2.861	65.6%	2.509	14.0%	1.710
100,000 - 104,999	6,812	2.714	2.976	66.6%	2.607	14.1%	1.779
105,000+	23,612	3.945	3.633	100.0%	3.175	14.4%	2.172
Total	403,446	1.782	1.649			Each Add'l \$1,000:	0.015

(1) based on available statistical data

(3) based on linear regression of (2), indexed to base

(4) based on standard for full credibility of 1,082 and the square root rule

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Amount of Insurance Analysis
Losses Excluding Catastrophes

	(1)	(2)	(3)	(4)	(5)	(6) = (3) / (5) - 1	(7)
Amount of Insurance	Earned House Years	Incurred Pure Premium Relativity	Fitted MH(C) Personal Effects Relativity	Credibility	Current Relativity	Proposed % Change	Proposed Premium Relativity
500 - 999	0	N/A	0.311	0.0%	N/A	N/A	0.091
1,000 - 1,999	0	N/A	0.352	0.0%	N/A	N/A	0.102
2,000 - 2,999	13	0.000	0.514	0.0%	0.595	-13.7%	0.150
3,000 - 3,999	26	0.000	0.676	0.0%	0.726	-6.9%	0.197
4,000 - 4,999	11	0.000	0.838	0.0%	0.869	-3.6%	0.244
5,000 - 5,999	100	1.000	1.000	2.9%	1.000	0.0%	0.291
6,000 - 6,999	55	16.882	1.162	2.9%	1.143	1.7%	0.339
7,000 - 7,999	16	0.000	1.324	0.0%	1.286	3.0%	0.386
8,000 - 8,999	23	67.299	1.486	2.9%	1.405	5.8%	0.433
9,000 - 9,999	6	0.000	1.648	0.0%	1.560	5.7%	0.480
10,000 - 10,999	432	3.656	1.811	6.4%	1.690	7.1%	0.528
11,000 - 11,999	40	0.000	1.973	0.0%	1.821	8.3%	0.575
12,000 - 12,999	186	0.594	2.135	3.9%	1.952	9.3%	0.622
13,000 - 13,999	14	0.000	2.297	0.0%	2.083	10.3%	0.669
14,000 - 14,999	11	0.000	2.459	0.0%	2.214	11.1%	0.717
15,000 - 17,499	461	1.362	2.710	6.0%	2.368	14.4%	0.790
17,500 - 19,999	29	0.000	3.172	0.0%	2.767	14.6%	0.924
20,000 - 22,499	502	3.293	3.527	6.9%	3.017	16.9%	1.028
22,500 - 24,999	20	0.000	3.995	0.0%	3.436	16.2%	1.164
25,000 - 27,499	343	2.148	4.354	3.8%	3.679	18.4%	1.269
27,500 - 29,999	21	0.000	4.803	0.0%	4.104	17.0%	1.400
30,000 - 32,499	213	126.228	5.154	9.1%	4.348	18.5%	1.502
32,500 - 34,999	4	0.000	5.613	0.0%	4.731	18.7%	1.636
35,000 - 37,499	46	0.000	5.978	0.0%	5.010	19.3%	1.742
37,500 - 39,999	4	0.000	6.466	0.0%	5.389	20.0%	1.884
40,000 - 42,499	49	0.000	6.857	0.0%	5.645	21.5%	1.998
42,500 - 44,999	4	0.000	7.350	0.0%	6.067	21.2%	2.142
45,000 - 47,499	6	0.000	7.754	0.0%	6.336	22.4%	2.260
47,500 - 49,999	1	0.000	8.248	0.0%	6.667	23.7%	2.403
50,000+	105	0.000	9.858	0.0%	7.813	26.2%	2.873
Total	2,740	12.494	2.930			Each Add'l \$1,000:	0.051

(1) based on available statistical data

(3) based on fitted MH(C) Personal Effects relativities; correspond to average amounts of insurance for MH(C) Personal Effects

(4) based on standard for full credibility of 1.082 and the square root rule

**North Carolina
Mobile Homeowners
MH(F) - Owners**

All-Peril Deductible Analysis
Losses Excluding Catastrophes

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (6) / (4) - 1
All-Peril Deductible	Earned House Years	Credibility	Current Relativity	Incurred Pure Premium Relativity	Proposed Premium Relativity	Proposed Maximum Credit	Proposed Change
50	2,011	30.9%	1.099	1.315	1.133	N/A	3.1%
100	7,081	57.6%	1.050	1.288	1.086	N/A	3.4%
250	180,190	100.0%	1.000	0.779	1.000	N/A	0.0%
500	124,445	100.0%	0.901	1.000	0.924	\$75	2.6%
750	0	0.0%	N/A	N/A	0.858	156	N/A
1,000	73,136	100.0%	0.725	0.926	0.801	243	10.4%
2,000	0	0.0%	N/A	N/A	0.630	585	N/A
5,000	0	0.0%	N/A	N/A	0.525	1,628	N/A
Total	386,863						

(2) based on available statistical data

(3) based on standard for full credibility of 1,082 claims and the square root rule

(4) current MH(F) Rate Manual and based on average amount of insurance for each deductible

(5) Base = \$250 deductible for respective amount of insurance group

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

All-Peril Deductible Analysis
Losses Excluding Catastrophes

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (6) / (4) - 1
All-Peril Deductible	Earned House Years	Credibility	Current Relativity	Incurred Pure Premium Relativity	Proposed Premium Relativity	Proposed Maximum Credit	Proposed Change
50	81	0.0%	1.250	0.000	1.190	N/A	-4.8%
100	77	0.0%	1.125	0.000	1.114	N/A	-1.0%
250	848	9.1%	1.000	0.890	1.000	N/A	0.0%
500	1,534	12.4%	0.913	1.000	0.905	\$75	-0.8%
750	0	0.0%	N/A	N/A	0.839	156	N/A
1,000	200	5.2%	0.825	0.237	0.791	243	-4.1%
2,000	0	0.0%	N/A	N/A	0.620	585	N/A
5,000	0	0.0%	N/A	N/A	0.516	1,628	N/A
Total	2,740						

(2) based on available statistical data

(3) based on standard for full credibility of 1,082 claims and the square root rule

(4) current MH(F) Rate Manual and based on average amount of insurance for each deductible

(5) Base = \$250 deductible for respective amount of insurance group

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Windstorm or Hail Deductible Analysis
Territory Groups 1 and 2 (Territories 110-160)

(1) Current Windstorm or Hail Deductible Factors

(2) Proposed Windstorm or Hail Deductible Factors

All-Peril Deductible	Wind/Hail Deductible	Current Relativity	All-Peril Deductible	Wind/Hail Deductible	Proposed Premium Relativity	Minimum Amount of Insurance Required	Proposed Maximum Credit
50	Same as All-Peril	---	50	Same as All-Peril	1.133		N/A
	1,000	0.890		1,000	1.000	\$10,000	N/A
	2,000	0.850		2,000	0.932	20,000	68
	5,000	0.820		5,000	0.890	50,000	117
	1%			1%	1.062	25,000	N/A
100	Same as All-Peril	---	100	Same as All-Peril	1.086		N/A
	1,000	0.820		1,000	0.972	\$10,000	28
	2,000	0.780		2,000	0.903	20,000	100
	5,000	0.770		5,000	0.861	50,000	151
	1%			1%	1.027	25,000	N/A
250	Same as All-Peril	---	250	Same as All-Peril	1.000		N/A
	1,000	0.760		1,000	0.920	\$10,000	80
	2,000	0.730		2,000	0.852	20,000	165
	5,000	0.700		5,000	0.810	50,000	229
	1%			1%	0.970	25,000	30
500	Same as All-Peril	---	500	Same as All-Peril	0.924		75
	1,000	0.700		1,000	0.875	\$10,000	135
	2,000	0.680		2,000	0.806	20,000	234
	5,000	0.660		5,000	0.764	50,000	315
	1%			1%	0.897	50,000	107
750	Same as All-Peril	---	750	Same as All-Peril	0.858		156
	1,000	---		1,000	0.835	\$10,000	191
	2,000	---		2,000	0.766	20,000	311
	5,000	---		5,000	0.725	50,000	395
	2%			2%	0.801	50,000	243
1000	Same as All-Peril	---	1000	Same as All-Peril	0.742		360
	2,000	0.600		2,000	0.801	50,000	243
	5,000	0.580		5,000	0.732	\$20,000	380
	2%			2%	0.690	50,000	463
	5%			5%	0.766	50,000	311
2000	Same as All-Peril	---	2000	Same as All-Peril	0.708		429
	5,000	---		5,000	0.630	50,000	585
	2%			2%	0.588	\$50,000	1,002
	5%			5%	0.623	100,000	655
	5%			5%	0.575	100,000	1,128
5000	Same as All-Peril	---	5000	Same as All-Peril	0.525		1,628
	5%	---		5%	0.500	\$100,000	1,880

(1) From NCRB MH(F) Rate Manual

(2) Based on proposed All-Peril Deductible factors and assumed Windstorm or Hail percentage of total MH(F) incurred losses of 40.0% selected based on historical losses by peril

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Windstorm or Hail Deductible Analysis
Territory Groups 1 and 2 (Territories 110-160)

(1) Current Windstorm or Hail Deductible Factors

(2) Proposed Windstorm or Hail Deductible Factors

All-Peril Deductible	Wind/Hail Deductible	Current Relativity	All-Peril Deductible	Wind/Hail Deductible	Proposed Premium Relativity	Minimum Amount of Insurance Required	Proposed Maximum Credit
50	Same as All-Peril	---	50	Same as All-Peril	1.190		N/A
	1,000	0.890		1,000	1.030	\$10,000	N/A
	2,000	0.850		2,000	0.962	20,000	30
	5,000	0.820		5,000	0.920	50,000	63
	1%			1%	1.091	25,000	N/A
100	Same as All-Peril	---	100	Same as All-Peril	1.114		N/A
	1,000	0.820		1,000	0.985	\$10,000	12
	2,000	0.780		2,000	0.916	20,000	66
	5,000	0.770		5,000	0.875	50,000	99
	1%			1%	1.038	25,000	N/A
250	Same as All-Peril	---	250	Same as All-Peril	1.000		N/A
	1,000	0.760		1,000	0.916	\$10,000	66
	2,000	0.730		2,000	0.848	20,000	144
	5,000	0.700		5,000	0.806	50,000	215
	1%			1%	0.962	25,000	30
500	Same as All-Peril	---	500	Same as All-Peril	0.905		75
	1,000	0.700		1,000	0.859	\$10,000	131
	2,000	0.680		2,000	0.791	20,000	243
	5,000	0.660		5,000	0.749	50,000	327
	1%			1%	0.878	50,000	107
750	Same as All-Peril	---	750	Same as All-Peril	0.839		156
	1,000	---		1,000	0.820	\$10,000	191
	2,000	---		2,000	0.751	20,000	323
	5,000	---		5,000	0.709	50,000	406
	2%			2%	0.785	50,000	254
1000	Same as All-Peril	---	1000	Same as All-Peril	0.727		372
	2,000	0.600		2,000	0.791	50,000	243
	5,000	0.580		5,000	0.723	\$20,000	380
	2%			2%	0.681	50,000	463
	5%			5%	0.757	50,000	311
2000	Same as All-Peril	---	2000	Same as All-Peril	0.698		429
	5,000	---		5,000	0.620	50,000	585
	2%			2%	0.578	\$50,000	1,002
	5%			5%	0.613	100,000	655
	5%			5%	0.566	100,000	1,126
5000	Same as All-Peril	---	5000	Same as All-Peril	0.516		1,628
	5%	---		5%	0.491	\$100,000	1,875

(1) From NCRB MH(F) Rate Manual

(2) Based on proposed All-Peril Deductible factors and assumed Windstorm or Hail percentage of total MH(F) incurred losses of 40.0% selected based on historical losses by peril

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Named Storm Deductible Analysis
Territory Groups 1 and 2 (Territories 110-160)

(1) Current Named Storm Deductible Factors

(2) Proposed Named Storm Deductible Factors

All-Peril Deductible	Named Storm Deductible	Current Relativity	All-Peril Deductible	Named Storm Deductible	Proposed Premium Relativity	Minimum Amount of Insurance Required	Proposed Maximum Credit
50	1%	0.950	50	1%	1.097	\$25,000	N/A
	2%	---		2%	1.071	25,000	N/A
	5%	---		5%	1.029	25,000	N/A
100	1%	0.860	100	1%	1.056	\$25,000	N/A
	2%	---		2%	1.033	25,000	N/A
	5%	---		5%	0.991	25,000	9
250	1%	0.760	250	1%	0.979	\$50,000	20
	2%	---		2%	0.952	50,000	48
	5%	---		5%	0.915	50,000	85
500	1%	0.690	500	1%	0.911	\$50,000	91
	2%	---		2%	0.882	50,000	126
	5%	---		5%	0.853	50,000	163
750	2%	---	750	2%	0.829	\$50,000	200
	5%	---		5%	0.800	50,000	245
1000	2%	0.630	1000	2%	0.783	\$50,000	277
	5%	---		5%	0.754	50,000	336
2000	2%	---	2000	2%	0.626	\$100,000	620
	5%	---		5%	0.602	100,000	856
5000	5%	---	5000	5%	0.512	\$100,000	1,754

(1) From NCRB MH(F) Rate Manual

(2) Based on proposed All-Peril Deductible factors and assumed Named Storm percentage of total MH(F) incurred losses of 20.0% selected based on historical losses by peril

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Named Storm Deductible Analysis
Territory Groups 1 and 2 (Territories 110-160)

(1) Current Named Storm Deductible Factors

(2) Proposed Named Storm Deductible Factors

All-Peril Deductible	Named Storm Deductible	Current Relativity	All-Peril Deductible	Named Storm Deductible	Proposed Premium Relativity	Minimum Amount of Insurance Required	Proposed Maximum Credit
50	1%	0.950	50	1%	1.141	\$25,000	N/A
	2%	---		2%	1.114	25,000	N/A
	5%	---		5%	1.073	25,000	N/A
100	1%	0.860	100	1%	1.076	\$25,000	N/A
	2%	---		2%	1.053	25,000	N/A
	5%	---		5%	1.012	25,000	N/A
250	1%	0.760	250	1%	0.976	\$50,000	19
	2%	---		2%	0.950	50,000	40
	5%	---		5%	0.914	50,000	68
500	1%	0.690	500	1%	0.892	\$50,000	91
	2%	---		2%	0.865	50,000	124
	5%	---		5%	0.836	50,000	161
750	2%	---	750	2%	0.812	\$50,000	205
	5%	---		5%	0.783	50,000	260
1000	2%	0.630	1000	2%	0.774	\$50,000	277
	5%	---		5%	0.745	50,000	336
2000	2%	---	2000	2%	0.617	\$100,000	620
	5%	---		5%	0.593	100,000	855
5000	5%	---	5000	5%	0.503	\$100,000	1,751

(1) From NCRB MH(F) Rate Manual

(2) Based on proposed All-Peril Deductible factors and assumed Named Storm percentage of total MH(F) incurred losses of 20.0% selected based on historical losses by peril

**North Carolina
Mobile Homeowners
MH(F) - Owners**

Age of Mobile Home Analysis
Losses Excluding Catastrophes

	(1)	(2)	(3)	(4)	(5)	(6)	(7) Proposed Structure	
Age of Mobile Home	Earned House Years	Credibility	Current Relativity	Incurred Pure Premium Relativity	Average Proposed Premium Relativity	Proposed Change	Age of Mobile Home	Proposed Premium Relativity
0 - 4	25,180	67.2%	1.000	0.232	0.785	-21.5%	0	0.739
5 - 6	23,983	75.8%	1.000	0.357	0.825	-17.5%	1	0.754
7 - 8	20,037	80.0%	1.000	0.481	0.858	-14.2%	2	0.769
9 - 10	16,987	83.3%	1.000	0.600	0.895	-10.5%	3	0.785
11 - 12	15,823	85.0%	1.000	0.772	0.931	-6.9%	4	0.801
13 - 14	18,644	97.7%	1.000	0.828	0.972	-2.8%	5	0.817
15	15,493	92.5%	1.000	0.980	1.000	0.0%	6	0.834
16	16,054	98.6%	1.000	1.171	1.000	0.0%	7	0.851
17	25,856	100.0%	1.000	1.284	1.000	0.0%	8	0.868
18	28,701	100.0%	1.000	1.078	1.000	0.0%	9	0.886
19	26,925	100.0%	1.000	1.163	1.000	0.0%	10	0.904
20+	169,764	100.0%	1.000	1.249	1.000	0.0%	11	0.922
Total	403,446		1.000	1.000	0.961		12	0.941
							13	0.960
							14	0.980
							15	1.000
							16	1.000
							17	1.000
							18	1.000
							19	1.000
							20+	1.000

(1) based on available statistical data
(2) based on standard for full credibility of 1,082 claims and the square root rule
(5) interpolated based on (8)

**North Carolina
Mobile Homeowners
MH(F) - Tenants**

Age of Mobile Home Analysis
Losses Excluding Catastrophes

	(1)	(2)	(3)	(4)	(5)	(6)	(7) Proposed Structure	
Age of Mobile Home	Earned House Years	Credibility	Current Relativity	Incurred Pure Premium Relativity	Average Proposed Premium Relativity	Proposed Change	Age of Mobile Home	Proposed Premium Relativity
0 - 4	10	0.0%	1.000	0.000	1.000	0.0%	0	1.000
5 - 6	28	0.0%	1.000	1.647	1.000	0.0%	1	1.000
7 - 8	24	2.4%	1.000	2.086	1.000	0.0%	2	1.000
9 - 10	70	2.4%	1.000	0.046	1.000	0.0%	3	1.000
11 - 12	77	0.0%	1.000	0.000	1.000	0.0%	4	1.000
13 - 14	62	0.0%	1.000	0.000	1.000	0.0%	5	1.000
15	84	3.8%	1.000	0.799	1.000	0.0%	6	1.000
16	71	3.0%	1.000	0.286	1.000	0.0%	7	1.000
17	163	6.1%	1.000	0.813	1.000	0.0%	8	1.000
18	202	2.9%	1.000	1.958	1.000	0.0%	9	1.000
19	201	4.2%	1.000	0.581	1.000	0.0%	10	1.000
20+	1,162	10.5%	1.000	1.137	1.000	0.0%	11	1.000
Total	2,154		1.000	1.000	1.000		12	1.000
							13	1.000
							14	1.000
							15	1.000
							16	1.000
							17	1.000
							18	1.000
							19	1.000
							20+	1.000

(1) based on available statistical data
(2) based on standard for full credibility of 1,082 claims and the square root rule
(5) interpolated based on (8)

**North Carolina
Mobile Homeowners
MH(F)**

Derivation of Wind Exclusion Credits

	Territory Group 1		Territory Group 2	
	Owners	Tenants	Owners	Tenants
(1) Indicated Required Base Class Rate	\$2,086.76	\$454.31	\$1,221.04	\$281.19
(2) Loss Cost Underlying Indicated Rate Change	\$779.22	\$176.54	\$451.88	\$110.78
(3) Non-Wind Portion of Losses	32.9%	52.7%	35.0%	52.0%
(4) Fixed Expenses per Policy	\$52.50	\$17.23	\$53.16	\$16.52
(5) Variable Expense per Policy	27.4%	27.4%	27.4%	27.4%
(6) Non-Wind Base Rate excl. Reinsurance Cost; = [(2) x (3) + (4)] / [1.0 - (5)]	\$425.28	\$151.90	\$291.31	\$102.15
(7) Compensation for Assessment Risk per Policy	\$20.26	\$7.83	\$19.49	\$7.20
(8) Compensation for Assessment Risk Adjustment Factor	0.371	0.569	0.419	0.583
(9) Adjusted Compensation for Assessment Risk; = (7) x (8)	7.522	4.456	8.161	4.193
(10) Net Cost of Reinsurance (Non-Wind Perils Only)	\$210.14	\$21.77	\$61.43	\$14.95
(11) Net Deviations	5.0%	5.0%	5.0%	5.0%
(12) Indicated Wind Exclusion Credit	67.6%	58.7%	68.9%	54.6%
(13) Current Wind Exclusion Credit	73.9%	61.3%	73.9%	61.3%
(14) Proposed Wind Exclusion Credit	70.7%	60.0%	71.4%	57.9%

(1), (2), (4), (5), (7) From Section C, Pages 7 and 17

(3) = $X / (X + Y + Z)$; where X = 5 year average annual non-wind losses, X = 2016 modeled hurricane losses, and Y = 5 year average annual non-hurricane wind losses

(8) = $[(2) \times (3) + (4)] / [(2) + (4)]$

(10) Based on data provided by Aon

(11) From Section C, Page 1

(12) = $\{ (1) - [(6) + (9) + (10)] / [1 - (11)] \} / (1)$

**North Carolina Mobile Homeowners
MH(F) Program**

Section E

Supplemental Information

North Carolina Mobile Homeowners
MH(F) Program

Supplemental Information
Responses to North Carolina Administrative Code Title 11, Chapter 10.1105

Table of Contents

Supplemental Information	Section E
Summary of Earned Premium	Page 1
Summary of Paid and Incurred Losses.....	Page 2
Anticipated Loss Ratios	Page 3
Summary of Exposures and Excluded Companies.....	Page 4
(not applicable to Mobile Homeowners).....	Page 5
Summary of Data Adjustments	Pages 6-7
Calculation of Premium at Current Rate Level.....	Page 8
Premium Data for Largest Writers of Mobile Homeowners in North Carolina.....	Page 9
(not applicable to Mobile Homeowners).....	Pages 10-12
Experience Period Loss Data	Pages 13
(not applicable to Mobile Homeowners).....	Page 14
Excess (Catastrophe) and Non-Excess (Non-Catastrophe) Losses	Page 15
Summary of Losses by Cause of Loss	Page 16
Credibility Factor Development and Application	Page 17
(not applicable to Mobile Homeowners).....	Page 18
Loss Trend Factor Development and Application	Page 19
Changes in Premium Base resulting from Rating Exposure Trend.....	Page 20
Limitations	Page 21
Overhead and Underwriting Expenses	Page 22
Percent Rate Change	Page 23
Final Proposed Rates	Page 24
Investment Earnings.....	Page 25-27
Statistical Plans	Page 28-32
(not applicable to Mobile Homeowners).....	Page 33
Required Surplus.....	Page 34
Additional Information Requested by the Commissioner	Page 35

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1)
Summary of Earned Premium by Coverage and Year

Earned Premium at Actual (i.e. Collected) Level

	(1)	(2)	(3) = (1) + (2)
Calendar / Accident Year	Owners	Tenants	Total
2012	\$39,206,455	\$112,348	\$39,318,803
2013	43,861,904	107,831	43,969,735
2014	43,653,745	102,746	43,756,491
2015	43,490,670	93,531	43,584,201
2016	46,015,333	79,038	46,094,371
Total	\$216,228,105	\$495,494	\$216,723,599

Earned Premium at Current (i.e. Manual) Rate Level

	(1)	(2)	(3) = (1) + (2)
Calendar / Accident Year	Owners	Tenants	Total
2012	\$43,886,282	\$104,017	\$43,990,298
2013	48,655,784	97,940	48,753,724
2014	49,203,615	91,520	49,295,135
2015	50,461,137	79,689	50,540,826
2016	51,661,941	66,881	51,728,821
Total	\$243,868,758	\$440,047	\$244,308,805

Note: based on available statistical data; earned premiums at current (manual) rate level are calculated using the extension of exposures method

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1)
Summary of Paid and Incurred Losses by Coverage and Year

Paid Losses

	(1)	(2)	(3) = (1) + (2)
Calendar / Accident Year	Owners	Tenants	Total
2012	\$21,177,317	\$20,883	\$21,198,200
2013	18,120,257	142,821	18,263,078
2014	18,134,751	411	18,135,162
2015	19,834,093	5,125	19,839,218
2016	44,899,326	7,402	44,906,728
Total	\$122,165,743	\$176,642	\$122,342,385

Incurred Losses

	(1)	(2)	(3) = (1) + (2)
Calendar / Accident Year	Owners	Tenants	Total
2012	\$21,177,317	\$20,883	\$21,198,200
2013	18,127,725	142,821	18,270,546
2014	18,134,993	411	18,135,404
2015	19,981,219	5,125	19,986,344
2016	46,063,155	7,402	46,070,557
Total	\$123,484,408	\$176,642	\$123,661,050

Notes:

Losses based on available statistical data and include actual hurricane losses.

Losses exclude Loss Adjustment Expenses (LAE), which were unavailable for the experience period of this filing. LAE was accounted for in the rate indication via a factor (20.6% applied to Non-Hurricane and 6.0% applied to Hurricane Losses - see Exhibit C, Page 44). For Non-Hurricane losses, the LAE factors are applied on Exhibit C, Pages 3 and 5. For Hurricane losses, the LAE factor is applied by the modeler.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1)
Summary of Incurred Losses by Coverage and Year

Anticipated Loss Ratio Underlying Current Rates

The anticipated loss and LAE ratios included in the 2014 filing were 38.2% for Owners and 36.2% for Tenants

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1a)
Summary of Exposure Data by Coverage and Year

Earned House Years

(1) (2) (3)
= (1) + (2)

Calendar / Accident Year	Owners	Tenants	Total
2012	73,272	635	73,906
2013	79,062	590	79,652
2014	80,449	554	81,003
2015	83,080	486	83,565
2016	85,439	411	85,850
Total	401,302	2,675	403,977

Excluded Companies:

- No companies were excluded from the premium, losses, and exposure data used to develop the rate level, trend, relativity, and investment income
- For loss development, data from Windsor Mount Joy Mutual Insurance Company (5.2% of the market) and Erie Insurance Company (5.2% of the market) was unavailable and as such excluded from the analysis.
- To determine the proportion of losses due to hurricanes and catastrophes, a separate data request was made to all companies writing Mobile Homeowners business in North Carolina. For this data, data from American Bankers Insurance Company of Florida (20.6% of the market) and American Family Home Insurance Company (20.1% of the market) was unavailable and excluded from the analysis.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1b)

Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1c)
Summary of Data Adjustments

(2) Catastrophe Losses

Losses and claim counts used in the loss trend analysis were adjusted to remove catastrophe losses. This was done to prevent the volatile nature of catastrophe losses from impacting historical and projected trend selections. Because the statistical data available does not have a way to identify catastrophe losses, the adjustments were determined using loss and claim count data from a separate company data request, which included individual claim data for approximately 60% of the market for accident years 2012 through 2016. The tables below show, by accident year for each coverage, the proportion of the total losses and claim counts removed from the analysis due to catastrophes:

Accident Year	Proportion of Losses Due to Catastrophes		Accident Year	Proportion of Claims Due to Catastrophes	
	Owners	Tenants		Owners	Tenants
2012	16.8%	0.0%	2012	18.1%	0.0%
2013	11.7%	6.7%	2013	15.1%	8.0%
2014	10.4%	0.0%	2014	14.2%	0.0%
2015	21.8%	2.7%	2015	20.6%	5.9%
2016	66.9%	49.2%	2016	58.2%	35.5%

(3) Excess Wind Losses

Non-hurricane wind losses have been smoothed using an excess wind procedure. For this procedure, a proportion of the total losses caused by the "All Other" peril were reclassified as "Wind & Hail" losses for accident year 2016, the year in which Hurricane Matthew occurred. This was done due to the unusually large amount of losses experienced in 2016 for this peril compared to the losses experienced in accident years 2012 through 2015. The proportion of 2016 "All Other" losses reclassified as "Wind & Hail" losses is shown by coverage in the table below:

Policy Form	Proportion of 2016 "All Other" Losses Reclassified as Wind & Hail
Owners	52.1%
Tenants	0.0%

(4) Allocation of Data to Proposed Territory Groups

With this rate filing, the NCRB is proposing to redefine its Mobile Homeowners territory definitions. Because data from one of the statistical plan providers did not include geographical identification fields beyond the current territory, exposure, premium, and loss data from this provider needed to be allocated to the proposed territory definitions. The allocation for this procedure was selected based on the number of mobile homes in each zip code, as determined from census data. Each zip code was mapped to the current and proposed territory. Then, within each current territory, the distribution of the number of mobile homes using the proposed territory definitions was determined. These distributions within each current territory were then used to allocate the exposure, premium, and loss data.

(5) Loss Development

Losses were developed to ultimate using loss development factors. See the prefiled testimony of P. Anderson and M. Berry.

(6) Loss Trend

Losses were trended to the average accident date in which the rates are proposed to be in effect in order to bring all historical losses to a common projected cost level. See the prefiled testimony of P. Anderson and M. Berry.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1d)
Calculation of Premium at Current Rate Level

- See Section E, Page 1, which provides the actual earned premiums and earned premiums at present rates.
- Earned premium at present rates were calculated based on the following rate order calculation formula:

Earned Premium = Base Rate for Given Amount of Insurance x Territory Factor x Tie-Down Credit x Deductible Factor x Earned Exposure

- The following demonstrates a sample calculation for the earned premium at present rates for a single insured with an Owners policy having \$30,000 of Coverage A and a \$500 deductible, where the mobile home is located in territory group 1 and qualifies for the tie-down credit:

(1) Base Rate for \$30,000 of coverage	\$631.00
(2) Territory Group 1 Surcharge	1.381
(3) Tie-Down Credit	0.900
(4) Deductible Credit for \$500 deductible	0.730
(5) Earned Exposure	100.0%
(6) Premium at Present (Manual) Rates	\$572.52

Notes:

- (1) assumes Policy Form MH(F)-3
- (6) = (1) x (2) x (3) x (4) x (5)

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1e)
Premium Data for Largest Writers of Mobile Home Insurance in North Carolina

	Company	2017 Written Premium	2017 Written Premium Market Share	2017 Earned Premium	2017 Earned Premium Market Share
1	State Farm Fire & Casualty Company	\$10,952,254	22.5%	\$10,998,026	22.7%
2	American Bankers Insurance Company of Florida	9,995,958	20.6%	9,448,055	19.5%
3	American Family Home Insurance Company	9,785,954	20.1%	10,293,782	21.2%
4	Allstate Insurance Company	6,307,789	13.0%	6,442,702	13.3%
5	North Carolina Farm Bureau Mutual Insurance Company	5,428,911	11.2%	5,509,847	11.4%
6	Erie Insurance Company	2,544,197	5.2%	2,222,078	4.6%
7	Windsor Mount Joy Mutual Insurance Company	2,516,259	5.2%	2,484,738	5.1%
8	American Modern Home Insurance Company	1,059,839	2.2%	1,086,853	2.2%
	Total	\$48,591,161	100.0%	\$48,486,081	100.0%

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1f)

Not Applicable to Mobile Homeowners rate filings.

**North Carolina
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1g)

Not Applicable to Mobile Homeowners rate filings.

**North Carolina
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1h)

Not Applicable to Mobile Homeowners rate filings.

**North Carolina
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1i)
Experience Period Loss Data by Coverage and Year

Owners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9) = (5) x (6) x (7) x (8)	(10)
Accident Year	Paid Claims	Outstanding Claims	Paid Loss	Case Outstanding	Incurred Losses	Loss Development Factor	LAE Factor	Loss Trend Factor	Trended Incurred Loss & LAE	Expected Loss Ratio
2012	5,323	0	\$21,177,317	\$0	\$21,177,317	0.998	1.206	0.838	\$21,362,119	38.2%
2013	4,652	3	18,120,257	7,468	18,127,725	0.998	1.206	0.877	19,137,536	38.2%
2014	4,490	1	18,134,751	242	18,134,993	0.999	1.206	0.918	20,056,925	38.2%
2015	4,498	16	19,834,093	147,126	19,981,219	1.000	1.206	0.961	23,151,160	38.2%
2016	9,028	134	44,899,326	1,163,829	46,063,155	1.024	1.206	1.006	57,197,063	38.2%
Total	27,991	154	\$122,165,743	\$1,318,665	\$123,484,408				\$140,904,803	38.2%

Tenants

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19) = (15) x (16) x (17) x (18)	(20)
Accident Year	Paid Claims	Outstanding Claims	Paid Loss	Case Outstanding	Incurred Losses	Loss Development Factor	LAE Factor	Loss Trend Factor	Trended Incurred Loss & LAE	Expected Loss Ratio
2012	8	0	\$20,883	\$0	\$20,883	0.998	1.206	0.860	\$21,605	38.2%
2013	11	0	142,821	0	142,821	0.998	1.206	0.905	155,533	38.2%
2014	1	0	411	0	411	0.999	1.206	0.953	472	38.2%
2015	3	0	5,125	0	5,125	1.000	1.206	1.003	6,196	38.2%
2016	10	0	7,402	0	7,402	1.024	1.206	1.056	9,647	38.2%
Total	33	0	\$176,642	\$0	\$176,642				\$193,452	38.2%

Note: Losses and claims based on available statistical data; losses include actual hurricane losses

(6), (16) from Section C, Page 30
 (7), (17) from Section C, Page 44
 (8), (18) from Section C, Page 31
 (10), (20) from Section E, Page 3

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1j)

Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1k)

See prefiled testimony of P. Anderson, M. Berry, S. Fiete, and E. Henderson.

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (1)
Summary of Losses Data by Cause of Loss

Owners

Accident Year	Incurred Losses by Peril						Total
	Fire, Lightning & Removal	Liability	Theft	Water	Wind & Hail	All Other	
2012	\$5,819,684	\$480,164	\$1,544,089	\$3,270,175	\$7,807,893	\$2,250,401	\$21,172,407
2013	5,595,328	571,075	1,175,347	3,183,028	5,449,973	2,147,728	18,122,479
2014	6,157,167	533,720	1,107,095	3,365,445	4,406,815	2,509,022	18,079,263
2015	5,838,821	456,106	901,416	3,467,022	7,266,056	2,033,103	19,962,524
2016	6,618,835	557,536	670,772	10,580,999	22,717,260	4,892,318	46,037,720
Total	\$30,029,835	\$2,598,601	\$5,398,719	\$23,866,668	\$47,647,998	\$13,832,572	\$123,374,393

Tenants

Accident Year	Incurred Losses by Peril						Total
	Fire, Lightning & Removal	Liability	Theft	Water	Wind & Hail	All Other	
2012	\$10,565	\$0	\$5,213	\$0	\$0	\$5,105	\$20,883
2013	45,720	82,335	14,766	0	0	0	142,821
2014	0	0	411	0	0	0	411
2015	0	0	2,344	1,468	1,313	0	5,125
2016	0	1,267	3,687	723	1,725	0	7,402
Total	\$56,285	\$83,602	\$26,421	\$2,191	\$3,038	\$5,105	\$176,642

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (2)
Credibility Factor Development and Application

See explanatory filing memorandum accompanying this filing

**North Carolina
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (3)

Not Applicable to Mobile Homeowners rate filings.

North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (4)
Loss Trend Factor Development and Application

- (4a) See Section C, Pages 31 through 36 and prefiled testimony of P. Anderson and M. Berry.
- (4b) See prefiled testimony of P. Anderson and M. Berry
- (4c) Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (5)
Changes in Premium Base resulting from Rating Exposure Trend

- (5a) See Section C, Pages 37 through 39 and prefiled testimony of P. Anderson and M. Berry.
- (5b) Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (6)
Limitations

- (6a) No limitations were placed on the losses included in the statistical plans used in the filing.
- (6b) Limitations were applied to the rate changes by coverage. The filed overall rate level changes for Owners and Tenants are 19.9% and 2.4%, respectively.

There were no limitations on the extent of the rate level change by coverage amount, by form, by protection class, by construction, or by deductible

- (6c) Limitations were applied to the territorial rate changes as follows:

Territory Group	Proposed Rate Change		
	Owners	Tenants	Total
1	40.0%	40.0%	40.0%
2	30.0%	25.0%	30.0%
3	35.0%	14.2%	35.0%
4	25.0%	-3.9%	25.0%
5	20.0%	-14.8%	20.0%
6	5.0%	-4.4%	5.0%

Note:

- Territory Group 1 (Territories 110, 120, 130, and 140)
 Territory Group 2 (Territories 150, and 160)
 Territory Group 3 (Territories 180, 190, 200, 210, 220, and 230)
 Territory Group 4 (Territories 170, 240, and 250)
 Territory Group 5 (Territories 260, 270, 280, 290, and 300)
 Territory Group 6 (Territories 310, 320, 330, 340, 350, 360, 370, 380, and 390)

- (6d) There were no limitations other than those mentioned above.

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (7)
Overhead and Underwriting Expenses

(7a) See Section C, Pages 41 through 45 and prefiled testimony of P. Anderson and M. Berry.

(7b) Not Applicable to Mobile Homeowners rate filings.

(7c) Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (8)
Percent Rate Change

(8a) See Section A, Page 1

(8b) The proposed rate changes reflect a proposed effective date of 2/1/2020 and also assume that the proposed rates will be in effect for one year. If the actual implementation date is later than the proposed effective date, the indicated and proposed rate changes would be impacted, as the change in the proposed effective date would impact the loss and premium trend periods used in the filing. Changes in trend periods would impact projected losses, premiums, and fixed expenses used to calculate the rate level indications.

If the effective data were to change, advance notice of 250 days is required for an orderly implementation of the change in rates.

(8c) Not Applicable

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (9)
Final Proposed Rates

- (9a) The proposed rates and rating factors can be found in the Rate Manual accompanying this filing.
- (9b) Not Applicable

North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (10)
Investment Earnings

(10a) See Investment Income calculations on Section E, Pages 26 and 27

(10b) Not Applicable to Mobile Homeowners rate filings.

(10c) Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
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North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (10a)
Investment Earnings

	Accident Year				
	2012	2013	2014	2015	2016
Direct Earned Premium					
(1) Direct Earned Premium	\$1,941,165,945	\$2,061,461,224	\$2,222,938,350	\$2,294,237,985	\$2,380,556,917
Unearned Premium Reserve (UPR)					
(2) Prior Year UPR as of 12/31	\$1,001,111,981	\$1,032,968,637	\$1,114,932,263	\$1,166,168,203	\$1,209,132,555
(3) Current Year UPR as of 12/31	1,032,968,637	1,114,932,263	1,166,168,203	1,209,132,555	1,252,262,384
(4) Average UPR; = [(2) + (3)] / 2	1,017,040,309	1,073,950,450	1,140,550,233	1,187,650,379	1,230,697,470
(5) Total Prepaid Expenses; = (5a) + (5b) + (5c) + (5d)	31.5%	29.8%	29.4%	29.4%	29.5%
(5a) Commission & Brokerage	20.1%	18.2%	18.3%	18.4%	18.4%
(5b) Taxes, Licenses & Fees	3.3%	3.2%	3.1%	3.0%	3.1%
(5c) General Expenses / 2	1.9%	2.0%	1.5%	1.2%	1.2%
(5d) Other Acquisition / 2	6.3%	6.4%	6.5%	6.8%	6.8%
(6) Deduction for Prepaid Expenses; = (4) x (5)	320,521,717	320,125,376	335,109,170	348,583,444	363,273,257
(7) Net UPR Subject to Investment; = (4) - (6)	\$696,518,592	\$753,825,074	\$805,441,063	\$839,066,935	\$867,424,213
Delayed Remission of Premium (Agents' Balances)					
(8) Agents' Balances - premium due < 90 days (% of net written premium)	15.39%	16.01%	16.29%	15.43%	15.95%
(9) Factor for Agents' Balances due > 90 days	1.022	1.021	1.021	1.021	1.021
(10) Delayed Remission; = (1) x (8) x (9)	\$305,317,839	\$336,970,781	\$369,721,107	\$361,434,940	\$387,672,504
Loss and Loss Adjustment Expense (LAE) Reserve					
(11) Expected Loss and LAE Expense Ratio	52.47%	53.85%	54.77%	54.73%	54.57%
(12) Expected Incurred Loss and LAE; = (1) x (11)	\$1,018,544,414	\$1,110,132,767	\$1,217,539,692	\$1,255,692,978	\$1,298,999,111
(13) Expected Loss and LAE Reserve Ratio; = (13d / 13a) x (1 + 13e) / (1 + 13f)	44.92%	41.11%	36.34%	36.69%	31.69%
(13a) Current Calendar Year Incurred Losses	1,014,159,928	923,815,924	1,010,474,078	1,000,022,353	1,356,857,801
(13b) Prior Year Loss Reserves as of 12/31	487,833,721	365,163,276	343,770,197	329,397,212	345,437,165
(13c) Current Year Loss Reserves as of 12/31	365,163,276	343,770,197	329,397,212	345,437,165	444,413,633
(13d) Average Loss Reserves; = [(13b) + (13c)] / 2	426,498,499	354,466,737	336,583,705	337,417,189	394,925,399
(13e) Ratio of LAE Reserves to Loss Reserves	23.7%	26.2%	27.2%	26.9%	26.1%
(13f) Ratio of Incurred LAE to Incurred Losses	15.8%	17.8%	16.6%	16.7%	15.8%
(14) Expected Average Loss and LAE Reserves; = (12) x (13)	\$457,564,341	\$456,330,008	\$442,424,938	\$460,714,336	\$411,714,451
Total Net Reserves Subject to Investment					
(15) Total Net Subject to Investment; = (7) - (10) + (14)	\$848,765,094	\$873,184,301	\$878,144,894	\$938,346,330	\$891,466,160
Average Rate of Return					
(16) Net Investment Income Earned	\$50,037,747	\$49,505,066	\$55,183,053	\$49,322,923	\$48,019,546
(17) Average Cash and Invested Assets	1,400,853,503	1,473,714,329	1,544,247,308	1,567,857,478	1,597,666,208
(18) Average Rate of Return; = (16) / (17)	3.6%	3.4%	3.6%	3.1%	3.0%
(19) Investment Earnings on Net Subject to Investment; = (15) x (18)	\$30,317,441	\$29,332,039	\$31,380,153	\$29,519,254	\$26,793,957
(20) Average Rate of Return as % of Direct Earned Premium; = (19) / (1)	1.6%	1.4%	1.4%	1.3%	1.1%
(21) Federal Income Tax Rate; From Section E, Page 27	22.5%	21.9%	19.4%	22.4%	22.0%
(22) Average Rate of Return after Federal Income Tax; = (20) * [1 - (21)]	1.21%	1.11%	1.14%	1.00%	0.88%

(1), (2), (3), (8), (13a), (13b), (13c), (16), (17) Aggregate North Carolina Homeowners information From Statutory Page 14 of Annual Statement

(5), (11) from NCRB's selected expense, profit, contingency and dividend ratios

(9) Based on data provided by A.M. Best

(13e), (13f) From A.M. Best Aggregate Insurance Expense Exhibit

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (10a)
Federal Income Tax Rate

Federal Income Tax Rate	2012		2013		2014		2015		2016	
	Investment Income	Tax Rate	Investment Income	Tax Rate	Investment Income	Tax Rate	Investment Income	Tax Rate	Investment Income	Tax Rate
(1) Taxable Bonds	\$24,977,541	35.0%	\$23,173,274	35.0%	\$22,519,990	35.0%	\$22,250,842	35.0%	\$22,730,939	35.0%
(2) Non-Taxable Bonds	12,612,195	0.0%	12,013,292	0.0%	11,525,764	0.0%	11,053,799	0.0%	10,564,051	0.0%
(3) Sub-total / Weighted Average	\$37,589,736	23.3%	\$35,186,566	23.1%	\$34,045,754	23.2%	\$33,304,641	23.4%	\$33,294,990	23.9%
(4) Taxable Stocks	\$5,584,401	10.5%	\$5,966,410	10.5%	\$6,953,405	10.5%	\$7,417,666	10.5%	\$7,489,366	10.5%
(5) Non-Taxable Stocks	1,362,545	0.0%	2,281,398	0.0%	8,144,461	0.0%	1,536,107	0.0%	1,972,096	0.0%
(6) Sub-total / Weighted Average	\$6,946,946	8.4%	\$8,247,808	7.6%	\$15,097,866	4.8%	\$8,953,773	8.7%	\$9,461,462	8.3%
(7) Mortgage Loans	\$307,795	35.0%	\$361,347	35.0%	\$443,946	35.0%	\$559,969	35.0%	\$665,613	35.0%
(8) Real Estate	1,782,002	35.0%	1,747,559	35.0%	1,666,885	35.0%	1,696,990	35.0%	1,810,152	35.0%
(9) Collateral Loans	1,080	35.0%	1,277	35.0%	546	35.0%	730	35.0%	780	35.0%
(10) Cash on Deposit	176,119	35.0%	150,173	35.0%	128,144	35.0%	176,196	35.0%	378,097	35.0%
(11) Short-term Investments	(18,711)	35.0%	(46,327)	35.0%	(94,467)	35.0%	80,094	35.0%	(17,642)	35.0%
(12) All Other	8,213,612	35.0%	8,675,240	35.0%	8,802,986	35.0%	9,524,324	35.0%	7,536,112	35.0%
(13) Sub-total / Weighted Average	\$10,461,897	35.0%	\$10,889,269	35.0%	\$10,948,040	35.0%	\$12,038,303	35.0%	\$10,373,112	35.0%
(14) Total; = (3) + (6) + (13)	\$54,998,579	23.6%	\$54,323,643	23.1%	\$60,091,660	20.7%	\$54,296,717	23.5%	\$53,129,564	23.3%
(15) Investment Deductions	\$4,960,809	35.0%	\$4,818,514	35.0%	\$4,905,839	35.0%	\$4,970,931	35.0%	\$5,107,215	35.0%
(16) Net Investment Income Earned	\$50,037,770		\$49,505,129		\$55,185,821		\$49,325,786		\$48,022,349	
(17) Federal Income Tax Rate		22.5%		21.9%		19.4%		22.4%		22.0%

All investment income and investment deductions based on A.M. Best's Aggregates and Averages; Underwriting & Investment Exhibit, Part 1, Col. 8

(4) 30% of dividend income from held securities is subject to tax, hence the tax rate = 35% x .30 = 10.5%

(17) weighted average of (14) and (15)

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (11)
Statistical Plans

(11a) The list below identifies the applicable statistical plans and the data utilized:

Statistical Plan

ISS 2016 Mobile Homes Call
NISS 2016 Mobile Homes Call
Windsor Mount Joy Mutual Insurance Company 2016 Mobile Homes Call
Annual Statement for Calendar Year 2016
Insurance Expense Exhibit for Calendar Year 2016
RB Calls for 2016 North Carolina Expense Experience
Census Mobile Home Data

- (11b) The North Carolina Rate Bureau certifies that there is no evidence known to it or, insofar as it is aware following reasonable inquiry, to the statistical agencies involved that the data which were collected under the statistical plans identified in response (11)(a) above and used in the filing are not materially true and accurate representations of the experience of the companies whose data underlie such experience. While the Rate Bureau is aware that the collected data sometimes require corrections or adjustments, the Rate Bureau's review of the data, the data collection process, and the ratemaking process indicates that the aggregate data are reasonable and reliable for ratemaking purposes. See also the prefiled testimony of P. Anderson.
- (11c) 1. After receiving the statistical plan data from each reporting entity, each data set is checked to verify that all fields represented as part of each plan are included in the data and that the values for each record are appropriate for the given field. For instance, numeric fields are checked to make sure that only numeric data is reported.
2. Record count and exposure distributions are then summarized for every field included in each dataset to identify unusual, unexpected, or missing values as well as unintuitive distributional relationships.
3. Univariate statistical summaries are then run on all numeric fields, such as premiums, losses, and exposures, to identify outliers or unusual values.
4. When appropriate, records with missing values are overridden to an appropriate null or missing value. For instance, for numeric fields such as claim counts and losses, records with missing values are set to 0. For text fields, records with missing values might be set to "Missing."
5. The average written premium, average earned premium, average incurred severity, frequency, and incurred pure premium are summarized by each field included in each dataset. These metrics are also summarized for each field by calendar / accident year, policy form, and coverage. The summaries are also compared to data summaries from the most recent Mobile Homeowners filing for consistency, to the extent that prior data is available. These summaries were reviewed to identify inconsistencies in the data. When inconsistencies are noted, the statistical plan providers are subsequently notified so that the inconsistencies can be verified.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (11)
Statistical Plans

NISS Editing Procedures

- a. Every report received is checked for completeness. Every submission must include (1) an affidavit; (2) a letter of transmittal setting forth company control totals for the data being sent; (3) the data being reported on tape, cartridge, diskette or form to be keyed.
- b. Individual company submissions are balanced to the company letter of transmittal to ensure that all data have been received and processed. After all four quarters of data have been received, the company reports are reconciled to the Annual Statement Statutory Page 14 amounts. The NISS Financial Reconciliation identifies any amounts needed to reconcile any differences between the company reported data and Annual Statement amounts.
- c. Every company record submitted to NISS is verified through NISS edit software for its coding accuracy and conformance with NISS record layouts and instructions. NISS edits verify the accuracy of each code for each data element. Where possible, each data element is subjected to a relational edit whereby it will be checked for accuracy in conjunction with another field.
- d. Individual company submissions are also subjected to a series of reasonability tests to determine that the current submission is consistent with previous company submissions, known changes in this line of business and statewide trends. NISS compares current quarter data to the previous quarter. This comparison is performed and analyzed by grouping data.
- e. After all of the NISS data are combined, a review of this consolidated data is also performed. The aggregate data is compared on a year to year basis to again verify its reasonableness, similar to those checks employed on an individual company submission.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (11)
Statistical Plans

ISS Editing Procedures

The following narrative sets forth a general description of the editing procedures utilized by ISS to review North Carolina statistical data. All North Carolina experience submitted to the ISS by affiliated companies undergoes standard procedures to ensure that the data is reported in accordance with the ISS's approved statistical plans.

ISS's review of the data takes place on two levels: analysis of individual company data and analysis of the aggregate data of all the companies combined. These two separate functions will be treated in that order.

Analysis of Company Data

Analysis of company data includes: completeness checks, editing for valid coding and checking the distribution of data among the various data elements.

1. Completeness Checks (Balancing and Reconciliation):

Balancing and reconciliation procedures are used to determine completeness of reporting. Completeness means that the ISS has received and processed all of the data due to be filed with the ISS. First, totals of each company's processed data are compared to separate transmittal totals supplied by the company. This step ensures that ISS has processed completely the experience included in the company's submission of data and that no errors occur during this processing. As a second check for completeness, the reported statistical data is reconciled to Statutory Page 14 totals from the company's Annual Statement. It is a useful procedure in determining completeness because the annual statement represents an independent source of information.

2. Editing of Codes:

Format and Readability

Statistical data reported by affiliated companies must be filed in accordance with ISS's approved statistical plans. This includes the requirement that the data must conform to the specific formats and technical specifications in order for ISS to properly read and process these submissions. The initial edit is a test of each company's submission to ensure it has been reported using the proper record format and that it meets certain technical requirements for the line of insurance being reported. Key fields are tested to ensure that only numeric information has been reported in fields defined as numeric, and that the fields have been reported in the proper position in the record.

Relational Edits

The data items of information filed with the insurance company's experience are reported by using codes defined under ISS's statistical plans. For example, the various types of Policy Forms written on Homeowners policies in North Carolina are defined in the Personal Lines Statistical Plan. Each definition for each data element has a unique code assigned to it which distinguishes it from other definitions. All data items applicable to North Carolina are defined in a similar manner in each of ISS's statistical plans and have codes assigned to properly identify each definition.

All records reported to ISS are subjected to validation of the reported codes. This validation, called editing, is performed to assure that companies are reporting properly defined ISS Statistical Plan codes for North Carolina experience.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (11)
Statistical Plans

ISS Editing Procedures (Cont.)

The purpose of the edit is to validate the statistical codes reported in each record. This validation is called a Relation Edit. A relational edit verifies that a reported code is valid in combination with one or more related data items. Relational edit tests are accomplished primarily through the use of specific edit tables applicable to each line of insurance.

In most cases, the experience data in the record is used in conjunction with the related codes and compared to an establishment or discontinued date for the code being validated. This ensures that specific codes are not being utilized beyond the range of time during which they are valid.

An example of a relational edit involves territory coding. Many territory code numbers are available under each statistical plan for various states, with various effective dates. However, only codes defined for North Carolina for the specific line being processed are valid in combination with North Carolina reported experience. Further, if a new code is erected, that code will be considered valid only if the date reported in the statistical record is equal or subsequent to the establishment date of the code.

3. Distributional Analysis

The validation of the codes is not by itself sufficient to assure the credibility of company data. Having assured the reporting of valid codes, the statistical agent must verify that valid entries are indeed reliable. Therefore, the data is also reviewed for reasonable distributions. The primary focus of this review is to establish that the statistical data reported by the company is a credible reflection of the company's experience.

The distribution of company experience by specific data elements such as state, territory, policy form, and construction, for example, for the current reporting period is compared to company profiles of prior periods. In addition, ratios relevant to the line of insurance such as average premium, average loss, volume, loss ratio and loss frequency are compared to industry averages. This historical comparison can highlight changes in the pattern of reporting.

The distributional analysis serves as an additional verification that systematic errors are not introduced during the production of data files submitted to ISS by our affiliated companies. Disproportionate amounts of premiums and/or losses in a particular class or territory, for example, can be detected using this technique.

4. Validation of Aggregate Data

After the individual company has been reviewed, the data for all reporting companies is compiled to produce aggregate reports. The aggregate data represents the combined experience of many companies. This data is also subjected to similar review procedures. To ensure completeness, run to run control techniques are applied. This involves balancing the totals of the aggregate runs to previously verified control totals. In this manner the aggregate data is monitored to ensure the inclusion of the appropriate company data.

The aggregate data is also reviewed for credibility through distributional analysis similar to that performed on the individual company data. Earned exposures (where applicable) and premiums and incurred losses and claims are used to calculate pure premiums, claim frequencies and claim costs for comparison to past averages. The analysis of the aggregate data centers on determining consistency over time by comparing several years of experience, by coverage and class, or territory, for example. Through the application of these techniques, ISS is able to provide reliable insurance statistical data in North Carolina.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (11)
Statistical Plans

Windsor Mount Joy Mutual Insurance Company Editing Procedures

The review of data provided by Windsor Mount Joy Mutual Insurance Company was conducted by Milliman, and as such, the editing procedures used were the same as described in Section E, Page 28.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (12)

Not Applicable to Mobile Homeowners rate filings.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (13)
Required Surplus

(13a) Based on Annual Statement premium and surplus information for companies writing Mobile Homeowners insurance in North Carolina as compiled by S&P Global Market Intelligence. The premium to surplus ratios for calendar years 2008 through 2017 are listed below:

Calendar Year	Premium to Surplus Ratio
2008	1.22
2009	1.25
2010	1.14
2011	1.23
2012	1.23
2013	1.20
2014	1.24
2015	1.23
2016	1.25
2017	1.38

(13b) The aggregate premium to surplus ratio for companies writing Mobile Homeowners insurance during the years the proposed rates are expected to be in effect is estimated to be 1.26. See the prefiled testimony of G. Zanjani.

(13c) The countrywide property and casualty industry aggregate premium to surplus ratio is calculated below based on data available from A.M. Best:

(1) 2017 Industry Aggregate Statutory Capital and Surplus	\$786,896,032
(2) 2016 Industry Aggregate Statutory Capital and Surplus	734,973,294
(3) Average Industry Aggregate Statutory Capital and Surplus; = [(1) + (2)] / 2	\$760,934,663
(4) 2017 Industry Aggregate Net Earned Premium	\$550,118,322
(5) Industry Aggregate Premium to Surplus Ratio; = (4) / (3)	0.723

The actual level of capital and surplus needed to support premium writings without endangering the solvency of a company is dependent upon (among others) the financial structure and investments unique to each company, the relationship of the company with affiliated companies as a group (and the experience of the affiliated companies), the mix of business of each company, and the conditions of the economy as they affect each company's individual circumstances. The Rate Bureau is advised that the National Association of Insurance Commissioners, as one of several criteria, generally considers that a premium to surplus ratio for an individual company of 3 to 1 warrants close regulatory attention and monitoring with respect to the company's solvency position.

(13d) The Rate Bureau has determined the premium to surplus ratios for Mobile Homeowners insurance in North Carolina based on the weighted average premium to surplus ratios for insurance groups writing Mobile Homeowners insurance in North Carolina, where the weights are the actual premiums written. The premium to surplus ratios of the insurers actually writing this business in North Carolina are representative of the leverage relevant for this line and state. The Rate Bureau has not further allocated surplus within these insurers across lines and states in this or other filings in North Carolina.

**North Carolina
Mobile Homeowners
MH(F)**

North Carolina Administrative Code (NCAC) Title 11, Chapter 10.1105, Section (14)
Additional Information Requested by the Commissioner

(14a) See pre-filed testimony of G. Zanjani, J. Vander Weide and P. Anderson.

(14b) Not Applicable to Mobile Homeowners rate filings.

(14c) Not Applicable to Mobile Homeowners rate filings.

(14d) The items below summarize the changes in methodology, approach, or presentation from that used in the Rate Bureau's 2014 mobile homeowners rate filing:

- (1) Indicated rate changes by territory group were calculated for each coverage using six territory groups based on the proposed new territory definitions. The prior filing determined indicated rate changes for three territory groups based on the current territory definitions.
- (2) The rate indication analysis included with this filing relies on selected trend factors for the experience period and selected trend factors for the projection period. The prior filing incorporated current cost and current amount factors in conjunction with projection factors based on selected trends. Further, the prior filing adjusted the selected LAE factor for the difference between the loss trend and the expense trend, whereas the current filing does not. Also, the trend period used in this filing assumes that rates will be in effect for one year. The prior filing assumed that rates would be in effect for three years.
- (3) The prior filing used approximately 60 years of historical loss data to determine excess wind losses as well as an excess wind loss factor. These 60 years included a mixture of mobile homeowners, homeowners, and dwelling loss experience. This filing includes only mobile home loss experience, which is available for 15 out of the most recent 17 years. Also, based on a review of the incurred losses by peril, a portion of the losses categorized as "All Other" were moved into the "Wind & Hail" peril for the purposes of the excess wind procedure.
- (4) With this filing, losses are developed to ultimate. The prior mobile homeowners filing applied loss development factors of 1.000 because historical loss development data was not available.
- (5) The modeled hurricane losses used in this filing are based on an average of modeled losses from two independent catastrophe models. The prior filing relied only on modeled losses from one model.
- (6) The net cost of reinsurance used in this filing was provided by Aon, based on its experience in the reinsurance market. The prior filing relied on an analysis by D. Appel to determine the net cost of reinsurance.
- (7) This filing updates the territory group, amount of insurance, and deductible corresponding to the base rates displayed in the rate manual.
- (8) This filing updates the rates and relativities displayed in the rate manual to reflect a multiplicative premium calculation process for the primary rating variables. The prior filing and current rate manual used both multiplicative factors and additive credits or debits, depending on the rating variable.
- (9) This filing applies the same underwriting profit provision and contingency provision in each of the territory groups. The prior filing allocated the underwriting profit provision and contingency provision differently across territory groups based on relative risk.
- (10) This filing revises amount of insurance relativities and deductible relativities, and it introduces an age of mobile home rating variable. Additional deductible options are also being introduced.

North Carolina

Mobile Homeowners Policy Program

MH(F)

**MOBILE HOMEOWNERS POLICY PROGRAM MH(F)
RULES**

NORTH CAROLINA

1. General Instructions

The Mobile Homeowners Policy Program provides property and liability coverage using the forms and endorsements herein. This manual also contains the rules governing the writing of the Mobile-Homeowners Policy. The rules, rates, forms and endorsements filed by or on behalf of the Company for each coverage shall govern in all cases not specifically provided for herein.

2. Policy and Forms and Description of Coverage

The following is a general description of the coverages provided by the individual Mobile-Homeowners Forms. The Policy and Forms should be consulted for exact contract conditions.

a. Section I Coverages – Property Damage

Coverage A – Dwelling
Coverage B - Other Structures
Coverage C - Personal Property
Coverage D - Loss of Use

(1) Form MH(F)-2 BROAD FORM. Covers dwelling, other structures, personal property and loss of use against loss by:

- | | |
|---------------------------|---|
| • Fire or Lighting | • Falling Objects |
| • Windstorm or Hail | • Vandalism or Malicious Mischief |
| • Explosion | • Weight of ice, snow or sleet |
| • Riot or Civil Commotion | • Collapse of Buildings |
| • Aircraft | • Accidental discharge of Water or Steam |
| • Vehicles | • Freezing of plumbing, heating systems and appliances |
| • Smoke | • Sudden and Accidental injury from electrical currents |
| • Breakage of Glass | • Sudden and Accidental tearing apart of heating systems and appliances |
| • Theft | |
| • Flood | |

(2) Form MH(F)-3 COMPREHENSIVE FORM. Covers dwelling, other structures, and loss of use against all risks of physical loss, with certain exceptions. Personal property is covered for the same perils as provided in Form MH(F)-2 BROAD FORM.

(3) Form MH(F)-4 CONTENTS BROAD FORM. Covers personal property, including the Insured's interest in building additions and alterations and loss of use, against loss by the same perils as provided in Form MH(F)-2 BROAD FORM.

b. Section II Coverages - Liability - All Forms

Coverage E - Personal Liability
Coverage F - Medical Payments to Others

(1) Personal Liability - Covers payment on behalf of the Insured of all sums which he shall become legally obligated to pay as damages because of bodily injury or property damage caused by an occurrence arising out of his premises or personal activities.

(2) Medical Payments to Others - Covers medical expenses incurred by persons, other than the Insured, who sustain bodily injury caused by an accident arising out of the Insured's premises or personal activities.

3. ELIGIBILITY

- a. Form MH(F)-1 not filed or approved under this Program.
- b. Form MH(F)-2, MH(F)-3 - A Mobile Homeowners Policy may be issued:
To an owner occupant of a mobile home which is used exclusively for private residential purposes (except as provided in **General Rule 3.f.**) and contains not more than two families and with not more than two boarders or roomers.
- c. Form MH(F)-4, A Mobile-Homeowners Policy may be issued only to:
The Tenant (non-owner) of a mobile home; provided the residence premises occupied by the insured is used exclusively for residential purposes (except as provided in General Rule 3.f.) and is not occupied by more than one additional family or more than two boarders or roomers.
- d. When a mobile home is occupied by co-owners, a Mobile Homeowners Policy providing coverage A & B may be issued to only one of the co-owners and endorsed to cover the interest of the other co-owner in the mobile home and appurtenant private structures and for premises liability.
Attach Endorsement MH(F)-23 Additional Insured - Residence Premises. A separate Mobile Home Policy with FORM MH(F)-4 may be issued to the second co-owner.
- e. It is permissible to extend the Mobile-Homeowners Policy, without additional premium charge, to cover the interest of a non-occupied joint owner(s) in the mobile home(s) and for premises liability.
Attach Endorsement MH(F)-23 - Additional Insured
- f. Subject to all other sections of this rule, a Mobile Homeowners Policy may be issued to cover a seasonal mobile home and such mobile home shall be described as 'Seasonal Mobile Home' in the policy.
- g. Incidental office, professional, private school and studio occupancies are permitted provided:
(1) the premises is occupied principally for mobile home purposes;
(2) there is no other business conducted on the premises; and
(3) there is no increase in the applicable fire rate for such occupancy.
- h. A Mobile-Homeowners Policy shall not be issued covering any property to which farm forms or rates apply under the rules filed by or on behalf of the Company. In no event shall a policy be issued to cover any property situated on premises used for farming purposes, unless farming conducted thereon is only incidental to the occupancy of the premises by the Insured as a mobile home and farming is not the occupation of the Insured.
- i. A Travel Trailer which is defined as "a recreational vehicle equipped with temporary living quarters, including cooking and eating facilities" is not eligible for this program.

4. MANDATORY COVERAGES

- a. It is mandatory that insurance be written for all coverages provided under both Sections I and II of the Mobile Homeowners Policy, except for those optional coverages provided for under General Rule 8 of this manual.
- b. Section II of the policy requires coverage for the following exposures and the additional premium developed must be charged when such exposures exist:
(1) All additional residence premises where the Named Insured or spouse maintain a residence other than business or farm properties;
(2) All residence employees of the Named Insured or spouse not covered or not required to be covered by Workers' Compensation Insurance (charge required for residence employees in excess of two); and
(3) Incidental office, professional private school or studio occupancies by the insured on residential premises of the Insured.

5. OFFICE, PROFESSIONAL, PRIVATE SCHOOL OR STUDIO OCCUPANCY

- a. When the Insured maintains an incidental office, professional, private school or studio occupancy in the mobile home or in a separate structure on the premises, which otherwise meets the eligibility requirements, an additional premium for the increased Coverage C limit and for the liability exposure must be charged. Under a Mobile-Homeowners Policy with Form MH(F)-4, the minimum limit of liability for Coverage C shall be \$2,000.
Attach Endorsement MH(F)-24 Office, Professional, Private School or Studio Use - Residence Premises

- b. When the insured gives professional instruction, such as music, dancing or similar instruction in the mobile home, employs no assistants and there has been no physical alteration of the mobile home to accommodate the occupancy, the additional premium for the liability exposure must be charged.

Attach Endorsement MH(F)-24 Office, Professional, Private School or Studio Use - Residence Premises

- c. When the Insured has permissible office, professional, private school or studio occupancy in an additional residential premises occupied by the insured, other than the described mobile home, the additional premium for the liability exposures must be charged.

Attach Endorsement MH(F)-25 Office, Professional, Private School or Studio Use - Other Residence

6. LIMITS OF LIABILITY

- a. The limits of liability required under the Mobile Homeowners Policy are as follows:

Section I Coverage	MH(F)-2	MH(F)-3	MH(F)-4
A. Dwelling Minimum Limit	\$2,000	\$2,000	
B. Other Structures	10% of Mobile Home	10% of Mobile Home	
C. Personal Property	30% of Mobile Home	30% of Mobile Home	
D. Loss of Use	10% of Mobile Home	10% of Mobile Home	10% of Unscheduled Personal Property

Section II Coverage	All Forms
E. Personal Liability	\$25,000 Each Occurrence
F. Medical payments to Others	\$ 500 Each Person \$25,000 Each Accident

- b. ALL FORMS - The limit of liability for Coverages C of Section I and E or F of Section II may be increased. See General Rule 8.
- c. FORM MH(F)-2, MH(F)-3 - Under Coverage B of Section I an additional amount of insurance may be written on a specific private structure. See General Rule 8.

7. DEDUCTIBLES

- a. All Mobile Homeowners Forms contain a \$50 Loss Deductible Clause applicable to loss under Section I of the policy except loss under Coverage D, Fire Department Service Charge and Emergency Removal Expense.
- b. FORM MH(F)-2, MH(F)-3 & MH(F)-4 - The Mobile Homeowners Policy may be endorsed to provide a flat (non-disappearing) deductible in the amount of \$100 or \$250 at a premium credit.
- c. Optional \$100 or \$250 Flat Theft Deductible
FORM MH(F)-2, MH(F)-3, MH(F)-4 - The Mobile Homeowners Policy may be endorsed to provide a flat (non-disappearing) deductible in the amount of \$100 or \$250 applicable to any loss caused by theft of property only covered under Coverage C of the policy. This deductible shall be applied to the amount of each adjusted loss. A premium credit is applicable.
- d. Optional Windstorm or Hail Deductibles - Territory 05, 06, 42, 43 Only
In territories 05, 06, 42, 43 only, the Mobile Home Policy may be endorsed to provide an optional Windstorm or Hail Deductible used in conjunction with the deductibles applicable to All Other Perils. This option provides for higher dollar deductible amounts of \$1,000, \$2,000 and \$5,000 when the higher deductible amount selected exceeds the deductible applicable to All Other Perils.
- e. Optional Named Storm Percentage Deductible – Territory 05, 06, 42, 43 Only
In territories 05, 06, 42, 43 only, the Mobile-Homeowners Policy may be endorsed to provide a Named Storm Percentage Deductible of 1% of the Coverage A or C limit of liability, whichever is greater, when the dollar amount of the percentage deductible exceeds the deductible applicable to All Other Perils. Use **MH(F)-58**, Named Storm Percentage Deductible.

8. OPTIONAL COVERAGES

a. Section I - Property Damage - The Coverage may be amended as follows:**(1) Other Structures - Increased Limit**

An additional amount of insurance may be written on a specific private structure under Coverage B at an additional premium.

Attach Endorsement MH(F)-28 Other Structures.

(2) Credit Card, Forgery and Counterfeit Money Coverage

The Mobile Homeowners Policy may be extended to include coverage against loss by forgery or alteration in connection with credit cards, checks or drafts, or loss due to acceptance of counterfeit paper currency at an additional premium.

Attach Endorsement MH(F)-29 Credit Card , Forgery and Counterfeit Money Coverage

(3) Money and Securities

Increased limits on money, bullion, numismatic property, bank notes, and on securities, accounts, bills, deeds, evidences of debt, letters of credit, notes other than bank notes, passports, railroad and other tickets and stamps, including philatelic property, may be provided at an additional premium.

The \$100 limit on money may be increased by an amount not exceeding \$400 and the \$500 limit on securities may be increased by an amount not exceeding \$500.

Attach Endorsement MH(F)-32 - Coverage C - Increased Special Limits of Liability

(4) Theft Coverage Extension

FORM MH(F)-2, MH(F)-3, MH(F)-4 - Coverage may be extended to include loss by theft of property while unattended in or on any vehicle or watercraft at an additional premium.

Attach Endorsement MH(F)-27 - Theft Coverage Extension

(5) Personal Property**(a) Increased Limit - All Forms**

The limit of liability for Coverage C may be increased at an additional premium.

(b) Away from Premises - FORM MH(F)-2, MH(F)-3, MH(F)-4 The limit of liability on unscheduled personal property away from premises under Coverage C may be increased at an additional premium.

Attach Endorsement MH(F)-33 - Coverage C - Away from Premises

(6) Earthquake Damage

The Additional Exclusion section may be amended to include direct loss caused by earthquake and volcanic eruption at an additional premium. A deductible in the amount of 2% is mandatory.

Attach Endorsement MH(F)-43 – Earthquake

(7) Fire Department Service Charge

The limit of \$100 in the policy may be increased to \$250 or \$500 at an additional premium.

Attach Endorsement MH(F)-45 Fire Department Service Charge

b. Scheduled Personal Property

Coverage may be provided against all risks of physical loss with certain exceptions on scheduled personal property subject to the rules and rates filed by or on behalf of the Company. This coverage is subject to an annual minimum premium of \$15 irrespective of the term of the Mobile Homeowners Policy.

Attach Endorsement MH(F)-31 Scheduled Personal Property Endorsement

c. Lienholder's Single Interest

Coverage may be provided to cover the interest of the lienholder from the loss caused by collision, upset, conversion, embezzlement or secretion at an additional premium. Repossession and return protection is included. This coverage should be provided only when requested by the lienholder.

Attach Endorsement MH(F)-21 Mobile Home Lienholder's Single Interest

d. Trip Collision

This coverage may be provided to protect the Insured from loss caused by collision or upset at an additional premium. A \$100 deductible is mandatory.

Attach Endorsement MH(F)-22 Collision

e. Consent to Move Mobile Home

This extension of coverage may be provided to avoid termination of coverage when the Mobile Home is moved and without reduction of coverage while the Mobile Home is away from the described premises (but not for collision or upset) at an additional premium.

Attach Endorsement MH(F)-20 Consent to Move Mobile Home

f. Scheduled Glass

Coverage may be added for specified glass at the premiums filed by the Company.

Attach Endorsement MH(F)-44 Scheduled Glass

g. Section II - Liability

The Limit of Liability for Coverage E or F may be increased at an additional premium and the following coverage may also be added to the Mobile Homeowners Policy:

Note: Workers' Compensation coverage or liability on a non-comprehensive basis shall not be added to the Mobile-Homeowners Policy.

(1) Additional Residence Premises - Rented to Others

Coverage may be provided for additional one or two family residence premises, rented to others, owned by the Named Insured or spouse, at an additional premium.

Attach Endorsement MH(F)-34 Additional Residence - Rented to Others, 1 or 2 Families

(2) Business Pursuits

Coverage may be provided for the liability of an insured arising out of business activities, other than a business of which he is sole owner or a partner, at an additional premium.

Attach Endorsement MH(F)-35 Business Pursuits

(3) Outboard Motors and Watercraft

Coverage is provided for watercraft powered by an outboard motor or combination of outboard motors not exceeding 25 total horsepower. Watercraft not covered under the policy may be insured at an additional premium.

Attach Endorsement MH(F)-36 Watercraft

(4) Owned Snowmobile

Each snowmobile owned by the Named Insured or any other insured who is a resident of the Named Insured's household must be declared. The premium charge shall apply separately to each snowmobile.

Attach Endorsement MH(F)-37 Snowmobile

(5) Farmers Comprehensive Personal Liability

Section II can be amended to provide for this coverage at an additional premium.

Attach Endorsement MH(F)-41 Farmers Comprehensive Personal Liability

9. TIE-DOWN CREDIT

When the mobile home is properly secured in accordance with the regulations of the North Carolina Building Code Council as set forth in the State of North Carolina Regulations for Mobile Homes, a credit of 10% shall be deducted from the applicable basic premium.

Attach Endorsement MH(F)-46 Mobile Home Tie-Down.

10. CHANGE ENDORSEMENT

Endorsement MH(F)-26 Change Endorsement, provides the minimum information requirements for any endorsement or change that takes place during the term of the policy. This endorsement must be used or the equivalent information provided.

11. POLICY TERM

The Mobile Homeowners Policy may be written for a term of one year. It is permissible to extend the policy for successive policy terms by extension certificate based upon the premiums in effect on renewal date. The then current editions of the applicable forms and endorsements must be made a part of the policy.

It is permissible to write for one or three year terms on the following bases:

- An annual policy which may be extended for successive terms by Certificate, subject to the rules, premiums, forms and endorsements then in effect.
- A three year policy with the premium payable in installments at the premium in effect on the anniversary dates.
- A three year policy with the premium prepaid at three times the annual premiums in effect at inception.

Endorsement MH(F)-39 Deferred Premium Payment applies.

12. OTHER INSURANCE

Credit for existing insurance is not permitted, except under Section II as provided for in the rate pages.

13. WHOLE DOLLAR PREMIUM RULE

All premiums shown on the policy and endorsements shall be rounded to the nearest whole dollar. A premium of fifty cents (\$.50) or more shall be rounded to the next higher whole dollar. In the event of cancellation by the Company, the return premium may be carried to the next higher whole dollar.

14. INTERPOLATION OF PREMIUMS FOR POLICY AMOUNTS NOT SHOWN ON PREMIUM CHARTS

Premiums for limits of liability in excess of the minimums required, not shown in the premium charts, may be obtained by interpolation.

15. INCREASES IN LIMITS OF LIABILITY OR ADDITION OF COVERAGES

The limits of liability may be increased or coverage may be added during the term of the policy. Any additional premium shall be computed on a pro-rata basis subject to all the rules of this manual.

16. MINIMUM ADDITIONAL PREMIUM

When an endorsement requiring an additional premium is issued subsequent to the inception date of the policy, such total additional premium shall not be less than \$6.00 regardless of the unexpired policy period.

17. CANCELLATION OR REDUCTIONS IN LIMITS OF LIABILITY OR COVERAGES

It shall not be permissible to cancel any of the mandatory coverages in the policy unless the entire policy is cancelled.

If insurance is cancelled or reduced at the request of the Company, or in the event of foreclosure of the mortgage or other lien on the insured mobile home, the earned premium shall be computed on a pro-rata basis.

If insurance is cancelled or reduced at the request of the Insured, the earned premium shall be computed on a short rate basis, using the standard short rate tables subject to a minimum retained premium of \$25.00 unless rewritten by another Mobile Homeowners Policy in this Company.

18. TRANSFER OR ASSIGNMENT

Subject to all the rules of this manual, any necessary adjustment of premium, and with permission of the Company, a Mobile-Homeowners Policy may be endorsed to effect:

- a. transfer to another location within the same state; or
- b. assignment from one insured to another in the event of transfer of title of the mobile home.

19. RESTRICTION OF INDIVIDUAL POLICIES

If a Mobile Homeowners Policy would not be issued because of unusual circumstances or exposures, the Named Insured may request a restriction of the policy provided no reduction in the premium is allowed. Such requests shall be referred to the Company and must be handled in accordance with consent to rate statutes.

20. REPLACEMENT COST - COVERAGES A AND B

Coverage may be provided on a replacement cost basis for Coverage A and B, at an additional premium.
Attach Endorsement MH(F)-48 Replacement Cost Loss Settlement

21. INFLATION GUARD ENDORSEMENT

Form MH(F)-2 and MH(F)-3 Limits of Liability on Coverage A, B, C & D are automatically increased by the amount of quarterly increase shown on the endorsement for an additional charge.
Attach Endorsement MH(F)-50

22. Personal Property Replacement Cost

Form MH(F)-2 and MH(F)-3 Coverage C may be extended to include full cost of repair or replacement at an additional premium.
Attach Endorsement MH(F)-51

23. Coverage B - Off Premises

Forms MH(F)-2 and MH(F)-3 Coverage B - Other structures may be extended to cover other structures which are located off the residence premises at an additional charge.
Attach Endorsement MH(F)-52

24. WINDSTORM OR HAIL EXCLUSION - TERRITORY 05, 06, 42 and 43 ONLY

The peril of Windstorm or hail may be excluded if:

- a. The property is located in an area eligible for such coverage from the North Carolina Underwriting Association;
and
- b. A Windstorm or Hail Rejection form is secured and maintained by the company.

Attach Endorsement MH(F)-54 Windstorm or Hail Exclusion.

When Endorsement MH(F)-54 is attached to the policy, enter the following on the Declaration Page:

"This policy does not provide coverage for the peril of Windstorm or Hail."

25. Mobile Home Stated Value Loss Settlement

For an additional premium, your policy may be changed to reflect a stated value for the covered mobile home. For rate information, see Rate Section.

Attach MH(F)-310 (Ed. 9-97)

26. Optional Rating Characteristics

Companies may use the following optional rating characteristics or any combination of such optional rating characteristics and Bureau filed characteristics to determine rates, as long as applicable legal requirements are satisfied. The resulting premium shall not exceed the premium that would have been determined using the rates, rating plans, classifications, schedules, rules and standards promulgated by the Bureau, except as provided by statute. The rating factor for any combination of the following optional risk characteristics cannot exceed 1.00, unless the resulting premium does not exceed the Bureau premium.

- a. Policy characteristics not otherwise recognized in this manual. Examples include: account or multi-policy credit; tiers; continuity of coverage; coverages purchased; intra-agency transfers; payment history; payment options; prior insurance; and new and renewal status.
- b. Policyholder/Insured personal characteristics not otherwise recognized in this manual. Examples include: Smoker/non-smoker status; credit information; loss history; loss prevention training/education; age; work status; marital status; number of years owned; owned real estate; household composition; and good student/education.
- c. Dwelling characteristics not otherwise recognized in this manual. Examples include: Gated community; retirement community; limited access community; mobile home community; revitalized/renovated home; security, safety or loss deterrent systems or devices; age of home; occupancy; fire protection/distance to fire department; and construction type and quality.
- d. Affinity group or other group not otherwise recognized in this manual.
- e. Any other rating characteristics or combination of characteristics if filed by a company and approved by the Commissioner.

Installment Payment Plan

When a policy is issued on an installment basis, the following rules apply:

The first installment shall be due on the effective date of the policy and the due date of the last installment shall be no later than one month prior to the policy anniversary date.

An additional charge of \$3.00 shall be made for each installment.

The premium calculated for the first installment payment, exclusive of installment charges, shall not be less than the pro rata charge for the period from the inception date of policy to the due date of the next installment.

**MOBILE HOME POLICY PROGRAM MANUAL
MH(F)
RATE PAGES**

NORTH CAROLINA

Territory Group* 1				Surcharge 38.1%	
Territory Group* 3				Discount -17.8%	
TERRITORY GROUP* 2					
OWNERS FORMS					
\$50 DEDUCTIBLE					
Amount of Insurance				Premiums	
A	B	C	D	MH(F)-2	MH(F)-3
\$2,000	\$200	\$600	\$200	\$263.00	\$300.00
3,000	300	900	300	273.00	312.00
4,000	400	1,200	400	283.00	324.00
5,000	500	1,500	500	294.00	336.00
6,000	600	1,800	600	304.00	347.00
7,000	700	2,100	700	315.00	359.00
8,000	800	2,400	800	325.00	372.00
9,000	900	2,700	900	336.00	384.00
10,000	1,000	3,000	1,000	346.00	395.00
11,000	1,100	3,300	1,100	356.00	407.00
12,000	1,200	3,600	1,200	367.00	419.00
13,000	1,300	3,900	1,300	377.00	431.00
14,000	1,400	4,200	1,400	387.00	443.00
15,000	1,500	4,500	1,500	394.00	451.00
Each Add'l \$1,000				10.00	12.00

Territory Group* 1		Surcharge 40.9%
Territory Group* 3		Discount -14.3%
TERRITORY GROUP* 2		
TENANT FORM		
\$50 DEDUCTIBLE		
Amount of Insurance		Premium
C	D	MH(F)-4
\$ 2,000	\$ 200	\$ 50.00
3,000	300	61.00
4,000	400	73.00
5,000	500	84.00
6,000	600	96.00
7,000	700	108.00
8,000	800	118.00
9,000	900	131.00
10,000	1,000	142.00
Each Add'l \$1,000		11.00

*Territory Group 1: Territory 5, 6, 42, 43
 *Territory Group 2: Territory 32, 34, 41, 44-47, 53
 *Territory Group3: Territory 36, 38, 39, 57, 60

1. DEDUCTIBLES

For the purpose of this rule, premium subject to deductible credits shall be the sum of the following:

- (1) the premium developed from the Basic Premium Chart for Section 1 Deductible
- (2) the premiums for amended limits of liability for Coverage C; and
- (3) the premiums developed for all other Structures, Theft Coverage Extension and Coverage C - Increased Limits - Away from Premises, if applicable.

a. Optional Higher Flat Deductible

ALL FORMS - The Mobile-Homeowners Policy may be endorsed to provide a flat (non-disappearing) deductible applicable to any loss under Section 1 of the policy in an amount and at a premium credit developed as follows. The Percentage of premium credit shall be applied to the premium developed above subject to the maximum premium credit indicated.

Owner – Section I Deductible				
Deductible Amount	\$100	\$250	\$500	\$1,000
Percentage Credit	10%	20%	27%	34%
Maximum Credit:				
Territory Group 1*	\$53.80	\$107.59	\$215.19	\$537.97
Territory Group 2*	\$38.95	\$77.90	\$155.81	\$389.51
Territory Group 3*	\$32.02	\$64.04	\$128.08	\$320.20

Tenant – Section I Deductible				
Deductible Amount	\$100	\$250	\$500	\$1,000
Percentage Credit	10%	20%	27%	34%
Maximum Credit:				
Territory Group 1*	\$39.46	\$78.91	\$157.82	\$394.55
Territory Group 2*	\$28.00	\$56.00	\$112.00	\$280.00
Territory Group 3*	\$24.00	\$48.00	\$96.00	\$240.00

b. Optional Flat Theft Deductible

ALL FORMS - The mobile-Homeowners Policy may be endorsed to provide a \$100 or \$250 Flat Theft Deductible applying to loss by Theft of property covered under Coverage C of the policy at a premium credit developed from the table below. The premium subject to this deductible shall be the sum of:

- (1) the premium developed from the Basic Premium Chart;
- (2) the premiums for amended limits of liability for Coverage C; and
- (3) the premiums developed for Theft Coverage Extension and Coverage C Increased Limits Away from Premises, if applicable.

Theft Deductible Amount	Owner		Tenant	
	\$100	\$250	\$100	\$250
Percentage Credit	3%	5%	3%	5%
Maximum Credit:				
Territory Group 1*	\$21.52	\$32.28	\$15.78	\$23.67
Territory Group 2*	\$15.58	\$23.37	\$11.20	\$16.80
Territory Group 3*	\$12.81	\$19.21	\$9.60	\$14.40

*Territory Group 1: Territory 5, 6, 42, 43

*Territory Group 2: Territory 32, 34, 41, 44-47, 53

*Territory Group3: Territory 36, 38, 39, 57, 60

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

c. Optional Windstorm or Hail Deductibles Territory Group 1* Only

The Windstorm or Hail Deductible options are used in conjunction with the deductibles applicable to All Other Perils. This option provides for higher dollar deductible amounts of \$1,000, \$2,000 and \$5,000 when the higher deductible amount selected exceeds the deductible applicable to All Other Perils.

An endorsement is not required. Separately enter on the policy declarations the deductible amounts that apply to Windstorm or Hail and All Other Perils. For example: Deductible - \$500 except \$1000 for Windstorm or Hail.

The Windstorm or Hail Deductible factor applies to the \$50 rate.

\$1,000 WINDSTORM OR HAIL DEDUCTIBLE	
All Other Perils Deductible	Deductible Factors
\$ 50	0.89
100	0.82
250	0.76
500	0.70
The amount of insurance on the structure must be at least \$10,000.	

The Maximum \$1000 Windstorm or Hail Deductible credit is \$537.97

\$2,000 WINDSTORM OR HAIL DEDUCTIBLE	
All Other Perils Deductible	Deductible Factor
\$ 50	0.85
100	0.78
250	0.73
500	0.68
1000	0.60
The amount of insurance on the structure must be at least \$20,000.	

The Maximum \$2000 Windstorm or Hail Deductible credit is \$1,075.94.

\$5,000 WINDSTORM OR HAIL DEDUCTIBLE	
All Other Perils Deductible	Deductible Factor
\$ 50	0.82
100	0.77
250	0.70
500	0.66
1000	0.58
The amount of insurance on the structure must be at least \$50,000.	

The Maximum \$5000 Windstorm or Hail Deductible credit is \$1,721.51.

*Territory Group 1: Territory 5, 6, 42, 43

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

d .Optional Named Storm Percentage Deductibles Territory Group 1*ONLY

ALL FORMS - The Mobile-Homeowners Policy may be endorsed to provide a Named Storm Percentage Deductible of 1% of the Coverage A or C limit of liability, whichever is greater, when the dollar amount of the percentage deductible exceeds the deductible applicable to All Other Perils. Use **MH(F)-58**, Named Storm Percentage Deductible.

The credits displayed incorporate the credits for the All Perils Deductibles. Do not use the credits for the All Perils Deductibles when rating a policy with a higher Named Storm Percentage Deductible.

The Named Storm Percentage Deductible factor applies to the \$50 Deductible rate.

Section 1 Deductible - Owners					
All Other Perils Deductible	\$50	\$100	\$250	\$500	\$1,000
Percentage Credit	5%	14%	24%	31%	37%
Maximum Credit	\$28.32	\$56.62	\$113.26	\$226.52	\$566.29

Section 1 Deductible - Tenants					
All Other Perils Deductible	\$50	\$100	\$250	\$500	\$1,000
Percentage Credit	5%	14%	24%	31%	37%
Maximum Credit	\$20.76	\$41.54	\$83.06	\$166.13	\$415.31

*Territory Group 1: Territory 5, 6, 42, 43

2. OPTIONAL COVERAGES

a. Other Structures Increased Limits

When an additional amount of insurance is written on a specific Other Structure, the premiums listed on the following page per \$1,000 of insurance shall apply separately to each such structure.

FORM	INCREASED LIMIT RATE PER \$1,000
MH(F) 2	\$ 9
MH(F) 3	11

Attach Endorsement **MH(F)28** Other Structures

b. Credit Card, Forgery and Counterfeit Money Coverage

When Credit Card, Forgery and Counterfeit Money Coverage is provided the additional premium shall be developed as follows:

Limit of Liability	Premium
\$ 2,500	\$3
5,000	5
10,000	6

For limits in excess of \$10,000 refer to Company

Attach Endorsement **MH(F) 29** Credit Card, Forgery and Counterfeit Money.

c. Money and Securities - Increased Limit

When the limit of liability is increased on money or securities, the additional premium shall be developed as follows:

All Forms	Money	Securities
Per \$100 of Insurance	\$6	\$4

The special limit of liability for theft of jewelry, watches and furs may be increased to \$1,000 but not exceeding \$500 for any one article. The additional premium shall be \$9.

Attach Endorsement **MH(F) 32** Coverage C - Increased Special Limits of Liability.

d. Theft Coverage Extension

ALL FORMS - When the peril of Theft is extended to cover loss of property from unattended vehicles or watercraft, the additional premium shall be \$3.

Attach Endorsement **MH(F) 27** Theft Coverage Extension.

e. Personal Property

(1) Increased Limit

When the limit of liability for Coverage C is increased, the additional premium shall be developed as follows:

Form	Per \$1,000 of insurance
MH(F)2 or MH(F)3	\$10

(2) Increased Limits - Away from Premises

When the limit of liability on personal property away from the premises under Coverage C is increased, the additional premium shall be developed as follows:

All Forms	Each Additional \$1,000
Without Theft Extension	\$ 9
With Theft Extension	13

Minimum Premium - \$9 Minimum Retained Premium for this endorsement when cancelled separately.

Attach Endorsement **MH(F) 33** - Coverage C Away From Premises

f. Mobile Home Lienholders Single Interest

\$10 per year, not subject to Short Rate adjustment. Covers lienholders interest from loss by collision, upset, conversion, embezzlement or secretion and repossession return expense.

Attach endorsement **MH(F) 21** Mobilehome Leinholder's single Interest.

g. Trip Collision Coverage

In consideration of a fully earned premium of \$15, the policy is extended to cover loss from collision or upset for a period of 30 days – Subject to a mandatory \$100 deductible.

Attach endorsement **MH(F) 22** Collision.

h. Consent to Move Mobile Home

In consideration of a fully earned premium of \$10, the on premises limits are extended to wherever the Mobile Home may be, for a period of 30 days.

Attach endorsement **MH(F) 20** Consent to Move Mobile Home.

i. Earthquake Coverage

When Earthquake Coverage is provided it shall apply to all Section 1 Coverages for the same limits as provided under the policy. The premium for each \$1,000 of insurance shall be developed as follows:

Form	Frame	Applied to:
MH(F) 2, MH(F) 3	.40	Coverage A Limit
MH(F) 4	.30	Coverage C Limit
MH(F) 2, MH(F) 3	.30	Amount of Coverage C Increase Only
All Forms	.40	Private Structure or Coverage D Increased or added limits

Attach endorsement **MH(F) 43** Earthquake.

j. Fire Department Service Charge

The limit may be increased as follows:

- Increase to \$250 \$2
- Increase to \$500 \$5

Attach endorsement **MH(F) 45** Fire Department Service Charge.

k. Tie-Down Credit

See general rule 9.

Attach endorsement **MH(F) 46** Mobile Home Tie-Down.

l. Replacement Cost Coverages A and B

When coverage is provided on a replacement cost basis, charge 5% of the premium from the Basic Premium Chart.

Attach **MH(F) 48** Replacement Cost Loss Settlement

**MOBILE HOME POLICY PROGRAM MH(F)
RATE PAGES**

NORTH CAROLINA

m. Inflation Guard Coverage - Form MH(F) 2 and Form MH(F) 3

When the Limits of Liability on Coverages A, B, C & D are automatically increased in accordance with the provisions of the Inflation Guard Endorsement the annual additional premium shall be developed by applying the following charges to the annual premium for Coverage A.

Amount of Quarterly Increase	Charge
1%	1.5%
1½%	2.25%
2%	3.0%
Each Add'l ½% add	¾%

Minimum Annual Premium \$1.00. Additional premium for three year policies shall be three times the annual premium.

Attach Endorsement **MH(F)50** Mobile Homeowners Inflation Guard.

n. Personal Property Replacement Cost MH(F) 2 and MH(F) 3

When Coverage C is extended to include full cost of repair or replacement without deduction for depreciation the additional premium shall be developed as follows:

- Manual charge to increase Coverage C limit to 40% of Coverage A.
- 5% surcharge to the adjusted total base premium (including the additional premium for the increased Coverage C limit). The surcharge shall be applied to the Total Adjusted Basic Premium before credit for optional higher deductible is applied. The minimum additional premium is \$20.

Attach Endorsement **MH(F) 51** Personal Property Replacement Cost.

o. Coverage B - Off Premises Form MH(F)-2 and MH(F)-3

When Coverage B - Off Premises is provided to cover other structures which are located off the residence premises, the additional charge shall be \$33.

Attach Endorsement **MH(F) 52** Coverage B - Off Premises

p. Windstorm or Hail Exclusion Credit – Territory Group* 1 Only - 5, 6, 42, 43

When the perils of windstorm or hail are excluded from coverage under Section I of the policy the following credits shall be deducted from the applicable basic premium.

FORM	Territory Group* 1 - Territories 5, 6, 42, 43
MH(F) 2 and MH(F) 3	73.9%
MH(F) 4	61.3%

q. Mobile Home Stated Value Loss Settlement

When coverage is provided on a stated value basis, charge 3% of the premium from the premium rate table.

Attach endorsement **MH(F) 310** Stated Value Loss Settlement.

*Territory Group 1: Territory 5, 6, 42, 43

SECTION II COVERAGES – LIABILITY

3. GENERAL INSTRUCTIONS

When the limit of liability for Coverage E or F is increased or coverage for additional exposures is provided, the additional premium shall be developed from the following tables. The respective limits of liability for Coverage E and for Coverage F must be uniform for all exposures covered under the policy. Coverage F limits indicated below are “each person” limits and contemplate the basic limit of \$25,000 each accident. Refer to Company for Limits in Excess of those shown.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Residence Premises			3		1	4		2	5		4	7		6	9
Additional Residence Premises															
Occupied by Insured (1 or 2 Family)		3	4	\$	4	5		5	6		6	7		7	8
Rented to Others* (1 Family)	3	6	7	4	7	8	5	8	9	6	9	10	7	10	11
Rented to Others* (2 Family)	5	8	9	6	9	10	7	10	11	8	11	12	9	12	13
Residence Employees**		2	3		3	4		4	5		5	6		6	7

*Attach Endorsement **MH(F) 34** - Additional Residence Premises - Rented to Others.

**Charge for each employee in excess of two other than employees whose time of employment is not more than half of the customary full time or to whom the Worker’s Compensation exclusion applies as set forth in Section II of the policy.

When coverage is provided by a Mobile-Homeowners for a Secondary Residence premises of an insured whose Primary Residence is covered by a Homeowners, Farmowners or Mobile Homeowners Policy in the same company, the secondary premises shall be endorsed on Section II of the Primary policy at the appropriate charge, and a \$7 credit allowed on the Secondary policy if the Primary policy number is shown on the Declarations page of the Secondary policy.

Office, Professional, Private School or Studio Occupancy

When the insured maintains an incidental office, professional, private school or studio occupancy on the premises, the additional premium shall be calculated by adding the appropriate charge from the following table to the premium developed for any required increased in the Coverage C Limit of Liability.

Submit to Company for Medical Payments charges on incidental day nurseries or nursery schools.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Residence Premises															
General Rule 5.a.*	9	11	13	10	12	14	11	13	15	12	14	16	13	15	17
General Rule 5.b.*		3	4		4	5		5	6		6	7		7	8
General Rule 5.c.**	4	6	8	5	7	9	6	8	10	7	9	11	8	10	12

*Attach Endorsement **MH(F)-24** - Office, Professional, Private School or Studio Use – Residence Premises.

Attach Endorsement **MH(F)-25 - Office, Professional, Private School or Studio Use – Other Residence.

SECTION II COVERAGES – LIABILITY

Watercraft

Coverage must be written to expiration of the policy, but it is permissible to stipulate for inboard motor boats or inboard-outboard motor boats or sailboats (not outboard motors) the navigational period of each year. Premium shall be adjusted on a short rate basis. For boats not described below, coverage is not permitted under the Mobile-Homeowners policy. The premium applicable in the state in which the insured's initial residence premises is located shall apply except that if the insured owns another premises where he maintains a residence and operates his boat principally from such other premises, the premiums applicable in the state where the latter premises are located shall apply.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Outboard Motor*										
Less than 50 HP	5	6	6	7	7	8	8	9	9	10
50 HP and over	8	10	10	12	11	13	13	15	14	16
Inboard or Inboard-Outboard Motor Boats and Sailboats **										
• Under 16 MPH										
Less than 26 feet	11	12	13	14	15	16	17	18	19	20
26 to 40 feet	30	33	34	37	39	42	44	47	50	53
Over 40 feet	58	65	67	74	76	83	87	94	99	106
• 16 to 30 MPH										
Less than 26 feet	23	26	27	30	30	33	35	38	40	43
26 to 40 feet	47	53	54	60	61	67	70	76	80	86
Over 40 feet	87	98	100	111	114	125	131	142	149	160
• Over 30 MPH										
Less than 26 feet	58	65	67	74	76	83	87	94	99	106
26 to 40 feet	87	98	100	111	114	125	131	142	149	160
Sailboats No Auxiliary Power 26 to 40 feet	23	26	27	30	30	33	35	38	40	43
*Where two or more outboard motors are regularly used together in connection with any single watercraft owned by the Insured, the horsepower of all such outboards shall be accumulated for rating purposes.										
**Sailboats 26 to 40 feet inclusive equipped with Auxiliary Power are classed as Inboard Motor Boats.										
Attach Endorsement MH(F) 36 Watercraft										

SECTION II COVERAGES – LIABILITY

Business Pursuits

Classify and apply charge separately for each person insured:

A - Clerical Office Employees - Defines as those employees whose duties are confined to keeping the books or records, conducting correspondence, or who are engaged wholly in office work where such books or records are kept or where such correspondence is conducted, having no other duty or any nature in or about the employer's premises. This classification applies only to persons who are employed exclusively in separate buildings or on separate floors of buildings or in departments on such floors which are separated from all other work places of the employer by structural partitions and within which no work is performed other than clerical office duties.

B - Salesmen, Collectors or Messengers - Including installation, demonstration or servicing operations.

C - Teachers - Athletic, laboratory, manual training, physical training and swimming instruction, excluding liability for corporal punishment of pupils.

D - Teachers - Not otherwise classified, excluding liability for corporal punishment of pupils.

E - Teachers - Liability for corporal punishment of pupils. Additional premium for this coverage must be added to premium for classification C or D.

Occupations not otherwise classified - Refer to Company.

Limit of Liability															
Coverage E	\$25,000			\$50,000			\$100,000			\$200,000			\$300,000		
Coverage F	None	500	1000	None	500	1000	None	500	1000	None	500	1000	None	500	1000
Class															
A	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
B	2	3	4	2	3	4	3	4	5	3	4	5	3	4	5
C	3	5	6	3	6	7	4	7	8	5	8	9	6	9	10
D	1	2	3	1	2	3	1	2	3	2	3	4	2	3	4
E		2			3			4			5			6	
*Attach Endorsement MH(F)-35 – Business Pursuits															

SECTION II COVERAGES – LIABILITY

Farmers Comprehensive Personal Liability

Coverage must be written to expiration of the policy, but it is permissible to stipulate for inboard motor boats or inboard-outboard motor boats or sailboats (not outboard motors) the navigational period of each year. Premium shall be adjusted on a short rate basis. For boats not described below, coverage is not permitted under the Mobile-Homeowners policy. The premium applicable in the state in which the insured's initial residence premises is located shall apply except that if the insured owns another premises where he maintains a residence and operates his boat principally from such other premises, the premiums applicable in the state where the latter premises are located shall apply.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Initial Farm Premises	21	23	23	26	26	29	29	32	32	35
Each Additional Farm Premises Occupied or Rented	12	13	14	15	15	16	17	18	19	20
Total Acreage for All Locations Occupied or Rented Over 500	5		6		7		8		9	
Farm Employees*										
• Per 100 Days or Faction	6	7	7	8	8	9	9	10	10	11
• Each Farm Employee Part Time	8	9	9	10	10	11	11	13	12	14
• Each Farm Employee Full Time	18	20	20	22	22	25	25	28	28	31
Minimum Premium Per Policy	11	13	13	15	14	17	16	19	18	21
Animal Collision Coverage G	\$300 Limit - \$3									
Attach Endorsement MH(F) 41 Farmer's Comprehensive Personal Liability										

Owned Snowmobile

Each snowmobile owned by the Named Insured or any other Insured who is a resident of the Named Insured's household must be declared. The premium charge shall apply separately to each snowmobile. The minimum charge for each snowmobile for any period of coverage within a policy year shall be as indicated below for the respective Limits of Liability.

LIMIT OF LIABILITY										
Coverage E	\$25,000		\$50,000		\$100,000		\$200,000		\$300,000	
Coverage F	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000	\$500	\$1,000
Each Snowmobile	-	-	-	-	-	-	-	-	-	-
Annual Minimum Premium	34	35	39	40	42	44	48	50	54	55
Attach Endorsement MH(F)-37 - Snowmobile										

1. TERRITORY DEFINITIONS – (For all Coverages and Perils Other than Earthquake).

A. Cities

City of	County of	Code
Charlotte	Mecklenburg	38
Durham	Durham	32
Greensboro	Guilford	36
Raleigh	Wake	32
Winston-Salem	Forsyth	36

B. Other Than Cities

County of	Code
Alamance	57
Alexander	60
Alleghany	60
Anson	44
Ashe	60
Avery	60
Beaufort	43
Bertie	45
Bladen	41
Brunswick	42
Buncombe	60
Burke	60
Cabarrus	60
Caldwell	60
Camden	43
Carteret	43
Caswell	46
Catawba	60
Chatham	53
Cherokee	60
Chowan	43
Clay	60
Cleveland	60
Columbus	41
Craven	43
Cumberland	34
Currituck	43
Dare	43
Davidson	57
Davie	60
Duplin	45
Durham	53
Edgecombe	47
Forsyth	57
Franklin	47
Gaston	39
Gates	45
Graham	60
Granville	46
Greene	45
Guilford	57
Halifax	47
Harnett	47
Haywood	60

County of	Code
Henderson	60
Hertford	45
Hoke	47
Hyde	43
Iredell	60
Jackson	60
Johnston	47
Jones	43
Lee	47
Lenoir	45
Lincoln	60
Macon	60
Madison	60
Martin	45
McDowell	60
Mecklenburg	39
Mitchell	60
Montgomery	44
Moore	47
Nash	47
New Hanover	42
Northampton	47
Onslow	42
Orange	53
Pamlico	43
Pasquotank	43
Pender	42
Perquimans	43
Person	46
Pitt	45
Polk	60
Randolph	57
Richmond	44
Robeson	41
Rockingham	60
Rowan	60
Rutherford	60
Sampson	45
Scotland	47
Stanly	60
Stokes	60
Surry	60
Swain	60
Transylvania	60
Tyrrell	43
Union	39
Vance	46
Wake	53
Warren	46
Washington	43
Watauga	60
Wayne	45
Wilkes	60
Wilson	47
Yadkin	57
Yancey	60

Beach Area – Localities south and east of the Inland Waterway from the South Carolina Line to Fort Macon (Beaufort Inlet), thence south and east of Core, Pamlico, Roanoke and Currituck Sounds to the Virginia Line, being those portions of land generally known as the "Outer Banks."

Beach Areas in Carteret, Currituck, Dare and Hyde Counties: 05

Beach areas in Brunswick, New Hanover, Onslow and Pender Counties: 06

**PREFILED TESTIMONY
OF
PAUL D. ANDERSON, FCAS, CSPA, MAAA

MOBILE HOMEOWNERS MH(F) INSURANCE
2019 RATE FILING BY THE
NORTH CAROLINA RATE BUREAU**

Q. Please state your name and business address.

A. My name is Paul D. Anderson. My business address is 15800 West Bluemound Road, Brookfield, WI 53005.

Q. By whom are you employed?

A. I am employed by Milliman, Inc. (Milliman) and have been employed by Milliman since February 1, 2007.

Q. What is your educational background?

A. I received a Bachelor of Science in Actuarial Science from Drake University in Des Moines, Iowa in 1993.

Q. Do you have any additional certifications or qualifications?

A. Yes. I have been a Fellow of the Casualty Actuarial Society (CAS) since 2002 and a Certified Specialist in Predictive Analytics of the CAS Institute (iCAS) since 2018. Since 2002, I have participated on several committees of the organization. I was on the Examination Committee of the Casualty Actuarial Society between 2004 and 2006. I served on the Volunteer Support Task Force from February 2012 until April 2013. I have been a member of the Volunteer Resources Committee since April 2013. I have also been a member of the American Academy of Actuaries since 2002. I meet all of the continuing education requirements of and am in good standing with that organization and the Casualty Actuarial Society.

Q. What is your employment background?

A. I was employed by Allstate Insurance Company from June 1993 until January 2007. While at Allstate, I held various actuarial roles. I began my career as an Auto Pricing Analyst, and over time, I assumed increasing responsibility in various departments that included Property Pricing, Auto Pricing, Property Research, and Auto Research. On the pricing teams, I assisted in developing rates for property and auto insurance products in most states across the country. On the research teams, I assisted in developing new property and auto risk

classification plans to be implemented by Allstate's pricing teams. From 2006 until January 2007, I served as a Senior Manager for Allstate's Eastern region, which included assisting in the oversight of the pricing strategies for approximately half the country, including North Carolina.

In February 2007 I began my career at Milliman. Since 2007 I have completed, managed, or overseen numerous property and auto pricing analyses for a variety of clients. My clients have included small single-state insurance companies, industry-leading national insurance companies, government entities, the North Carolina Rate Bureau, and other entities with similar coastal property exposure in states such as Florida and Texas. These client assignments have included such projects as pricing analyses to evaluate overall rate adequacy, predictive modeling assignments to develop new risk classification plans, and analyses of catastrophe losses to evaluate the adequacy and allocation of property premiums corresponding to catastrophe risk.

Q. What is Milliman?

A. Milliman is among the world's largest independent actuarial and consulting firms. Milliman was founded in Seattle in 1947 as Milliman & Robertson and today has offices in principal cities worldwide, covering markets in North America, Latin America, Europe, Asia and the Pacific, the Middle East, and Africa. Milliman employs more than 3,500 people, including actuaries and specialists ranging from clinicians to economists. The firm has consulting practices in employee benefits, financial services, healthcare, life insurance, and property and casualty insurance. Milliman serves the full spectrum of business, education, financial, governmental, union, and nonprofit organizations.

Q. What are your current responsibilities at Milliman?

A. I am responsible for managing and overseeing the personal lines and insurance-related predictive analytics portion of Milliman's Milwaukee Casualty practice. The personal lines and predictive analytics team conducts a variety of property and auto pricing, product development, and predictive modeling assignments, primarily for insurance companies. Over the last five years, we have completed property analyses for clients in nearly every state in the country, including North Carolina.

Q. Were you engaged to provide actuarial services to the North Carolina Rate Bureau (Rate Bureau or Bureau) in relation to its 2019 mobile homeowners MH(F) rate filing?

A. Yes, I was.

Q. What was the scope of that engagement?

- A. Milliman was engaged to provide actuarial ratemaking services directly to the Rate Bureau to assist in the preparation of the 2019 mobile homeowners MH(F) rate filing. As such, I was involved in several aspects of the preparation of this filing.

First, Milliman compiled and reviewed data from one member insurance company and one statistical organization licensed in North Carolina that collects mobile homeowners data from Bureau member companies. That statistical organization is the Property Casualty Insurers Association of America (PCIAA). In addition to data from the member company and the statistical organization, Milliman received and evaluated expense-related data that the Rate Bureau collected from its member companies. Throughout this analysis, Milliman also received modeled hurricane data and net reinsurance cost data from Aon, as well as additional ratemaking data directly from Bureau member companies as a result of supplemental data requests. Milliman aggregated all of this data and reviewed each component for reasonability.

Second, I and other Milliman staff under my direction compiled the ratemaking data to be reviewed by the Bureau's Property Rating Subcommittee, Property Committee, and Governing Committee in preparation for this filing.

Third, Milliman staff under my direction assembled the vast majority of the data and performed all of the calculations contained in Exhibits RB-1, RB-4, and RB-5. This process was performed under the ultimate direction of the Bureau committees.

Finally, I reviewed the filed rates to determine if they are calculated in accordance with the Casualty Actuarial Society's *Statement of Principles Regarding Property and Casualty Insurance Ratemaking*. I conducted my review in accordance with Actuarial Standard of Practice No. 17, *Expert Testimony by Actuaries*. In addition, I applied the rate standards set forth in the North Carolina General Statutes, including G.S. 58-36-10, which provides that rates must not be excessive, inadequate, or unfairly discriminatory and that certain statutory rating factors must be considered.

Q. Is your firm being compensated for this engagement?

- A. Yes, it is.

Q. Is that compensation in any way contingent on the provision of favorable testimony in support of the filing?

- A. No, it is not.

Q. Were there any constraints placed on your analysis, such as limited or delayed access to data or limited time that may have hindered your complete review?

A. No, I was provided all the data and information that were necessary and I had adequate time for a complete analysis. My analysis was not limited in any way.

Q. What is the source of the data evaluated in Exhibit RB-1?

A. The ratemaking data reflected in Exhibit RB-1 was, in general, supplied by the individual insurance companies that write mobile homeowners insurance policies in North Carolina. Those companies submitted their data to the statistical organization described above, except for one company that submitted its data to Milliman. The statistical organization subjected each company's data to a series of verification edits and then consolidated the data. The statistical agent then transmitted its consolidated data to Milliman for final review and consolidation.

The individual insurance companies that write mobile homeowners policies in North Carolina also submitted expense-related data to the North Carolina Rate Bureau. The Rate Bureau reviewed the expense data for reasonability and aggregated the data before transmitting it to Milliman for final review and consolidation.

Because the data collected by the statistical agent does not contain a field to identify hurricane losses, a separate data request was made by Milliman to all member companies writing mobile homeowners MH(F) insurance in North Carolina for calendar accident years 2012 through 2016. From this data, the proportion of hurricane losses and claims was determined by territory and by coverage for each year. The resulting proportions were then applied to the data collected by the statistical agents to identify and remove the actual hurricane losses from that data.

After consolidating the data from the statistical organization, the member companies, and the Rate Bureau, Milliman produced various exhibits of the combined data in a format and detail necessary for review by the Rate Bureau committees and ultimately for use in rate filings.

The statistical agent referenced above is licensed by the Commissioner of Insurance in North Carolina. It collected, reviewed, compiled, and submitted the data underlying this filing as a regular practice and in the regular course of its business responsibilities as a licensed statistical agent in North Carolina.

Q. What statistical data supporting this filing are contained in Exhibit RB-1?

A. In general, the supporting data for the indicated and proposed rate changes are contained in Sections C and D. The most recent five years of loss experience

are summarized and displayed in Section C. The experience used in this filing includes accident year experience for the years ending December 31, 2012 through December 31, 2016. To clarify what is meant by “accident year,” the losses for the accident year ending December 31, 2016 include all losses caused by claims that occurred between January 1, 2016 and December 31, 2016, even if the loss was paid or a reserve established on or after January 1, 2017.

Similar to Section C, the information summarized and displayed in Section D also includes accident year experience for the years 2012 through 2016. However, Section D supports changes to several mobile homeowners rating variables and as such, the loss experience is summarized by rating characteristic rather than by year.

Q. Why are five years of loss experience used to determine the indicated rate changes?

- A. The objective of ratemaking is to establish rates that are sufficient to cover all expected losses and expenses, and to provide a reasonable margin for profit. Rates are prospective and, as such, are developed for the time period during which they will be in effect. For this filing, the proposed rates are assumed to be in effect for one year beginning with the effective date of this filing. Historical loss experience is evaluated for the purpose of projecting expected future losses. For insured losses, including flood losses, but not including hurricane losses (for which hurricane models are used) and not including non-hurricane catastrophic wind losses (for which a separate excess wind procedure is applied), five years of data are considered to be reasonable and appropriate. Using five years of loss experience to evaluate these losses balances the overall stability of the rates with the responsiveness of the rates to current market conditions. Additionally, North Carolina statutes allow the Rate Bureau to review five years of experience in its rate filings in addition to other factors that are to be considered. Note that, for the purposes of this filing, “hurricane losses” mean wind and storm surge losses from hurricanes.

Previous North Carolina mobile homeowners rate filings submitted by the Rate Bureau have relied on five years of experience with weights of 10%, 15%, 20%, 25%, and 30% applied to each year respectively as a way to balance stability and responsiveness of the proposed rates. With this filing, we used those same weights for the MH(F) Owners policy forms, but for MH(F) Tenants, we used an even distribution of weights (i.e., 20% in each year) due to the low volume of business in this segment and potential variability by year.

Q. What is the overall indicated and proposed change in mobile homeowners MH(F) rates in this filing?

- A. This filing shows the indicated need for an overall 86.9% statewide average rate increase for mobile homeowners MH(F) policies. This includes an indicated 87.0% change to Owners rates and an indicated 5.1% change to Tenants rates.

Based on these indicated rate changes, the Rate Bureau's Governing Committee capped the changes in order to reduce the impact of the rate increases on policyholders and this filing is proposing an overall 19.9% statewide average rate increase. This includes a proposed 19.9% change to Owners rates and a proposed 2.4% change to Tenants rates.

Q. Please describe the overall ratemaking methodology that underlies the filing.

- A. The approach in this filing is generally consistent with prior mobile homeowners MH(F) filings submitted by the Rate Bureau. Consistent with the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* as published by the Casualty Actuarial Society, the indicated rates reflect the expected costs associated with insuring mobile homeowners MH(F) policies. These expected future costs include claims, claim settlement expenses, operational and administrative expenses, and a fair and reasonable profit.

The statewide rate indications for mobile homeowners MH(F) policies are developed based on a loss cost methodology (instead of a loss ratio methodology). The indicated rate change is calculated for each policy form (i.e., Owners and Tenants) by comparing the required base rate per policy to the current base rate. This comparison of the required and current base rates is consistent with the *Statement of Principles* referenced above, is commonly used throughout the industry, and is an actuarially sound method of developing an indicated rate-level change.

Q. Are there any changes in the ratemaking methodology compared to prior filings?

- A. Yes. Although the 2019 mobile homeowners MH(F) filing is generally consistent with prior filings, there are several components of this filing that rely on different approaches as compared to the 2014 mobile homeowners MH(F) filing. The following is a summary of these changes:

1. Indicated rate changes by territory group were calculated for each policy form using six territory groups. The territory groups were selected by the Rate Bureau's Property Rating Subcommittee and are based on the proposed territory definitions also selected by the Property Rating Subcommittee. The prior filing determined indicated rate changes for three territory groups based on the current territory definitions.

2. The proposed rates are assumed to be in effect for one year rather than three years, as assumed in the prior filing.
3. With this filing, losses are developed to ultimate. The prior mobile homeowners MH(F) filing applied loss development factors of 1.000 because historical loss development data was not available.
4. The rate indication analysis included with this filing relies on experience period trend factors and projection period trend factors calculated based on trends selected by the Rate Bureau's Property Rating Subcommittee. The prior mobile homeowners MH(F) filing incorporated current cost factors and current amount factors in conjunction with projection factors based on trends selected by the Property Rating Subcommittee. Further, the 2014 filing adjusted the selected LAE factor for the difference between the loss trend and the expense trend, whereas the current analysis does not.
5. The prior mobile homeowners MH(F) filing used approximately 60 years of historical loss data to determine excess wind losses as well as an Excess Wind Loss Factor. Those 60 years included a mixture of mobile homeowners, homeowners, and dwelling loss experience. The current analysis relies on mobile homeowners data only, which is available in 15 out of the most recent 17 years. Also, based on a review of the incurred losses by peril, a portion of the losses categorized as "All Other" were moved into the "Wind & Hail" peril for the purposes of the Excess Wind procedure. This was done based on the abnormally large amount of "All Other" losses reported in 2016.
6. The modeled hurricane losses used in this filing are based on an average of modeled losses from two independent catastrophe modelers. The prior filing relied on modeled losses from only one catastrophe modeler.
7. The net cost of reinsurance used in this filing was provided by Aon, based on its experience in the reinsurance market. The prior filing relied on an analysis by D. Appel using a hypothetical reinsurance program to determine the net cost of reinsurance.
8. With this filing, we are updating the territory group, amount of insurance, and deductible corresponding to the base rates displayed in the rate manual (i.e., the base risk characteristics, or the base amount of insurance and base deductible). The base amount of insurance for each MH(F) policy form is being updated to align with the average amount of insurance for each policy form. The base deductible is being updated to be \$250 for all policy forms due to the fact that \$250 was the most common deductible selected by MH(F) policyholders during the experience period used in our analysis.

9. With this filing, we are updating the rates and rating relativities displayed in the rate manual to more clearly reflect a multiplicative premium calculation process for the primary rating variables (e.g., territory, amount of insurance, deductible, etc.). The current rate manual uses separate rates by amount of insurance and multiplicative credits/discounts or debits/surcharges, depending on the rating variable. The premium charges for the less common optional coverages (e.g., trip collision coverage) and the increased liability limits will continue to use additive amounts.
10. The prior mobile homeowners MH(F) filing used profit and contingencies provisions that varied by territory group. The current analysis uses the same profit provision and contingencies provision in each of the proposed territory groups.
11. With this filing, we are introducing the age of mobile home rating variable and we are revising the amount of insurance relativities and deductible relativities, including the all-peril, windstorm and hail, and named storm deductibles.

In my opinion, these different approaches used to develop the statewide and by-territory rate indications, and to calculate the premium for individual mobile homeowners policies, are reasonable and actuarially sound.

Q. Looking at Section C, page 1, what is shown on this exhibit?

- A. Section C, page 1 shows the statewide indicated rate changes for the policy forms offered in the North Carolina mobile homeowners MH(F) program. The data shown on this page reflects all MH(F) business written in the state. The MH(F) program consists of three policy forms: MH(F)-2 (i.e., Broad Form) and MH(F)-3 (i.e., Comprehensive Form) are collectively referred to as Owners, and MH(F)-4 (i.e., Contents Broad Form) is referred to as Tenants. Overall, the perils insured against by MH(F) policies are similar to those insured against under homeowners policies with the exception that MH(F) policies also provide coverage for losses caused by the flood peril.

Q. Referring to row 1 on page 1 of Section C, what is the *total base class loss cost*?

- A. The *total base class loss cost* is the average amount of projected loss per exposure, including both non-hurricane and hurricane losses, for the risk identified as the base class for each respective MH(F) policy form. The calculations underlying the *total base class loss cost* for each policy form are included later in the discussion of Section C, pages 2 and 4.

Q. Please explain each of the items shown in row 2 of Section C, page 1, including the *fixed expense per policy*, *variable expense per policy*, *profit*, *contingencies*, and *policyholder dividends*.

A. Row 2a shows the *fixed expense per policy* for each MH(F) policy form. These amounts reflect the average cost of general expenses and other acquisition expenses that are expected to be paid to support policies written between February 1, 2020 and January 31, 2021. General expenses include overhead expenses such as equipment, rent, and salaries. Other acquisition expenses include costs required to issue a policy, excluding commission and brokerage and including such items as advertising fees, postage, and telephone charges. General expenses and other acquisition expenses are fixed expenses in that they do not vary directly in proportion to the amount of premium charged or collected. As a result, the amounts shown in row 2a (e.g., \$49.19 for Owners) are applicable to each mobile homeowners policy that purchases the respective MH(F) policy form.

The *fixed expense per policy* for each policy form is calculated on page 42 of Section C and further supported by data found on pages 41 and 43 of Section C. We began by evaluating historical expense information provided by the Rate Bureau and calculating the ratio of general expenses and other acquisition expenses to earned premium for each year from 2012 through 2016. Although we considered the same five years of experience as used in the overall rate indications, the selected expense ratios were based on the most recent three years in order to best reflect any recent shifts in the expense ratios. The selected general expense ratio is 4.7% and the selected other acquisition expense ratio is 5.9%, resulting in a total fixed expense ratio of 10.6%. Because these selections were based on the average expense ratios from 2014 through 2016, the selected 10.6% fixed expense ratio corresponds to the fixed expenses observed at the midpoint of that experience period, or July 1, 2015.

Row 2b shows the *variable expense per policy* for each MH(F) policy form. Unlike fixed expenses, variable expenses vary directly in proportion to the amount of premium charged or collected. As a result, the variable expenses are included in the indicated rate change calculations as percentages relative to the written premium rather than average dollar amounts. The variable expense percentage for each MH(F) policy form includes a provision for commission and brokerage and a provision for premium taxes, licenses, and fees. These provisions are supported by data found on page 43 of Section C. Similar to our analysis of the fixed expenses, we evaluated historical expense information and calculated the ratio of commission and brokerage expenses and taxes, licenses, and fees to written premium for each year from 2012 through 2016. We considered the same five years of experience as used in the overall rate indications, however the selected expense ratios were based on the most recent three years in order to best reflect any recent shifts in the expense ratios. The selected commission and brokerage expense ratio is 16.6% and the selected

taxes, licenses, and fees expense ratio is 2.9%, resulting in a total variable expense ratio of 19.5%.

Similar to the variable expense ratio, rows 2c, 2d, and 2e contain three additional provisions that vary directly in proportion to the written premium. Row 2c includes a provision for *profit*, row 2d contains a provision for *contingencies*, and row 2e contains a provision for *policyholder dividends*. Each of these selected provisions is a consistent percentage across the various MH(F) policy forms.

- The underwriting profit provision used in this filing is 6.5%. It was selected by the Rate Bureau based on analyses completed by Dr. Zanjani and Dr. Vander Weide.
- The selected contingency provision in this filing is 1.0%, which is consistent with the prior mobile homeowners MH(F) filing and other Rate Bureau property insurance filings.
- The provision for policyholder dividends is supported by data on page 45 of Section C. To determine the provision for policyholder dividends, we evaluated historical annual statement information for companies writing Homeowners Multiple Peril premium in North Carolina. (Similar information specific to mobile homeowners insurance is not available.) We calculated the ratio of dividends as a percent of total written premium for homeowners for each year from 2012 through 2016 and observed that companies consistently paid dividends to policyholders during that time period. Because of the consistency of these dividends during the historical experience, the Rate Bureau concluded that a provision for expected policyholder dividends is appropriate and as such, selected a provision of 0.4% in this filing.

Q. In your opinion, are the provisions for general expenses and for other acquisition expenses reasonable?

A. Yes, the general expenses provision and the other acquisition expenses provision are reasonable. It is common practice in the industry to rely on historical experience and to calculate a three-year average expense ratio to determine provisions for general expenses and for other acquisition expenses.

Q. In your opinion, are the provisions for commission and brokerage and for taxes, licenses, and fees reasonable?

A. Yes, the commission and brokerage provision and the taxes, licenses, and fees provision are reasonable. It is common practice in the industry to rely on historical experience and to calculate a three-year average expense ratio to determine provisions for commission and brokerage and for taxes, licenses, and fees.

Q. Is the provision for contingencies included in this filing reasonable?

- A. Yes, the selected 1% provision for contingencies is reasonable to include in this filing. In addition to being consistent with prior Rate Bureau filings, the use of a contingency provision is common within the property and casualty insurance industry. According to *Actuarial Standard of Practice No. 30: Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*, “the actuary should include a contingency provision if the assumptions used in the ratemaking process produce cost estimates that are not expected to equal average actual costs, and if this difference cannot be eliminated by changes in other components of the ratemaking process.” There are several reasons why expected cost estimates may not be equal to actual costs. Some of these reasons include adverse court decisions, extension of coverage for unforeseen or unintended exposures, regulatory delay or reduction in filed rate changes, and unexpected large losses not sufficiently recognized in the normal ratemaking process. Based on reasons such as those listed above, the Rate Bureau believes a contingency provision is appropriate and necessary.

Included with this filing as Exhibit RB-4 is an exhibit I prepared that summarizes the estimated impact of delays in the filing process within the State of North Carolina. The delay in filed rate changes, whether caused by the regulatory review process or other delays inherent in the filing process, is one of several items listed above that supports the use of a contingency provision in a rate-level indication. Exhibit RB-4 lists the ten property rate filings submitted by the North Carolina Rate Bureau between 2008 and 2018. For each filing, I compare the effective date assumed in the rate filing to the actual effective date. This difference, which reflects the delay due to the filing process, ranges from 1 month in the 2012 homeowners filing to 22 months in the 2011 dwelling filing. After determining the length of delay for each filing, I apply the net trend (i.e., the loss trend offset by the premium trend) in that filing for the number of months of delay to determine the estimated impact of the delay in the filing process on the overall rate level. The estimated impact of delay varies across the ten filings, ranging from -1.2% in the 2018 dwelling filing to +5.9% in the 2008 mobile homeowners MH(F) filing, with an average impact of +1.2%.

Based on prior filings submitted by the North Carolina Rate Bureau, my experience with property filings submitted by insurance companies in other states, and the 1.2% estimated impact of delays in the North Carolina filing process, it is my opinion that a 1% contingency provision is reasonable, consistent with common actuarial practice, and appropriate based on fundamental actuarial principles.

Q. Is the provision for policyholder dividends included in this filing reasonable?

- A. Yes, as described above, the Rate Bureau evaluated five years of historical experience and selected a 0.4% provision for policyholder dividends based on a

five-year average ratio of the total policyholder dividends issued by homeowners insurers in North Carolina to the total direct written premium of those same companies.

The North Carolina ratemaking statutes require that policyholder dividends be considered in setting rates. Also, Actuarial Standard of Practice (ASOP) No. 29 regarding *Expense Provisions in Property/Casualty Insurance Ratemaking* states the following:

The Statement of Principles Regarding Property and Casualty Insurance Ratemaking of the Casualty Actuarial Society (CAS) classifies policyholder dividends as an expense to operations. When the actuary determines that policyholder dividends are a reasonably expected expense and are associated with the risk transfer, the actuary may include a provision in the rate for the expected amount of policyholder dividends. In making this determination, the actuary should consider the following: the company's dividend payment history, its current dividend policy or practice, whether dividends are related to loss experience, the capitalization of the company, and other considerations affecting the payment of dividends.

As stated in ASOP NO. 29, policyholder dividends are classified as an operating expense. In addition to the above excerpt from the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking*, the Statement also articulates that indicated rates should reflect the expected costs associated with insuring mobile homeowners policies, including all operating expenses. As such, since policyholder dividends are classified as an operating expense, it is consistent with the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* and ASOP No. 29 to include a provision for policyholder dividends in the proposed rates reflected in this filing.

By reviewing five years of historical experience to determine a provision for policyholder dividends, the Rate Bureau is complying with the statutes and the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* by considering the dividend payment history and ensuring that the selected provision is a reasonably expected expense.

Q. Referring to row 3 on page 1 of Section C, what is the *base rate excluding reinsurance cost*?

A. The *base rate excluding reinsurance cost* is the average base rate for each policy form before reflecting additional adjustments for the compensation for assessment risk, the net reinsurance cost, and net deviations. The *base rate excluding reinsurance cost* is calculated based on the following formula:

$$\frac{\text{(total base class loss cost + fixed expense per policy)}}{(1 - \text{variable expense ratio} - \text{profit} - \text{contingencies} - \text{policyholder dividends})}$$

Q. Please explain the item shown in row 4 of Section C, page 1, identified as the *compensation for assessment risk per policy*.

- A. There is considerable risk to primary insurers (i.e., the member companies of the Rate Bureau for whom rates are being made in this filing) as a result of the exposures written in the North Carolina Insurance Underwriting Association (i.e., the Coastal Property Insurance Pool, or “Beach Plan”) and the North Carolina Joint Underwriting Association (i.e., the FAIR Plan). Together, the Beach Plan and FAIR Plan serve as the “residual market” for residential property insurance in North Carolina. These two entities provide property insurance when policyholders are unable to purchase insurance coverage from companies in the voluntary market. In states with significant exposure to catastrophic events, property insurance residual markets may grow to represent a sizable portion of the total insured risk in the exposed regions of the state. In North Carolina, the Beach Plan has become the predominant writer of homeowners insurance in the 18 coastal counties that it covers.

The Beach and FAIR Plans use the premiums collected from policies they issue to fund the losses and expenses attributable to the coverages they insure. When premiums are greater than losses and expenses during a fiscal year, the Beach and FAIR Plans accumulate surplus. That surplus is available to pay losses in the event that future losses and expenses exceed collected premiums plus investment income. However, if the surplus (and any applicable reinsurance) of either the Beach Plan or FAIR Plan is exhausted, then additional losses are passed through to property insurers in North Carolina in the form of an assessment. The potential overall industry assessment from the Beach Plan is limited to \$1 billion per year, but the potential assessment from the FAIR Plan is unlimited. If losses in the Beach Plan exceed its retained surplus, the \$1 billion industry assessment, and any other resources of the Beach Plan (including applicable reinsurance), any additional losses are passed through directly to residential property insurance policyholders in North Carolina in the form of a catastrophe recovery charge of up to 10% of premium per year.

This risk of potential assessments by the Beach Plan and FAIR Plan on property insurers in North Carolina requires that insurance companies be compensated for the additional risk to their capital. To quantify this risk, I have applied a procedure developed by Milliman to incorporate a provision in the mobile homeowners rates that compensates insurers for that assessment risk.

Q. Can you please explain the procedure you applied?

- A. Yes. The methodology developed by Milliman to quantify the compensation for assessment risk involves two steps. The first step is to calculate the magnitude

of the exposure, and the second step is to determine the fair compensation to be paid to insurers for being required to bear that risk.

To quantify the magnitude of the exposure, it was necessary to estimate the expected value of the assessments on insurers arising from catastrophic losses incurred by the Beach Plan or FAIR Plan. Because an assessment on insurers results only after either the Beach or FAIR Plan has exhausted other resources available to pay losses, I needed to determine the likelihood of that occurring as well as the amount by which the losses exceed those other resources. As such, in the first quarter of 2018 I obtained information from the Beach and FAIR Plans regarding the reinsurance programs in place for the 2018 storm season, along with assumptions of each plan's accumulated surplus available for the season. The accumulated surplus and available reinsurance represent the "other resources" that were then available to pay for hurricane losses in anticipation of the 2018 storm season. I then obtained the hurricane model runs used by the Beach and FAIR Plans, and evaluated the estimated losses corresponding to each event simulated by the models. For each modeled loss, I determined the amount of loss that would be covered by reinsurance and the remaining losses that would be funded either from the plans' accumulated surplus, through assessments on property insurers in the state, or ultimately through assessments on North Carolina property insurance policyholders. I subtracted the accumulated surplus of the Beach and FAIR Plans from the losses remaining after reinsurance, limited the assessable losses due to Beach Plan exposures to \$1 billion, and calculated the average assessment on property insurers across all events simulated by the models. This average assessment on property insurers is equal to the expected value of the losses that would be funded through assessments on North Carolina property insurers.

As noted above, this calculation measures the magnitude of the exposure. That is, it represents the risk to insurers' capital that is associated with the exposure to Beach and FAIR Plans assessments. The second step in Milliman's analysis is to develop a method of measuring the fair compensation to insurers for bearing this risk.

Q. Can you please explain how you measured the fair compensation for bearing this risk?

A. Yes. To measure the fair compensation for bearing this risk, I relied on publicly-available data that quantifies the market price of catastrophe risk, taken from recently-issued insurance linked securities. Insurance linked securities (ILS) are securities such as bonds, which have conditional payoffs that are very similar to reinsurance. Investors purchase these securities at significant yield premiums compared to risk-free bonds because the investors are exposed to loss of principal and interest if certain "insured events" occur.

Q. What kind of data is available and how is this information used to determine the compensation for assessment risk?

A. Lane Financial, LLC is a firm that specializes in the analysis of insurance linked securities. In March of each year, Lane publishes a table of data that summarizes a variety of information that can be used to evaluate the fair compensation for bearing catastrophe risk. For each ILS in the table, Lane publishes the following data: the yield on the security; the excess return over the risk-free rate; the probability that the security will suffer a loss; and the expected value of loss anticipated on the security. These data elements provide the foundation for my analysis of the proper compensation for bearing the risk of Beach and FAIR Plans assessments.

Before describing the mechanics of the analysis, I will first define several terms that will prove useful in this discussion.

- The “*yield spread*” is simply the difference between the yield on a particular ILS and the risk-free rate. If a \$100 million bond is issued with a yield spread of 10%, this implies that the insurer issuing the bond would pay \$10 million in interest in excess of the risk-free rate to encourage investors to purchase such a security.
- For this example, now assume that the distribution of hurricane losses is such that, based on the probability and amount of potential hurricane losses, an investor would anticipate having an average loss of \$2 million per year. This amount is identified as the “*expected loss*.”
- Since the investor in this example receives compensation of \$10 million in excess of the risk-free rate for bearing the risk of loss, the “*expected profit*” to the investor is \$8 million (i.e., \$10 million in interest in excess of the risk-free rate minus \$2 million of expected losses).
- Finally, I define a term known as the “*profit multiple*,” which is the ratio of expected profit to expected loss. In the above example, the profit multiple would be \$8 million of expected profit divided by \$2 million of expected loss, or a profit multiple of 4.0.

The profit multiples derived from insurance linked securities provide an estimate of the compensation that investors require to bear catastrophe risk, in that they tell us what investment returns are required in order to take on the risk of loss from a catastrophic event. One particularly important feature of this metric is that it is a measure of compensation per dollar of expected loss. As a result, because the first step of my analysis determines the expected value of losses that would be funded through assessments, the profit multiple can be applied to those expected values to develop an estimate of the fair compensation for bearing such risk. This is the measure of risk I rely upon in evaluating the fair compensation for property insurers whose capital is exposed to Beach and FAIR Plans assessments.

Q. Generally speaking, which insurance linked securities have larger risk premiums and higher profit multiples?

A. For exposures such as catastrophic events, securities that have a lower probability of incurring a loss have greater volatility and as a result, have larger risk premiums. Securities with larger risk premiums have a larger ratio of expected profit to expected loss and as such, have higher profit multiples.

Q. Have you developed any exhibits that summarize the calculations used to develop the fair compensation to insurers for bearing the risk of Beach Plan or FAIR Plan assessments?

A. Yes. Exhibit RB-5 contains ten pages of information required to develop the fair compensation for bearing Beach and FAIR Plan assessment risk.

- *Page 1* of Exhibit RB-5 shows a summary of the Beach Plan's reinsurance program, and *Page 6* shows a similar summary of the FAIR Plan's reinsurance program. These summaries include the various layers of reinsurance purchased and the coverage levels within those layers.
- *Page 2* shows the curve I fit to the ILS profit multiples based on all catastrophe-related securities issued in the last ten years. This exhibit also includes the equation of the fitted curve, which can be used to determine the average profit multiple for any layer to which insurer capital is exposed.
- *Pages 3 and 7* display the profit multiples calculated for each layer of the Beach and FAIR Plan's loss distributions, based on the equation shown on *Page 2*. In order to determine the fair compensation to voluntary insurers for bearing the risk of assessments, I need to determine which layers contain losses that will be funded by assessments, as well as the corresponding expected losses within those layers. The profit multiples can then be applied to the expected losses to determine the appropriate compensation per dollar of expected loss in each layer.
- *Pages 4 and 8* illustrate how potential losses for the Beach Plan Residential Account and FAIR Plan are funded. (The Beach Plan determines losses and assesses voluntary insurers separately for each account, while the FAIR Plan has only one account.) Because of the \$1 billion limit on Beach Plan assessments, any amounts needed to pay claims in excess of the assessable amounts are to be collected through surcharges on property insurance policyholders statewide.

For each event simulated by the hurricane models, losses are separated by account (Beach Plan Residential, Beach Plan Commercial, and FAIR Plan). Then, the losses for each account are divided into layers based on the source of funding for those losses – Beach or FAIR Plan surplus, assessments on

voluntary insurers, private reinsurance, and ultimately any additional amounts in the Beach Plan to be covered by policyholder surcharges. Finally, the losses associated with each event are accumulated in each of the loss layers to determine expected values.

- Although Pages 4 and 8 illustrate the funding of potential losses within each layer, the purpose of my analysis is to determine the fair compensation for the risk of assessments on private insurers. As such, the analysis must take into account the probability of losses occurring within each layer and the expected value of losses that will be borne by private insurers. Pages 5 and 9 of Exhibit RB-5 provide that analysis. They show the expected value of the losses that would be covered by the Beach Plan Residential and FAIR Plan accounts, and the average annual amount of those losses that would be assessed to private insurers. Pages 5 and 9 also display the average profit multiples associated with each layer of the loss distribution, and the product of the indicated profit multiples times the expected losses within each layer. The sum of those values is the indicated compensation for assessment risk for each account.
- The final step in my calculation is to determine the appropriate provision to be included in the mobile homeowners rates to compensate insurers for the risk of Beach Plan or FAIR Plan assessments. This provision, expressed as a percent of premium, is developed on Page 10 of Exhibit RB-5. Since assessments for Beach or FAIR Plan losses are applied to all property insurance lines in the state, the bottom table on Exhibit RB-5, Page 10 shows the development of a charge that will produce an amount of revenue equal to the total required compensation of \$89.23 million. As shown on this exhibit, that charge amounts to 2.8% of total property insurance premium in the state.

Q. How is the 2.8% provision developed in Exhibit RB-5 used to develop the compensation for assessment risk per policy in row 4 of Section C, page 1?

A. After determining the provision for the compensation for assessment risk, it is converted from a percent of premium to a dollar amount per policy on page 46 of Section C. The 2.8% provision is adjusted for variable expenses by dividing by 80.5%, where 80.5% is equal to 100% minus the variable expense ratio (i.e., 16.6% commission and brokerage plus 2.9% taxes, licenses, and fees). The resulting calculated percentage (i.e., $2.8\% / 80.5\% = 3.5\%$) is multiplied by the current average base rate for each MH(F) policy form to determine the *compensation for assessment risk per policy*. This dollar charge per policy for each MH(F) policy form represents an amount that, when collected, is sufficient to cover the variable expenses attributable to each dollar of premium collected, as well as an adequate amount to compensate the insurer for the potential risk of assessment by the Beach or FAIR Plan.

Q. In your opinion, is it appropriate to include a 2.8% provision for the compensation for assessment risk in mobile homeowners rates in North Carolina?

A. Yes. Insurance companies writing mobile homeowners policies in North Carolina are exposed to the risk of Beach Plan or FAIR Plan assessments as a result of writing voluntary market property insurance in the state. As such, those insurance companies are entitled to receive fair compensation for bearing that risk and it is appropriate to include that compensation in the mobile homeowners rates. The model Milliman has developed relies on a widely-accepted measure of compensation to determine a provision that will fairly compensate insurers for bearing this additional risk to their capital.

Q. What is the source of the amounts shown in row 5 of Section C, page 1, labeled as the *net reinsurance cost per policy*?

A. The source of the net reinsurance cost for each MH(F) policy form is an analysis completed for the Rate Bureau by Aon. It is my understanding that Aon was retained by the Rate Bureau based on their ability to access relevant data and experience from the reinsurance market, their expertise with catastrophe-related issues, and their prominence with respect to the reinsurance industry. This is consistent with other recent property rate filings submitted by the Rate Bureau.

In Aon's analysis, they use their experience and expertise as a reinsurance broker to develop layers of reinsurance coverage that are representative of typical amounts of reinsurance coverage purchased by the property insurance industry. Using data, catastrophe models, and other information available to Aon, they estimated the reinsurance premium associated with each layer of coverage, determined the expected losses within each layer, and calculated the net reinsurance cost as the difference between the reinsurance premium and the expected losses in each layer. These premium amounts, losses, and net reinsurance costs were developed separately by peril and by territory for each MH(F) policy form so that they could be summarized appropriately to develop a statewide or territory indicated rate change. More details of Aon's analysis are included in Ms. Henderson's and Mr. Fiete's testimony.

To determine the *net reinsurance cost per policy* found in row 5 of Section C, page 1, the total reinsurance cost for each MH(F) policy form is first divided by the corresponding number of 2016 earned house years. The resulting average reinsurance cost is further adjusted by dividing by the 2016 average rating factor, the 2016 exposure trend factor, and the expected loss and fixed expense ratio. These calculations can be found on pages 47 and 48 of Section C for Owners and Tenants, respectively. These supporting pages show the development of the statewide net reinsurance cost per policy as well as the net cost of reinsurance for each territory group.

Q. Can you please explain why a provision for the net reinsurance cost per policy is necessary in this filing?

A. Yes. Mobile homeowners insurance is one of several types of coverages that has exposure to potential catastrophic events. In such coverages (mobile homeowners, homeowners, and other property coverages), individual catastrophic events can result in significant losses that exceed the amount of liability the typical insurer can reasonably assume for solvency and financial stability considerations. As a result, in these lines of business, insurers routinely purchase reinsurance to mitigate their exposure to extreme events. In order to accurately reflect the expected costs associated with insuring property policies, as discussed in the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking*, it is appropriate to include the cost of this reinsurance in the ratemaking process for these lines of insurance.

Q. In your opinion, is it appropriate to include a provision for the net reinsurance cost per policy in mobile homeowners rates in North Carolina?

A. Yes. Insurance companies writing mobile homeowners policies in North Carolina incur a significant cost for bearing the risk of insuring properties exposed to catastrophic events. Regardless of whether the risk of catastrophic losses is retained by the primary insurer or transferred to a reinsurer, the market cost of bearing that risk must be included in the rates. This is a foundational actuarial principle included in the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* and is a legitimate cost of the risk transfer inherent in the purchase of property insurance. As such, the net reinsurance cost per policy should be included in the North Carolina mobile homeowners rates.

Q. In your opinion, is it appropriate to allocate reinsurance costs within North Carolina in a way that is proportional to risk?

A. Yes. The risk associated with insuring properties exposed to catastrophic events varies geographically within North Carolina. As such, the cost for bearing that risk should be allocated proportional to the measurement of risk. In their analysis of reinsurance costs for this filing, Aon provided the statewide provision for the net reinsurance cost per policy and, as mentioned above, also allocated the reinsurance costs to each MH(F) policy form and each territory. This allocation is appropriate and consistent with the objective of producing rates that are fair, reasonable, and not unfairly discriminatory across policyholders.

Q. Please explain the amounts shown in row 6 of Section C, page 1, identified as the *indicated manual base rate*.

A. The dollar amounts shown in row 6 are the sum of the base rate excluding reinsurance cost (row 3), the compensation for assessment risk per policy (row

4), and the net reinsurance cost per policy (row 5) for each policy form. These amounts represent the average base rate for each MH(F) policy form after reflecting reasonable provisions for all expected losses, expenses, profit, and contingencies quantified in this filing. If insurance companies did not deviate from the manual premiums, the *indicated manual base rate* would represent the appropriate, actuarially sound base rate for each policy form.

Q. What is the source of the percentages shown in row 7 of Section C, page 1, labeled as *net deviations*?

A. As included in the prior mobile homeowners MH(F) rate filing, the Rate Bureau has selected a provision for *net deviations* of 5%. In making this selection, we evaluated historical written premium and manual premium for each year from 2012 through 2016, and we considered the magnitude of both downward deviations and upward surcharges through consent to rate. The data supporting this analysis can be found on page 49 of Section C. In an attempt to be conservative and to be consistent with the prior mobile homeowners MH(F) filing, the Rate Bureau maintained the same selected provision for net deviations of 5%.

Q. In your opinion, is it appropriate to include a provision for net deviations in mobile homeowners rates in North Carolina?

A. Yes. The difference between the direct premium written by insurance companies and the manual premium should be considered when determining the actuarially sound indicated manual premium. The manual premium must be adjusted upward such that the deviated premium charged by insurance companies will be adequate. In my opinion, the selected provision for net deviations of 5% is a conservative estimate that only partially recognizes the significant deviations we expect to be applied by mobile homeowners insurance companies.

Q. Please explain the amounts shown in row 8 of Section C, page 1, identified as the *required base rate*.

A. The dollar amounts shown in row 8 are the indicated manual base rate for each policy form (row 6) adjusted for the net deviations (row 7). As mentioned above, if insurance companies were not anticipated to deviate from the manual premiums, the indicated manual base rate for each policy form (row 6) would be adequate and appropriate. However, because historical experience shows that mobile homeowners insurance companies consistently deviate by significant amounts each year, the indicated manual base rate for each policy form is divided by 100% minus the provision for net deviations to determine the *required base rate*. The *required base rate* for each policy form represents the appropriate base rate such that if insurance companies apply net deviations of 5%, the charged premiums will be sufficient to cover all expected costs associated with the transfer of risk related to mobile homeowners insurance.

Q. Would you explain the amounts shown in row 9 of Section C, page 1, labeled as the *current average base rate*?

A. Row 9 displays the current base rate for each policy form, averaged across all policies from 2016 included in our analysis. The average statewide base rate for each policy form assumes each policyholder purchases the base coverage and has the same characteristics as the base risk.

Q. Please explain row 10 of Section C, page 1, identified as the *indicated rate change*.

A. The percentages shown in row 10 represent the changes needing to be made to the current base rate for each policy form so that the mobile homeowners rates will be adequate for the cost levels expected to prevail in the one year period following the effective date of this filing. The *indicated rate change* is calculated as the required base rate (row 8) divided by the current average base rate (row 9) minus 1. The resulting indicated rate change for each policy form is as follows:

- Owners = 87.0%
- Tenants = 5.1%

The overall indicated rate change across all MH(F) policy forms, as summarized on page 1 of Section A, is 86.9%.

Q. Would you explain the percentages shown in row 11 of Section C, page 1, labeled as the *proposed rate change*?

A. Due to the wide range of indicated rate changes across the territory groups and MH(F) policy forms, the Rate Bureau's Governing Committee decided to cap rate changes in order to mitigate the effect of large rate swings on policyholders, while still moving in the direction of the indicated rate changes. The resulting proposed rate change for each policy form is as follows:

- Owners = 19.9%
- Tenants = 2.4%

The overall proposed rate change across all MH(F) policy forms, as summarized on page 1 of Section A, is 19.9%.

Q. What is the difference between the indicated rate change and the proposed rate change?

A. The indicated rate change is the actuarially sound and correct rate at a statewide level or by territory group for each mobile homeowners MH(F) policy form. It is the indicated rate change (statewide or by territory group) that is needed to

sufficiently cover the expected losses and expenses while still providing a fair and reasonable profit. The indicated rate is also the rate that complies with the statutory requirement that rates not be excessive, inadequate, or unfairly discriminatory.

In order to mitigate the impact of these indicated rate changes on policyholders, the Rate Bureau has proposed rates that reflect a cap on the changes by territory group for each MH(F) policy form. The cap applied to each territory group within each MH(F) policy form depends on the magnitude of the indicated rate change. This capping lowers the overall statewide rate change to 19.9% from the indicated statewide rate change of 86.9%.

In my opinion, the Rate Bureau's territory group caps for each MH(F) policy form are reasonable and are an effective strategy to mitigate the impact of this filing on policyholders in those territory groups with the highest indicated rate changes. However, for those territory groups that are impacted by the cap (i.e., their indicated rate changes are higher than their proposed changes), it should be noted that the proposed rates in those territory groups will continue to be inadequate.

Q. Please explain row 12 of Section C, page 1, identified as the *proposed base rate*.

A. The dollar amounts shown in row 12 represent the *proposed base rate* for each policy form, averaged across all policies from 2016 included in our analysis. Similar to the current average base rate, the average statewide proposed base rate for each policy form assumes each policyholder purchases the base coverage and has the same characteristics as the base risk. The proposed base rate for each policy form was calculated as the current average base rate (row 9) multiplied by 1 plus the proposed rate change (row 11).

Q. In an earlier question discussing the *total base class loss cost* found in row 1 of Section C, page 1, your response made reference to Section C, pages 2 and 4. Looking at Section C, page 2, what is shown on this exhibit?

A. Section C, page 2 shows the determination of the statewide base class loss cost for the Owners policy forms. More specifically, this exhibit aggregates non-hurricane losses and loss adjustment expenses for the years 2012 through 2016 and combines these amounts with a modeled hurricane loss cost to develop the total base class loss cost. The specific calculations used to aggregate the non-hurricane and hurricane loss experience will be discussed in subsequent responses. Page 4 shows similar calculations for the Tenants policy form.

Q. Referring to column 1 on page 2 of Section C, what is the source for the *non-hurricane ultimate loss and LAE* (loss adjustment expense)?

- A. The *non-hurricane ultimate loss and LAE* shown in column 1 is developed on page 3 of Section C for each year from 2012 through 2016. As implied by the column label, the amounts in column 1 have been developed to ultimate and adjusted to include a provision for expected loss adjustment expenses. Those calculations, as well as an adjustment to include expected rather than actual excess wind losses, can be found in more detail on page 3 of Section C.
- Q. If we turn our attention to Section C, page 3, what is shown on this exhibit?**
- A. As mentioned in the prior response, Section C, page 3 shows the determination of the *non-hurricane ultimate loss and LAE* for the Owners policy forms. Column 1 on this exhibit contains incurred losses for the years 2012 through 2016 from all causes of loss except those losses caused by hurricanes. Hurricane losses were identified in the historical experience period based on a separate data request to member companies writing mobile homeowners policies in North Carolina. As noted previously, the mobile homeowners MH(F) policy includes coverage for flood losses, so any flood losses other than storm surge resulting from a hurricane would be included in the historical loss experience.
- Q. Please explain columns 2 and 3 of Section C, page 3, which both contain data related to excess wind losses.**
- A. The incurred losses in column 1 reflect all non-hurricane losses, including actual wind losses that may have resulted from very severe storms such as tornados, thunderstorms, or hailstorms. In order to smooth out any potential volatility of severe non-hurricane wind losses, we used the same excess wind methodology as used in prior Rate Bureau property filings. The calculations supporting this excess wind methodology can be found on pages 27 and 28 of Section C. Based on the results of the excess wind methodology, a portion of the wind losses included in Column 1 are determined to be excess wind losses and are removed from the historical loss experience for the purpose of calculating a reasonable provision for expected non-hurricane losses. Column 2 shows the amount of excess wind losses incurred under the Owners policy forms that are being removed from the incurred losses in column 1. In place of the actual excess wind losses in column 2, an excess wind loss factor is applied to each year of experience, as shown in column 3. By applying an excess wind loss factor, the Rate Bureau is able to smooth out potentially volatile historical loss experience and reflect a consistent provision for long-term excess wind losses.
- Q. Please describe the excess wind methodology found on pages 27 and 28 of Section C in more detail.**
- A. The excess wind methodology used in this filing and in prior Rate Bureau property filings relies on a longer history of loss experience than the five years used to support most of the other components of this filing. In the prior mobile homeowners filing, the excess wind methodology included a combination of

homeowners, dwelling, and mobile homeowners experience due to the fact that only a few years of mobile homeowners experience were available. Although the mobile homeowners excess wind loss experience is not as extensive as in homeowners, the Rate Bureau was able to aggregate 15 years of mobile homeowners non-hurricane losses for this filing in order to evaluate excess wind losses. Page 27 of Section C shows non-hurricane losses by year from 2000 through 2016, except for 2005 and 2006, in which losses were not available. Among the non-hurricane (and non-liability) losses, the wind losses are shown separately from the total losses excluding wind. The ratio of wind losses to total losses excluding wind is calculated for each year and, based on calculations consistent with prior Rate Bureau property filings, the amount of non-hurricane excess wind losses are determined for each year. In addition to determining the excess wind losses by year, the yearly ratios of wind losses to total losses excluding wind are used to calculate an excess wind loss factor of 1.075. This excess wind loss factor represents the provision needed to incorporate the long-term average excess wind losses in the adjusted non-hurricane loss experience.

The excess wind losses determined with this methodology reflect all MH(F) policy forms combined. As a result, the total MH(F) excess wind losses are allocated by policy form for each year based on the distribution of incurred wind losses among the policy forms within each year. That allocation process can be seen on page 28 of Section C.

Q. How are the results of the excess wind methodology applied to the Owners loss experience on page 3 of Section C?

A. Based on the allocation process described above, column 2 on page 3 of Section C shows the amount of excess wind losses allocated to the Owners policy forms for each year. In addition, the excess wind loss factor is shown in column 3. Column 4 on this exhibit adjusts the non-hurricane incurred losses in column 1 by removing the excess wind losses (column 2) and multiplying the result by the excess wind loss factor (column 3). This calculation produces the *adjusted non-hurricane incurred losses* for each year.

Q. Are the adjusted non-hurricane incurred losses shown in column 4 adjusted in any other way?

A. Yes. After adjusting for excess wind losses, the amounts in column 4 are further adjusted for loss development and to include a provision for expected loss adjustment expenses.

Based on data collected by the Rate Bureau from member companies writing mobile homeowners policies, we evaluated historical loss development data for MH(F) Owners and MH(F) Tenants on a combined basis. Details of that analysis can be found in the Explanatory Memorandum included in Exhibit RB-1 and on pages 29 and 30 of Section C, and the resulting loss development factors are

included in column 5 on page 3 of Section C. Column 6 on this same exhibit calculates the *non-hurricane ultimate loss* for each year by multiplying the adjusted non-hurricane incurred loss (column 4) by the corresponding loss development factor (column 5).

In addition to evaluating historical loss development data, we also compared the ratio of incurred loss adjustment expense (LAE) to incurred loss for each of the five years of experience used in the overall rate indications. This analysis of historical loss adjustment expenses can be found on page 44 of Section C. Based on the average ratio of incurred LAE to incurred loss, the Rate Bureau selected an LAE provision of 20.6%. Through the use of an LAE factor equal to 1.206, the selected LAE provision is added to non-catastrophe mobile homeowners losses evaluated in the rate indications.

Referring back to page 3 of Section C, column 8 calculates the *non-hurricane ultimate loss and LAE* for each year by multiplying the non-hurricane ultimate loss (column 6) by the LAE factor, which is shown in column 7.

Q. In your opinion, is the provision for loss adjustment expense included in this filing reasonable?

A. Yes, the loss adjustment expense provision is reasonable. It is common practice in the industry to use an average of historical experience to determine a loss adjustment expense provision.

Q. Are the non-hurricane ultimate loss and LAE amounts on page 3 of Section C the same as the amounts shown on page 2 of Section C?

A. Yes. After determining the non-hurricane ultimate loss and LAE on page 3 of Section C, those amounts are copied on page 2 so that additional adjustments and calculations can be completed.

Q. What other adjustments must be made to the non-hurricane losses and LAE?

A. The losses need to be adjusted by a loss trend factor to reflect the cost levels expected to prevail during the period that the proposed rates are anticipated to be in effect. For this filing, the assumed effective date is February 1, 2020. If the filing were to become effective on a date later than the February 1, 2020 assumed effective date, then the rate indications would be even higher than those presented in this filing.

Q. Please describe how the loss trend factors are developed and applied.

A. Loss trend data was evaluated separately for each MH(F) policy form in an analysis on pages 31 through 36 of Section C. For each policy form, both

industry data, including Fast Track, and external cost index data were considered. The industry data included annual paid claims frequencies and annual ultimate severities evaluated at December 31st for each year in the historical experience period. The external cost index data varied based on the policy form being evaluated. For Owners, the CoreLogic Residential Index (CRI) and four components of the Consumer Price Index (CPI) were evaluated based on quarterly index values. For Tenants, only the four components of the Consumer Price Index (CPI) were considered, also based on quarterly index values. It should be noted that different weights were used to combine the CPI components between Owners and Tenants. For the Owners policy forms, slightly more weight was applied to the medical care component as compared to the Tenants policy form, which reduced each of the remaining weights applied to household furnishings, apparel, and recreation commodities.

After compiling the industry-based frequencies and severities and the external cost indices, several different exponential trends were fit to the data in order to evaluate the historical trends and to project potential future trends. In addition, similar to prior Rate Bureau property filings, a first dollar of loss adjustment was calculated in order to be considered in conjunction with the index-based fitted trends. The external cost indices are first dollar indices. However, mobile homeowners losses reflect different deductibles based on the distribution of deductibles purchased by policyholders. As such, increases in costs measured by the indices would affect losses below the deductible and cause an additional increase in losses above the deductible as losses below the deductible increase above it. We used the same first dollar of loss adjustment methodology as prior Rate Bureau filings to determine the incremental difference between trends calculated on first dollar indices and trends calculated on insured losses net of deductibles.

The Rate Bureau reviewed the exponential trends fit to the industry data as well as the exponential trends fit to the external cost indices. Based on the fitted trends and consideration for the first dollar of loss adjustment, the Rate Bureau selected frequency and severity trends for two separate time periods. Trends were selected for the historical experience period and separate trends were selected for the projection period. This two-period trend approach is commonly used throughout the industry as it allows companies to reflect the latest changes in trends as historical experience is projected into the future.

The experience period trends were applied to adjust losses from the midpoint of each historical year to the end date of the most recent experience period (i.e., 12/31/2016). Following this, the projection period trends were applied from the end date of the most recent experience period (i.e., 12/31/2016) to the average accident date for the time period that the proposed rates are anticipated to be in effect (i.e., 2/1/2021). The selected experience period loss trends and projection period loss trends were each applied for the appropriate number of years and the combined effect of these trends was calculated to determine loss trend factors for

each year in the historical experience period. The calculation of the loss trend factors for each of the MH(F) policy forms can be found on page 31 of Section C.

Q. After loss trend factors are applied, what other adjustments are made to the non-hurricane ultimate loss and LAE amounts?

A. The calculated loss trend factors discussed above can be found in column 2 on page 2 of Section C. In column 5 on the same exhibit, the *trended average loss cost* is calculated for each year based on multiplying the non-hurricane ultimate loss and LAE (column 1) by the loss trend factor (column 2) and dividing by the earned house years (column 3) and the exposure trend factor (column 4). The losses need to be offset (i.e., adjusted downward) by an exposure trend factor to reflect the fact that higher cost levels are partially the result of higher amounts of coverage being purchased in each subsequent year. These higher amounts of coverage generally correspond to higher average premiums, and the trend in those higher average premiums should be reflected to mitigate the impact of the loss trend factors.

Q. Please describe how the exposure trend factors are developed and applied.

A. Exposure trend data was evaluated separately for each of the MH(F) policy forms in an analysis on pages 37 through 39 of Section C.

For each of the policy forms, we calculated the average amount of insurance relativity by year. These average amount of insurance relativities were calculated separately for policyholders with a \$250 deductible, a \$500 deductible, and for Owners, a \$1,000 deductible in order to eliminate the impact that a shift in the distribution of deductibles might have on the average premium relativities. After compiling the average amount of insurance relativities by year and by deductible, several different exponential trends were fit to the data in order to evaluate the historical trends and to project potential future trends.

The Rate Bureau reviewed the exponential trends fit to the average amount of insurance relativities and selected trends for each deductible option for two separate time periods. Similar to the loss trend analysis, exposure trends were selected for the historical experience period and separate trends were selected for the projection period. As mentioned previously, this two-period trend approach is commonly used throughout the industry as it allows companies to reflect the latest changes in trends as historical experience is projected into the future.

The experience period trends were applied to adjust exposures from the average written date of each historical year to the end date of the most recent experience period (i.e., 12/31/2016). Following this, the projection period trends were applied from the end date of the most recent experience period (i.e., 12/31/2016) to the average written date for the time period that the proposed rates are

anticipated to be in effect (i.e., 8/1/2020). The selected experience period exposure trends and projection period exposure trends were each applied for the appropriate number of years and the combined effect of these trends was calculated to determine exposure trend factors for each year and for each deductible option. The exposure trend factors for the separate deductible options were combined by calculating the weighted average exposure trend factors and using the on-level earned premium by year as the weights.

Q. After exposure trend factors are applied, are the trended average loss costs shown in column 5 on page 2 of Section C adjusted in any other way?

A. Yes. The trended average loss costs in column 5 are divided by the average rating factor for each year (column 6) to determine the *trended base class loss cost* as shown in column 7. The average rating factor for each year is calculated as the ratio of the average premium at current manual level to the average current base rate. This ratio represents the relative difference in premium between the average mobile homeowners policy and the base class. To the extent the average policyholder purchases different amounts of coverage, different deductibles, or resides in a different territory group than the base class, the average rating factor will reflect these differences.

Q. Please explain how the trended base class loss costs in column 7 on page 2 of Section C are used after they are calculated for each year in the experience period.

A. The trended base class loss costs shown in column 7 are aggregated using the accident year weights in column 8 to determine the *weighted average non-hurricane base class loss cost* (row 9). As noted previously, we used weights of 10%, 15%, 20%, 25%, and 30% for MH(F) Owners, which is consistent with previous mobile homeowners filings submitted by the Rate Bureau. However, for the MH(F) Tenants policy form, we used an even distribution of weights (i.e., 20% in each year) due to the low volume of business in this segment and potential variability by year.

The credibility of the weighted average non-hurricane base class loss cost is evaluated for each MH(F) policy form based on policy form-specific full-credibility standards. To the extent the weighted average non-hurricane base class loss cost is not fully credible, the complement of credibility is determined based on loss cost estimates from the prior MH(F) rate filing and updated trends from this filing. More specifically, the credibility-weighted loss cost from the prior filing is trended to the proposed effective date of this filing using the selected loss trend and exposure trend for the projection period in order to calculate the complement of credibility. Using the weighted average non-hurricane base class loss cost (row 9), the credibility of that loss cost (row 10), and the complement of credibility (row 11), the *credibility-weighted loss cost* is calculated as shown in row 12.

Q. How is credibility determined in this filing?

A. The credibility calculated in row 10 on page 2 of Section C is based on a consistent claims standard for full credibility (i.e., 271 claims) for each of the MH(F) policy forms. However, that claims standard for full credibility is adjusted based on the frequency of claims for each policy form and the variability of the size of those claims. More details on this credibility procedure can be found in the Explanatory Memorandum included in Exhibit RB-1. The result of this adjustment for claims frequency and variability is a full-credibility standard using earned house years that is unique to each policy form. The resulting full-credibility standards for each of the MH(F) policy forms, rounded up to the nearest 10,000 earned house years, are as follows:

- Owners = 30,000
- Tenants = 240,000

To determine the credibility shown in row 10, the number of earned house years during the five year experience period is compared to the policy form's full-credibility standard and if a policy form's historical experience is not fully credible, the square root rule is applied. Among the MH(F) policy forms, the Owners weighted average base class loss cost is fully credible and the Tenants weighted average base class loss cost has a credibility of 10.6%.

The above full-credibility standards for the MH(F) policy forms are also applied in the determination of the indicated base class loss cost by territory group, which is discussed later in this testimony.

Q. Please explain the amount shown in row 13 on page 2 of Section C, labeled as the *modeled hurricane base class loss cost*.

A. The amount shown in row 13 is the provision for prospective hurricane losses related to the coverage afforded by the MH(F) Owners policy forms. The credibility-weighted loss cost shown in row 12 includes only non-hurricane losses, so an additional provision is necessary to account for the exposure to hurricane losses on a mobile homeowners policy.

Q. What is the source of the *modeled hurricane base class loss cost* shown in row 13 of Section C, page 2?

A. The source of the modeled hurricane losses for each MH(F) policy form is an analysis completed for the Rate Bureau by Aon. In addition to Aon's analysis to support the net reinsurance cost per policy (described previously), Aon was also retained by the Rate Bureau to provide the statewide modeled hurricane losses for each of the MH(F) policy forms as well as modeled hurricane losses for each territory. This analysis from Aon is consistent with other recent property rate filings submitted by the Rate Bureau, except that the models were run with storm

surge losses to reflect the fact that the mobile homeowners MH(F) policy covers flood losses. It is for this reason, as noted earlier, that when the filing and my testimony refer to “hurricane losses,” that term means hurricane wind and storm surge losses, but not inland flood losses. In order to avoid double counting hurricane losses, historical hurricane wind and hurricane storm surge losses in the data underlying our analysis were removed. More details of Aon’s analysis, including support for the catastrophe LAE provision of 6.0%, are included in Ms. Henderson’s and Mr. Fiete’s testimony.

To determine the *modeled hurricane base class loss cost* found in row 13 of Section C, page 2, the trended modeled hurricane loss and LAE for each MH(F) policy form is divided by the corresponding number of 2016 earned house years, the 2016 average rating factor, and the 2016 exposure trend factor. These calculations can be found on page 40 of Section C for each of the MH(F) policy forms.

Q. Can you please explain why hurricane models are used to estimate the hurricane losses?

A. Yes. Hurricane models are used to estimate the expected hurricane losses because they provide a more accurate way of quantifying the exposure to hurricanes than using prior insurance ratemaking methodologies. In addition, hurricane models include a storm surge component, which allows us to more accurately quantify the expected losses from storm surge caused by hurricanes as well as the expected hurricane wind losses. Hurricanes are highly variable in their frequency, severity, and place of occurrence. By simulating thousands of possible hurricane events, hurricane models provide a more complete perspective on the distribution of the types of hurricanes that could occur and avoid the volatility that could result from using actual hurricane losses. If only five years of historical experience were used to evaluate hurricane losses, similar to what we are using for the non-hurricane component of this rate indication, it would be feasible to have a five year period with no hurricane losses or a five year period with multiple severe hurricane events. Neither of those scenarios provides a reasonable representation of the expected exposure to hurricane losses in the prospective policy period and as such, it would not be actuarially appropriate to rely on such a methodology. The use of hurricane models alleviates this issue and provides a more accurate estimate of expected hurricane losses.

Q. What data did Milliman provide to Aon to enable Aon to perform its analysis?

A. Milliman provided Aon with a dataset containing all of the North Carolina mobile homeowners MH(F) insurance exposures. This data included the number of earned house years and the amount of earned insurance years for the most recent year in the experience period (i.e., 2016). The dataset also included

several important risk characteristics such as the territory (and county and city, if available), occupancy code, MH(F) policy form, and whether the mobile home is tied down. Milliman also provided loss trend information to Aon for Aon's use in trending the modeled losses. The data provided to Aon by Milliman was correct to the best of my knowledge and information.

Q. What model versions and modeling assumptions were used to develop estimated hurricane losses?

- A. The current AIR model is Touchstone v5.0 and the current RMS model is RiskLink v18.0. To develop the expected hurricane losses, Aon relied on AIR's Standard event set and on RMS' Historical event set. These event sets were used instead of AIR's Warm Sea-Surface Temperature (WSST) event set and RMS' Medium-Term Rate event set. Although many primary insurance companies consider the WSST and Medium-Term Rate events sets when developing expected hurricane losses for indicated rates in states other than North Carolina, the event sets selected for this filing are reasonable and actuarially sound.

Both the AIR and RMS models were run with aggregate demand surge included, which was identified as loss amplification in the RMS model. This standard procedure accounts for the expected additional costs for labor, materials, and services after a very large hurricane occurs. Historical experience shows that, when major catastrophic events occur, the increased demand for building materials, labor, temporary housing, and other basic necessities can exceed the supply of these same items, which consequently increases their cost. Running models with demand surge is consistent with the Rate Bureau's prior filings, and is the common practice by insurance companies when developing rates based on modeled hurricane losses.

As discussed previously, the modeled hurricane losses also include losses from storm surge due to the fact that the mobile homeowners MH(F) policy includes coverage for flood losses.

Q. Were any other calculations applied to the hurricane losses derived from the models?

- A. Yes. Before providing the blended hurricane losses, Aon trended the modeled hurricane losses and applied a hurricane-specific provision for loss adjustment expense. As noted previously, more details of Aon's analysis, including support for the catastrophe LAE provision of 6.0%, are included in Ms. Henderson's and Mr. Fiete's testimony.

Q. In your opinion, is it appropriate to allocate modeled hurricane losses within North Carolina in a way that is proportional to risk?

A. Yes. The risk associated with insuring properties exposed to hurricane events varies geographically within North Carolina. As such, the cost for bearing that risk should be allocated proportional to the measurement of risk. In their analysis of modeled hurricane losses for this filing, Aon provided the statewide modeled hurricane losses and also allocated the modeled hurricane losses to each MH(F) policy form and each territory. This allocation is appropriate and consistent with the objective of producing rates that are fair, reasonable, and not unfairly discriminatory across policyholders.

Q. Please explain the amount shown in row 14 on page 2 of Section C, labeled as the *total base class loss cost*.

A. The amount shown in row 14, that is the *total base class loss cost*, is the average amount of projected loss per exposure, including both non-hurricane and hurricane losses, for the risk identified as the base class for each respective MH(F) policy form. It is calculated as the sum of the credibility-weighted loss cost shown in row 12 and the modeled hurricane base class loss cost shown in row 13.

As noted at the beginning of my testimony, it is the total base class loss cost that begins the calculation of the indicated rate change on page 1 of Section C. The total base class loss cost is copied into row 1 on page 1 so that additional adjustments and calculations can be completed to develop the statewide indicated rate change for each MH(F) policy form.

Q. Up until now, your testimony has focused on the calculations on pages 1 through 3 of Section C. Please explain how pages 4 and 5 compare to pages 1 through 3.

A. As described in my testimony above, page 1 of Section C develops the statewide indicated rate changes for the policy forms offered in the mobile homeowners MH(F) program. As noted previously, those policy forms include MH(F)-2 and MH(F)-3, which are collectively referred to as Owners, and MH(F)-4, which is referred to as Tenants. The calculations to develop the indicated rate change for each policy form begins with the *total base class loss cost*, which is derived on pages 2 and 4 of Section C, depending on the policy form. My testimony above discussed the calculations on page 2, which are further supported by additional calculations on page 3. The calculations on pages 2 and 3 of Section C all relate to the Owners policy forms.

Pages 4 and 5 of Section C display comparable calculations for the Tenants policy form. The calculations and methodology on page 4 are identical to the calculations and methodology on page 2 (except for the differences noted above in the exposure-based standards for full credibility and in the accident year weights). Similarly, the calculations and methodology on page 5 are identical to the calculations and methodology on page 3.

Q. Does the filing review the indicated rate changes by territory or territory group?

- A. Yes. As noted previously in my testimony, with this filing, the Rate Bureau is updating the number of territory groups used to develop mobile homeowners rates as well as its territory definitions. The mobile homeowners MH(F) territory definitions are being updated to be consistent with the territory definitions currently in use in homeowners and dwelling insurance in North Carolina. Territory groups are used in the mobile homeowners program to increase the credibility and stability of the rates being evaluated. With this filing, the Rate Bureau is proposing to use six territory groups in place of the three territory groups underlying the current mobile homeowners MH(F) rates. The proposed territory group definitions based on the new territories can be found on page 6 of Section C, which also shows the distribution of 2016 earned house years by territory for each of the MH(F) policy forms.

Beginning on page 7 of Section C, the Rate Bureau develops indicated rate changes by territory group for each MH(F) policy form using a similar methodology as the statewide indication. Pages 7 through 16 document the Owners indicated rate changes by territory group, while the Tenants indicated rate changes by territory group can be found on pages 17 through 26.

For each of these MH(F) policy forms, a non-hurricane base class loss cost is calculated by territory group using the historical loss experience. A credibility value is assigned to each territory group for each policy form based on the number of house years underlying each loss cost and the same credibility standards discussed above. Using the credibility for each territory group, a credibility-weighted non-hurricane base class loss cost is determined by territory group. In addition, a modeled hurricane base class loss cost is developed by territory group for each policy form. The non-hurricane loss costs and modeled hurricane loss costs are combined to develop the indicated base class loss cost by territory group for each policy form. Additional calculations are applied to each territory group to reflect expenses, policyholder dividends, compensation for assessment risk, reinsurance, and net deviations in a similar manner as applied at a statewide level. The result of these calculations is an indicated rate change by territory group for each MH(F) policy form.

Additional columns on pages 7 and 17 of Section C show the proposed rate change by territory group, as selected by the Rate Bureau in capping the indicated rate changes, and the resulting proposed base rates after adjusting for base rate off-balance factors. The off-balance factors reflect the impact of proposed revisions to several rating plans that are discussed later in my testimony.

In my opinion, the methodology used to develop the indicated rate-level change by territory group and by MH(F) policy form is reasonable and is consistent with widely-used actuarial ratemaking practices.

Q. Does the filing review the wind exclusion credits?

- A. Yes. Based on the rates being proposed with this filing in territory groups 1 and 2 for each MH(F) policy form, the wind exclusion credits are being updated in a corresponding manner, as can be seen on page 11 of Section D. Using the underlying formula for the statewide rate indication, an adjustment is made to the appropriate components of the indication formula to reflect the non-wind losses as a percent of the total losses. The indicated non-wind rate is subtracted from the indicated overall rate to determine the indicated wind exclusion credit for each territory group.

Q. Does the filing include proposed changes to any rating variables used in the mobile homeowners MH(F) rating plan?

- A. Yes. With this filing, the Rate Bureau reviewed five years of experience for the amount of insurance and deductible relativities for each MH(F) policy form. The filing proposes revisions to the rating factors for both of these rating variables, and includes rating factors for several new deductible options. The proposed revisions are generally moving in the direction of the indicated factors, but are tempered by the Rate Bureau to reduce the impact on individual policyholders and to recognize the limited credibility of some of the indicated factors. Pages 1 through 8 of Section D summarize the Rate Bureau's analysis of the amount of insurance and deductible relativities.

In addition to the above changes to the amount of insurance and deductible relativities, the Rate Bureau is also proposing a new rating variable for each MH(F) policy form, the age of mobile home factor. Similar to the proposed changes to the amount of insurance and deductible relativities, the proposed age of mobile home relativities are generally moving in the direction of the indicated factors but are tempered by the Rate Bureau to reduce the impact on individual policyholders and to recognize the limited credibility of some of the indicated factors. The analysis of the age of mobile home relativities can be found in Section D, on pages 9 and 10.

The review of these MH(F) rating variables consisted of one-way pure premium analyses of each rating variable. In order to account for potential correlations between rating variables, an iterative analysis of each variable was performed by adjusting the losses for any rating variables evaluated in previous iterations. The amount of insurance relativities were evaluated first, followed by an analysis of the deductible relativities, and finally, the age of mobile home relativities were evaluated.

More details on this rating plan analysis can be found in the Explanatory Memorandum included in Exhibit RB-1.

In my opinion, the methodology used to develop the proposed changes to the rating variables described above is reasonable and is consistent with widely-used actuarial ratemaking practices.

- Q. I understand that you are not providing an opinion concerning the underwriting profit (profit) provision or the development of the net cost of reinsurance (NCOR) provision. If I ask you to assume that the provisions for profit and NCOR are reasonable and actuarially sound, then in your opinion, is the overall rate indication shown in the mobile homeowners MH(F) filing by the North Carolina Rate Bureau reasonable?**
- A. Yes, if I assume that the provisions for profit and NCOR are reasonable, then in my opinion, the overall mobile homeowners MH(F) rate indication shown by the Rate Bureau, and the rate indications for each policy form, are reasonable and actuarially sound.
- Q. Again, assuming that the provisions for profit and NCOR are reasonable, do you have an opinion whether the proposed rates, as capped in the filing, reasonably provide for the expected costs for mobile homeowners MH(F) insurance in North Carolina?**
- A. If I assume that the provisions for profit and NCOR are reasonable, then in my opinion, the proposed rates in this filing reasonably reflect the expected costs for mobile homeowners MH(F) insurance, except to the extent that the proposed rates have been capped. In those territory groups where the Rate Bureau has capped the rates in this filing to mitigate the impact on affected policyholders, the proposed rates do not reflect all expected costs. The expected costs that can be quantified by the difference between a territory group's indicated rate change and its capped rate change are not being reflected in the proposed rates.
- Q. Assuming that the provisions for profit and NCOR are reasonable, in your opinion, are the proposed mobile homeowners MH(F) rates not excessive, inadequate, or unfairly discriminatory?**
- A. If I assume that the provisions for profit and NCOR are reasonable, then in my opinion, the proposed mobile homeowners MH(F) rates in this filing are not excessive or unfairly discriminatory. Similarly, the rates in those territory groups unaffected by the proposed caps are not inadequate; however, in those territory groups where the Rate Bureau is proposing to cap the effect of this filing, the proposed rates continue to be inadequate by the difference between the indicated rate change and the capped rate change.
- Q. Does this conclude your testimony?**

A. Yes, it does.

**North Carolina
Mobile Homeowners
MH(F)**

Development of the Estimated Impact of Delay in Rate Filing Process

NCRB Rate Filing	Policy Type / Coverage	Premium Weight	(1)	(2)	(3)	(4)	(5)
			Assumed Effective Date	Actual Effective Date	Selected Loss Trend	Selected Premium Trend	Estimated Impact of Delay in Filing Process
2018 Dwelling	Fire	\$102,088,428	6/1/18	2/1/19	0.2%	2.3%	-1.3%
	EC	187,663,877	6/1/18	2/1/19	0.4%	2.1%	-1.1%
	Total	\$289,752,305					-1.2%
2017 HO	Owners	\$2,010,516,565	6/1/18	10/1/18	3.1%	1.1%	0.7%
	Tenants	62,551,401	6/1/18	10/1/18	-3.1%	-1.0%	-0.7%
	Condos	24,591,783	6/1/18	10/1/18	1.9%	0.5%	0.5%
	Total	\$2,097,659,749					0.6%
2014 HO	Owners	\$2,257,970,589	7/1/14	6/1/15	5.3%	2.3%	2.7%
	Tenants	45,065,871	7/1/14	6/1/15	2.9%	-1.0%	3.6%
	Condos	22,629,842	7/1/14	6/1/15	5.4%	0.0%	5.0%
	Total	\$2,325,666,302					2.7%
2014 MH(C)	Property	\$77,349,418	6/1/15	10/1/15	3.0%	2.8%	0.1%
	Liability	1,546,804	6/1/15	10/1/15	2.8%	n/a	0.9%
	Total	\$78,896,222					0.1%
2014 MH(F)	Owners	\$44,750,216	6/1/15	10/1/15	4.6%	2.2%	0.8%
	Tenants	100,658	6/1/15	10/1/15	2.5%	-0.2%	0.9%
	Total	\$44,850,874					0.8%
2012 HO	Owners	\$2,168,814,729	6/1/13	7/1/13	5.4%	3.0%	0.2%
	Tenants	32,405,190	6/1/13	7/1/13	4.0%	0.0%	0.3%
	Condos	18,252,996	6/1/13	7/1/13	4.0%	2.0%	0.2%
	Total	\$2,219,472,915					0.2%
2011 Dwelling	Fire	\$84,664,174	6/1/11	4/1/13	3.6%	2.9%	1.3%
	EC	150,823,062	6/1/11	4/1/13	4.1%	2.8%	2.3%
	Total	\$235,487,236					2.0%
2008 HO	Owners	\$1,498,766,325	1/1/09	5/1/09	4.4%	3.9%	0.2%
	Tenants	24,074,875	1/1/09	5/1/09	0.2%	2.7%	-0.8%
	Condos	13,213,524	1/1/09	5/1/09	0.2%	2.9%	-0.9%
	Total	\$1,536,054,724					0.1%
2008 MH(C)	Property	\$76,284,985	10/1/07	12/1/08	7.5%	2.4%	5.9%
	Liability	1,161,840	10/1/07	12/1/08	4.0%	n/a	4.7%
	Total	\$77,446,825					5.9%
2008 MH(F)	Owners	\$43,659,180	10/1/07	12/1/08	6.6%	5.8%	0.9%
	Tenants	158,638	10/1/07	12/1/08	0.4%	-4.1%	5.5%
	Total	\$43,817,818					0.9%

Average Impact of Delay in Filing Process: 1.2%

(1), (3), (4) From historical NCRB rate filings

(2) From historical NCRB settlement agreements or circulars

(5) = $\frac{[1 + (3)]}{[1 + (4)]} \wedge \frac{[(2) - (1)]}{365} - 1$

North Carolina Insurance Underwriting Association (NCIUA) -- Beach Plan

Summary of 2018 Catastrophe Reinsurance

<u>Risk Finance Structure ⁽¹⁾</u>	<u>Attachment Point (\$ Millions)</u>	<u>Exhaustion Point (\$ Millions)</u>	<u>Coverage</u>	<u>Reinstatement</u>
Reinsurance Layer 1	\$1,000.0	\$1,100.0	100.0%	No
Reinsurance Layer 2	2,690.0	2,940.0	100.0%	No

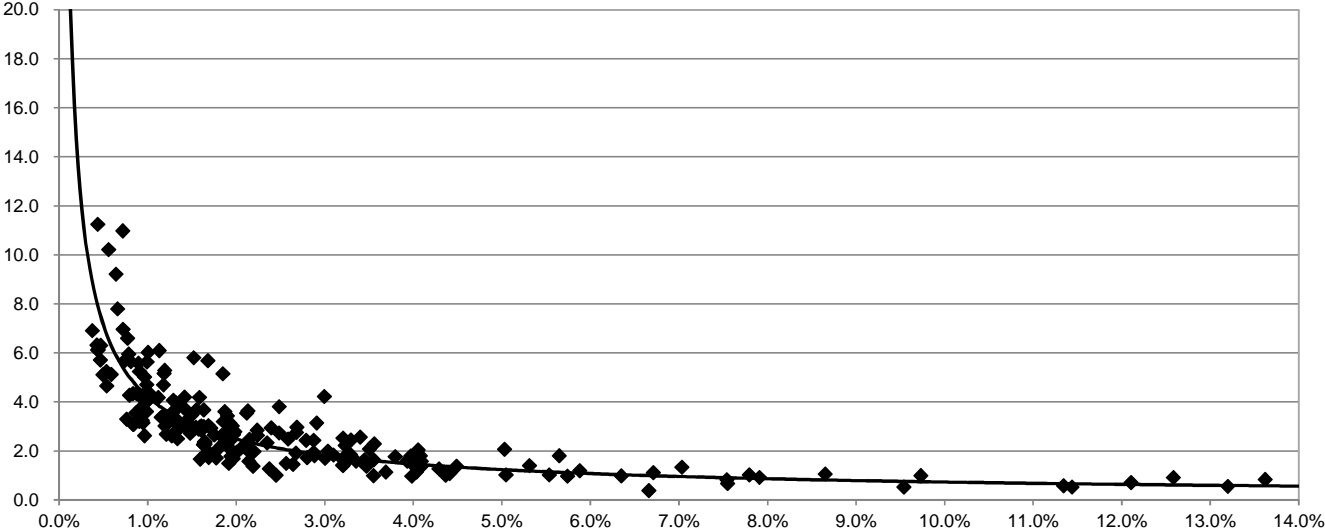
Notes: The above reinsurance covers aggregate loss for all accounts combined (Residential & Commercial).

(1) Reinsurance provides Annual Aggregate coverage.

North Carolina Insurance Underwriting Association (NCIUA) -- Beach Plan
North Carolina Joint Underwriting Association (NCJUA) -- FAIR Plan

Catastrophe Bond Profit Multiples

Adjusted Profit Multiples by Average Probability of Loss



Source: Lane Financial LLC, Annual Securitization Reviews.

Notes: Based on near-term cat bonds issued from January 2009 to March 2018.
Includes all U.S. bonds with a probability of first loss between 0.05% and 20.0%; excludes bonds with no stated profit multiples.
Profit multiples were adjusted based on the year each bond was issued in order to normalize for different market conditions by year.

Equation of the fitted curve: $y = 0.12591 x^{-0.76195}$

Equation to determine average Profit Multiple over specific interval: $Avg PM = \int_a^b 0.12591 x^{-0.76195} dx / (b-a)$

North Carolina Insurance Underwriting Association (NCIUA) -- Beach Plan

Catastrophe Bond Profit Multiples

<u>Annual Aggregate Layer</u>	<u>Source of Funding</u>	<u>Total Beach Plan</u>		<u>Attachment Probability</u>	<u>Exhaustion Probability</u>	<u>Profit Multiple</u>
		<u>Layer Attachment</u>	<u>Layer Exhaustion</u> ⁽¹⁾			
\$0 to 1,000	Surplus	\$0.0	\$1,000.0	46.39%	5.82%	0.42
\$1,000 to 1,100	Reinsurance	1,000.0	1,100.0	5.82%	5.32%	1.14
\$1,100 to 1,790	Surplus	1,100.0	1,790.0	5.32%	3.16%	1.42
\$1,790 to 2,690	Company Assessments	1,790.0	2,690.0	3.16%	1.91%	2.10
\$2,690 to 2,940	Reinsurance	2,690.0	2,940.0	1.91%	1.71%	2.68
\$2,940 to 3,040	Company Assessments	2,940.0	3,040.0	1.71%	1.63%	2.85
\$3,040 & Higher	Policyholder Surcharges	3,040.0	52,755.2	1.63%	0.0005%	10.41

(1) The Layer Exhaustion for the highest layer was selected to be equal to the largest amount of modeled annual hurricane losses after blending 100,000 years of AIR and RMS modeled losses.

**North Carolina Insurance Underwriting Association (NCIUA) -- Beach Plan
Residential Accounts Only**

Illustration of How Hurricane Losses are Funded
Voluntary Market Assessments Limited to \$1 Billion on All Beach Plan Accounts Combined
(\$ in Millions)

<u>Annual Aggregate Layer</u>	<u>Total Beach Plan</u>			<u>Beach Plan: Residential Portion</u>	<u>Hurricane Losses Funded by:</u>			
	<u>Layer Attachment</u>	<u>Layer Exhaustion</u>	<u>Total Losses in Layer</u>		<u>Beach Plan Surplus</u>	<u>Private Reinsurance</u>	<u>Assessments on Member Companies ⁽¹⁾</u>	<u>Policyholder Surcharges</u>
\$0 to 1,000	\$0.0	\$1,000.0	\$1,000.0	\$874.6	\$874.6	-	-	-
\$1,000 to 1,100	1,000.0	1,100.0	100.0	85.6	-	\$85.6	-	-
\$1,100 to 1,790	1,100.0	1,790.0	690.0	685.9	685.9	-	-	-
\$1,790 to 2,690	1,790.0	2,690.0	900.0	634.7	-	-	\$634.7	-
\$2,690 to 2,940	2,690.0	2,940.0	250.0	214.7	-	214.7	-	-
\$2,940 to 3,040	2,940.0	3,040.0	100.0	100.0	-	-	100.0	-
\$3,040 & Higher	3,040.0	52,755.2	49,715.2	32,368.1	-	-	-	\$32,368.1
Total					\$1,560.4	\$300.3	\$734.7	\$32,368.1

(1) Total losses paid by Member Companies (\$734.7 M) reflects the Residential portion of the \$1 Billion Beach Plan assessment on the total Voluntary Market.

**North Carolina Insurance Underwriting Association (NCIUA) -- Beach Plan
Residential Accounts Only**

Determination of the Cost of Reinsurance Provided to the NCIUA by the Voluntary Market
Voluntary Market Assessments Limited to \$1 Billion on All Beach Plan Accounts Combined
(\$ in Millions)

<u>Annual Aggregate Layer</u>	Beach Plan: Residential Losses in Layer	Assessments Paid by Member Companies ⁽¹⁾	<u>Expected Losses</u> ⁽²⁾		Indicated Profit Multiple ⁽⁴⁾	Cost of Providing Reinsurance ⁽⁵⁾
			<u>Total</u>	<u>Exposed</u> ⁽³⁾		
\$0 to 1,000	\$874.6	-	\$105.93	-	0.42	-
\$1,000 to 1,100	85.6	-	4.77	-	1.14	-
\$1,100 to 1,790	685.9	-	27.45	-	1.42	-
\$1,790 to 2,690	634.7	\$634.7	15.79	\$15.79	2.10	\$33.16
\$2,690 to 2,940	214.7	-	3.90	-	2.68	-
\$2,940 to 3,040	100.0	100.0	3.04	3.04	2.85	8.67
\$3,040 & Higher	32,368.1	-	41.51	-	10.41	-
Total		\$734.7	\$202.40	\$18.83		\$41.83

(1) See Exhibit RB-5, Page 4.

(2) From AIR & RMS hurricane models.

(3) Expected loss subject to Beach Plan assessments of Voluntary Market.

(4) See Exhibit RB-5, Page 3.

(5) = Exposed Expected Losses x Profit Multiple (from Cat Bond data).

North Carolina Joint Underwriting Association (NCJUA) -- FAIR Plan

Summary of 2018 Catastrophe Reinsurance

<u>Risk Finance Structure ⁽¹⁾</u>	<u>Attachment Point (\$ Millions)</u>	<u>Exhaustion Point (\$ Millions)</u>	<u>Coverage</u>	<u>Reinstatement</u>
Reinsurance Layer 1	\$130.0	\$281.0	100.0%	No

Notes: The above reinsurance covers aggregate losses for all FAIR Plan accounts combined (Residential & Commercial).

(1) Reinsurance provides Annual Aggregate coverage.

North Carolina Joint Underwriting Association (NCJUA) -- FAIR Plan

Catastrophe Bond Profit Multiples

<u>Annual Aggregate Layer</u> ⁽¹⁾	<u>Total FAIR Plan</u>		<u>Attachment Probability</u>	<u>Exhaustion Probability</u>	<u>Profit Multiple</u>
	<u>Layer Attachment</u>	<u>Layer Exhaustion</u> ⁽²⁾			
\$0 to 130	\$0.0	\$130.0	46.24%	5.82%	0.42
<i>\$0 to 23.4</i>	<i>0.0</i>	<i>23.4</i>	<i>46.24%</i>	<i>16.61%</i>	<i>0.32</i>
<i>\$23.4 to 130</i>	<i>23.4</i>	<i>130.0</i>	<i>16.61%</i>	<i>5.82%</i>	<i>0.71</i>
\$130 to 281	130.0	281.0	5.82%	2.57%	1.46
\$281 & Higher	281.0	6,039.0	2.57%	0.0005%	7.49

(1) The first layer was selected to be equal to the FAIR Plan's surplus as of June 30, 2018 (\$23.4 million).

(2) The Layer Exhaustion for the highest layer was selected to be equal to the largest amount of modeled annual hurricane losses after blending 100,000 years of AIR and RMS modeled losses.

**North Carolina Joint Underwriting Association (NCJUA) -- FAIR Plan
Residential & Commercial Accounts**

Illustration of How Hurricane Losses are Funded
Reflecting Unlimited Industry Exposure to FAIR Plan Assessments
(\$ in Millions)

<u>Annual Aggregate Layer</u>	<u>Total FAIR Plan</u>			<u>Hurricane Losses Funded by:</u>		
	<u>Layer Attachment</u>	<u>Layer Exhaustion</u>	<u>Total Losses in Layer</u>	<u>FAIR Plan Surplus</u>	<u>Private Reinsurance</u>	<u>Assessments on Member Companies</u>
\$0 to 23.4	\$0.0	\$23.4	\$23.4	\$23.4	-	-
\$23.4 to 130	23.4	130.0	106.6	-	-	\$106.6
\$130 to 281	130.0	281.0	151.0	-	\$151.0	-
\$281 & Higher	281.0	6,039.0	5,758.0	-	-	5,758.0
Total				\$23.4	\$151.0	\$5,864.6

**North Carolina Joint Underwriting Association (NCJUA) -- FAIR Plan
Residential & Commercial Accounts**

Determination of the Cost of Reinsurance Provided to the NCJUA by the Voluntary Market
Reflecting Unlimited Industry Exposure to FAIR Plan Assessments
(\$ in Millions)

<u>Annual Aggregate Layer</u>	Total FAIR Plan Losses in Layer	Assessments Paid by Member Companies ⁽¹⁾	<u>Expected Losses</u> ⁽²⁾		Indicated Profit Multiple ⁽⁴⁾	Cost of Providing Reinsurance ⁽⁵⁾
			<u>Total</u>	<u>Exposed</u> ⁽³⁾		
\$0 to 23.4	\$23.4	-	\$5.20	-	0.32	-
\$23.4 to 130	106.6	\$106.6	10.17	\$10.17	0.71	\$7.22
\$130 to 281	151.0	-	5.82	-	1.46	-
\$281 & Higher	5,758.0	5,758.0	8.08	8.08	7.49	60.49
Total		\$5,864.6	\$29.26	\$18.25		\$67.71

(1) See Exhibit RB-5, Page 8.

(2) From AIR & RMS hurricane models.

(3) Expected loss subject to FAIR Plan assessments of Voluntary Market.

(4) See Exhibit RB-5, Page 7.

(5) = Exposed Expected Losses x Profit Multiple (from Cat Bond data).

**North Carolina Insurance Underwriting Association (NCIUA) -- Beach Plan
North Carolina Joint Underwriting Association (NCJUA) -- FAIR Plan
Residential Accounts Only**

**Determination of the Compensation for Bearing the Risk of Beach Plan & Fair Plan Assessments
(\$ in Millions)**

(1) Cost of Reinsurance Provided by the Voluntary Market to the Residential Accounts in the NCIUA (Beach Plan):	\$41.83
(2) Cost of Reinsurance Provided by the Voluntary Market to the NCJUA (FAIR Plan):	\$67.71
(3) Residential Premium as % of Total FAIR Plan Assessment Base:	<u>70%</u>
(4) Cost of Reinsurance Provided by the Voluntary Market to the Residential Accounts in the NCJUA (FAIR Plan):	<u>\$47.40</u>
(5) Total Cost of Reinsurance Provided by the Voluntary Market to the Residential Accounts in the NCIUA & NCJUA:	<u>\$89.23</u>

	(6)	(7) = (6) / Total (6)	(8) = (5) x (7)	(9) = (8) / (6)
<u>Policy Form</u>	<u>Estimated 2018 Industry Written Premium @ Manual Rates</u>	<u>% of Total Industry Premium</u>	<u>Allocated Compensation for Risk of Assessment</u>	<u>Compensation for Assessment Risk as % of 2018 Manual Premium</u>
Homeowners	\$2,658.4	84.6%	\$75.46	2.8%
Dwelling Fire & EC	348.6	11.1%	9.89	2.8%
MobileHome	136.5	4.3%	3.88	2.8%
Total	\$3,143.5	100.0%	\$89.23	2.8%

(1) From Exhibit RB-5, Page 5.

(2) From Exhibit RB-5, Page 9.

(4) = (2) x (3)

(5) = (1) + (4)

(6) 2018 Industry Premium includes NCIUA and NCJUA.

**PREFILED TESTIMONY
OF
MATTHEW BERRY
2019 MOBILE HOME (F) INSURANCE
RATE FILING BY THE
NORTH CAROLINA RATE BUREAU**

Q: Please state your name and your employer.

A: My name is Matthew Berry. I work at Allstate Insurance Company at 2775 Sanders Road, Northbrook, IL 60062.

Q: What is your educational background?

A: I received my Bachelor of Science in 2013 from Purdue University – West Lafayette with a double major in Actuarial Science (with Honors) and Applied Statistics.

Q: Do you have any additional certifications or qualifications?

A: Yes. I have been a Fellow of the Casualty Actuarial Society (CAS) since 2016 after passing each exam on my first attempt. I am a current member of the Casualty Actuarial Society Examination Committee where I volunteer for writing as well as grading committees. I also hold the Certified Specialist in Predictive Analytics credential awarded by the CAS Institute. I am a member of the American Academy of Actuaries and meet all of its continuing education requirements. I am in good standing with the CAS and the AAA.

Q: What is your employment background?

A: I have worked as an Actuary for Allstate Insurance Company's Auto and Owners lines of business for my entire career since August 2013. I started on Allstate's Actuarial Training Unit before becoming an Actuarial Analyst in 2014 for the West Central region, which encompasses Colorado, North Dakota, South Dakota, Montana, Wyoming, Kansas, Nebraska, Iowa and Missouri. In 2016 I became an Actuarial Analyst for the state of California. Finally, in 2017 I was promoted to my current role as Actuarial Manager for the state of North Carolina.

Q: Do you have experience with homeowners, mobile home and other related lines of insurance?

A: Yes. I have had extensive exposure to property insurance across my entire Allstate career. My most recent role in North Carolina involves exposure and work on homeowners forms as well as mobile home forms. In prior roles on the Training Unit and West Central regions, I ran owners rate-level indications where I analyzed factors that drove owners loss and premium trends and evaluated the adequacy of segmented rates. While working on California, I led a research

project on incorporating catastrophe exposure into rate-level indications for owners, condo and tenants that complied with the unique regulatory environment. That California catastrophe exposure methodology remains in place today and has been incorporated into multiple filings approved by the California Department of Insurance.

In my current role as Actuarial Manager for the state of North Carolina, I have led multiple initiatives to modernize Allstate's owners product in the state of North Carolina through ratemaking improvements. I have also facilitated multiple data calls regarding mobile home insurance. Finally, I have collaborated with our dedicated mobile home actuary and mobile home line manager on the mobile home product line for Allstate.

Q: What is your role with respect to mobile home insurance at the Bureau?

A: I am Chairman of the Property Rating Subcommittee of the Bureau. That Subcommittee has jurisdiction over rates for residential real property insurance, which includes mobile home insurance rates. I am also on the Property Committee of the Bureau. That Committee has jurisdiction over forms and rates for property lines including the mobile home subline of insurance.

Q: Can you explain the nature and role of the Bureau in setting manual rates?

A: The Bureau was created by statute in 1977. Its jurisdiction and role include the establishment of policy forms and rates for residential real property insurance policies written in North Carolina. This jurisdiction includes the homeowners line of insurance, the dwelling fire and extended coverage lines of insurance and the mobile home subline of insurance.

The manual rates for mobile home policies written in the state (with the limited statutory exception of any that may be written pursuant to N.C. G. S. 58-36-50) are filed by the Bureau and are subject to approval by the Commissioner of Insurance in filings such as this one.

Individual companies can charge more or less than the approved Bureau manual rates through deviations and consent to rate. Such actions by individual companies require separate steps by those companies and are subject to the ultimate approval of the Commissioner through statutory and regulatory provisions outside of the Bureau's jurisdiction. Consent to rate is the procedure by which companies may charge premiums that are higher than the manual rate on individual policies after obtaining the consent of the policyholder.

Q: Please explain the MH (F) program for which this filing is being made.

A: The Bureau maintains two mobile home programs, the MH (F) program which is the subject of this rate filing and the MH (C) program which is the subject of a separate rate filing. The rates established in this filing are for all companies that write insurance on mobile homes in the state using the MH (F) program. In this testimony, references to mobile home rates, forms and rating methodology relate to the MH (F) program, unless otherwise noted or apparent from the context.

The MH (F) program is similar in many ways to the Bureau's homeowners program. It consists of one form for the owner of the mobile home (the "owners" form) and a second form for someone who rents a mobile home (the "tenants" form). Rates are analyzed separately for each form. A large majority of the premium is written on the owners form. Coverage generally includes traditional homeowners perils such as wind, fire and liability. The MH (F) program also provides coverage for flooding that is excluded under homeowners and dwelling policies promulgated by the Bureau. In my testimony, I will generally refer to the procedures and numbers relating to the owners form, unless otherwise indicated.

Q: Can you describe the membership of the Bureau's Property Rating Subcommittee?

A: Companies on the Subcommittee include American Bankers Insurance Company of Florida, American Modern Home Insurance Company, Farmers Insurance Exchange, Foremost Insurance Company, Horace Mann Insurance Company, Nationwide Mutual Insurance Company, N.C. Farm Bureau Mutual Insurance Company, State Farm Mutual Automobile Insurance Company, Travelers Indemnity Company, USAA and Allstate Insurance Company. Allstate Insurance Company chairs the Subcommittee. All representatives on the Subcommittee are actuaries and/or have extensive experience in ratemaking.

Q: Please describe how the Property Rating Subcommittee was involved in this Filing.

A: The Subcommittee analyzed the data and methodologies that were presented to the Subcommittee by consultants who are experts in their fields. This includes premium and loss data, expense data, modeled hurricane results, reinsurance analyses and economic analyses. The Subcommittee made selections based on the data and the expertise provided by Paul Anderson of Milliman; Dr. James Vander Weide; Dr. George Zanjani; and Elizabeth Henderson and Steve Fiete of Aon. Prefiled testimony from those experts is contained in the Filing.

Ultimately, the Subcommittee developed recommendations to the Property Committee and the Governing Committee as to rate levels that meet the statutory requirement that rates not be "excessive, inadequate, or unfairly discriminatory." Those Committees adopted the recommendations of the Subcommittee as to the

rate level change required to make mobile home rates actuarially sound and in accordance with the statutory standard.

The Subcommittee has always been involved in developing and recommending to the Bureau the methodology used in property filings. The overall approach in this Filing is generally consistent with prior filings. It should be noted that in this Filing, the Bureau relied on Milliman for the primary actuarial support, whereas in prior mobile home filings the Bureau relied on Insurance Services Office (ISO) for the primary actuarial support. The Subcommittee gave careful consideration to the methodology as a whole and to any differences in methodology or actuarial support proposed by Milliman.

Q: Please describe the overall ratemaking equation in the Filing.

A: The fundamental insurance ratemaking equation in this and prior filings is that premiums should equal expected losses plus expected expenses plus a margin for a fair and reasonable profit. In this Filing, the required base rate per policy is developed by adding the appropriate profit and contingencies to the estimated costs associated with the policy. The required base rate is then compared to the current base rate to determine the “indicated” rate change. The indicated rate change is the actuarially sound rate change necessary to make the rates comply with the statutory standard that they not be excessive, inadequate or unfairly discriminatory. In this filing, the indicated rate level change for all forms is 86.9%. This consists of 87.0% for the owners form and 5.1% for the tenants form.

Q: Why does the indicated rate change differ from the filed rate change?

A: The indicated rate level differs from the “filed” rate level because of capping. As a result of capping, the details of which are shown in the filing, the filed rate change is for an overall 19.9% increase. The Bureau’s Governing Committee elected to cap in order to mitigate the premium impact of this Filing on policyholders.

The Bureau’s responsibility is to have rates eventually reach the full indicated rate level, but the Bureau has in the past engaged in a process of gradualism to reach the actuarially sound rate level. This practice is common in the industry.

Q: How does the methodology in the Filing account for the loss experience of all of the insurance companies and entities that write MH (F) policies subject to the Bureau’s jurisdiction in North Carolina?

A: For purposes of Bureau rate filings, all loss and expense data in the state is consolidated to essentially assume a single insurance entity (often called the “hypothetical one company”). This data contains the aggregate loss and expense experience of all MH (F) policies in the state as well as the rating characteristics of those policies. The testimony provided by Mr. Anderson of Milliman describes this data aggregation in more detail.

Q: How are the expected losses determined?

A: This Filing uses the loss experience of the most recent five accident years for which such experience is available. These are the years ending December 31, 2012 through December 31, 2016. Using five years is consistent with prior filings, North Carolina statutes and generally accepted mobile home ratemaking practices throughout the country.

The losses, excluding hurricane and excess wind losses, are adjusted to the base class level, and loss development factors are applied. The loss development factors account for the fact that the ultimate losses are oftentimes different from early estimates. Reasons for loss development include but are not limited to claims that were incurred in the policy period but have not been reported yet, as well as reported claims for which their current estimate will ultimately be inaccurate.

As is explained in more detail below, hurricane losses were determined by modeling. As to non-hurricane wind losses, a smoothing factor for excess wind losses of 7.5% was determined based on historical experience and applied to each accident year. Mr. Anderson of Milliman describes this procedure in detail in his testimony.

Losses are also trended to reflect the change in costs. The Subcommittee reviewed trends with Mr. Anderson, and the trends selected by the Subcommittee are explained in more detail in his testimony. The trend factors were selected with consideration given to relevant indices as well as overall industry loss experience (frequency and severity). In determining the selection for trend, the Subcommittee carefully reviewed the CoreLogic Residential Index, a Modified Consumer Price Index (CPI) and industry loss experience for the MH-F Owners form, and a Modified CPI alongside industry loss experience for the MH-F Tenants form. The trended losses and loss adjustment expenses are divided by the earned house years (the exposure-base of this filing) to determine the average trended loss cost. That cost is then converted to the trended base-class loss cost by dividing by the average rating factor for each accident year.

Each of the five accident years is applied a weight. The weights for MH (F) - Owners are consistent with prior filings and are as follows: 30% for Accident Year (AY) 2016, 25% for AY 2015, 20% for AY 2014, 15% for AY 2013 and 10% for AY 2012. The use of differing weights is a longstanding procedure in mobile home filings that is intended to reflect responsiveness to changes while incorporating the stability of multiple years of data. However, due to the lower credibility of the data, MH (F) – Tenants has equal weights of 20% across 2012, 2013, 2014, 2015 and 2016 in order to increase the amount of stability.

Finally, the number of house years determines the credibility of trended base loss costs. Credibility is explained in Mr. Anderson's prefiled testimony.

Q: How are losses from North Carolina's hurricane exposure reflected?

A. The Subcommittee considered actual historical experience of hurricanes in North Carolina. However, hurricane losses are so extreme and volatile that for many years the accepted and uniform actuarial procedure for determining prospective hurricane losses has been through the use of hurricane models rather than past hurricane losses. The Bureau began doing so in 1993, using the AIR model. That model was used uniformly and exclusively by the Bureau in all property filings until 2015 when the Bureau resolved to use two models. The Bureau first filed using two models in its 2016 dwelling filing. In considering whether to use two models in that filing, the Subcommittee reviewed the positions and statements of the North Carolina Commissioner of Insurance, the North Carolina Department of Insurance, legislation that had been proposed in the North Carolina legislature and the practices of many companies that use two models despite the significant expense and technical difficulty compared to only using one model. The Bureau decided that an actuarially appropriate methodology for a Bureau filing is to use two models and to weight their results equally. The legislature subsequently enacted a requirement that the Bureau use more than one hurricane model in Bureau property rate filings made after October 1, 2017, a requirement that is satisfied in this Filing through the use of two models.

Prior to selecting the two modelers, the Subcommittee reviewed which modelers are most commonly relied upon by insurers, reinsurers and other parties to related financial transactions. The Subcommittee found that AIR and RMS are the two most widely used hurricane modelers. Therefore, the Subcommittee selected RMS to be the second modeler and decided to continue using AIR as the Bureau has done since 1993.

In determining prospective hurricane losses in the Filing, the Subcommittee made certain to use modelers whose models have been approved by the rigorous review process of the Florida Commission on Hurricane Loss Projection Methodology. That Commission has examined hurricane models in great detail over many years and authorizes their use in Florida rate filings. It retains experts in relevant fields who review the meteorological, wind engineering, damageability, claims, statistical, computer programming, economic and other aspects of modeling in great detail. Over the years, it has reviewed advancements in various scientific disciplines related to hurricane modeling and has required modelers to reflect such advancements. It approves only those models that meet its rigorous standards.

The Subcommittee noted that it is natural and expected that model results will differ and will change over time. Different models project different loss costs in different areas. Prior to the Bureau having a second model run for the first time,

the Subcommittee concluded that the actuarially sound and fair approach for the Bureau's use of two models is to blend those models by averaging the loss costs of the two models. The Subcommittee determined that Aon, the world's largest reinsurance broker with extensive experience with modeling, is able to supply the modelers' results and to average the results from the two modelers.

The blended results from the AIR standard catalogue and the RMS long term historical model are employed to determine the prospective hurricane losses in Section C of the Filing. As will be discussed further below, the AIR warm sea surface temperature catalogue and the RMS medium term rate model are employed in the analysis by Aon of the net cost of reinsurance factor in the filing.

The Subcommittee specified that the AIR storm surge function be employed since the mobile home forms cover the peril of flood. The storm surge function models flooding at the beach but does not model inland flooding.

Q. Is hurricane modeling designed to produce high rate levels?

A. Absolutely not. One of the great values of models is that they help stabilize rate levels. Without modeling, rate levels would fluctuate wildly following the occurrence or non-occurrence of significant hurricanes. Modeling is relied upon on all sides of insurance, reinsurance, catastrophe bond and other financial transactions to give the best and most unbiased projection of future hurricane losses. Different parties to those transactions often have opposing economic interests but nevertheless rely on models in their negotiations with each other.

For catastrophe loss expenses in this Filing, the Bureau elected to employ the loss adjustment expense factor based on Aon's data as to catastrophes, a factor that is lower than the factor based on data in non-catastrophe situations.

The model versions used were RMS RiskLink v 18 and AIR Touchstone v 5. As is the customary and accepted practice in the insurance, reinsurance, and catastrophe bond industries, the models were run with aggregate demand surge (AIR) and loss amplification (RMS) included. The aforementioned Florida Commission on Hurricane Loss Projection Methodology has approved the use of aggregate demand surge and loss amplification for the AIR and RMS models respectively. These aspects of the models account for the expected additional costs if a very large hurricane event or series of events occurs. Experience demonstrates that when such catastrophic events have occurred, there is significant increase in demand for the limited supply of materials, labor, hotel rooms and other necessities that in aggregate result in larger than normal claims payments. Additionally, there are delays in repairing properties, there are longer stays in hotels and there are other increased costs beyond those when smaller hurricanes occur. Loss amplification also factors in claims inflation. Claims adjusters may not investigate every claim if it is under a certain threshold, given the volume of claims they must settle post-event in a limited amount of time.

Q: How is the expense data compiled and reviewed?

A: The Bureau conducts special expense data calls annually. Companies individually complete the special expense call, which includes reporting expense dollars as well as premiums at collected level and adjusted to manual level. The Bureau checks and compiles this information for all companies and sends it to its consultants to include in the Filing.

The percentages for Commissions and Brokerage, Taxes, Licenses, and Fees are a function of written premium. The determination of whether to select expenses as a percentage of written premium or as a percentage of earned premium considers which premium best matches the time at which the expenses are incurred. The ratios for these expenses from the North Carolina special calls for 2014, 2015 and 2016 were considered. The three-year average was selected. This equates to 16.6% for Commissions and Brokerage and 2.9% for Taxes, Licenses, and Fees. General and Other Acquisition Expenses are determined based on a ratio to earned premium at current manual level. The North Carolina special calls for 2014, 2015, and 2016 were used for these as well. The three-year average was selected. This equates to 4.7% for General Expense and 5.9% for Other Acquisition Expense.

The loss adjustment expenses, both allocated and unallocated, are included with the losses in calculating the indication. Like the other expenses, the Subcommittee reviewed the data from NCRB's data calls for calendar years 2012-2016. The ratio of loss adjustment expenses to incurred losses was analyzed. Consistent with past filings, the highest and lowest years were removed to allow for more stability due to the variable nature of incurred losses. The selected loss adjustment expense was 20.6%. A lower loss adjustment expense provision for modeled hurricane losses of 6.0% was selected, based upon data from Aon.

The Subcommittee reviewed expense index trends with Mr. Anderson. Consideration was given to the All Items Consumer Price Index (both with and without Energy) and the Total Compensation Cost Index – Insurance Carriers and Related Activities from the Bureau of Labor Statistics. Based on the review, the Subcommittee selected a +2.0% historical trend and a +2.5% prospective trend. These factors were then used to trend Fixed Expense dollars to the end of the experience period and then to the midpoint of the projection period respectively.

Q: Please describe the nature and the operations of the Beach Plan and FAIR Plan as they relate to mobile home insurance in North Carolina.

- A.** The “Beach Plan” and the FAIR Plan are both residual market mechanisms created by the North Carolina legislature to write property insurance in situations where policyholders cannot obtain insurance through the voluntary market. While those plans do not write MH (F) policies, they are relevant to mobile home ratemaking in North Carolina as will be explained in my testimony.

The Beach Plan (officially the North Carolina Insurance Underwriting Association, as set up by Article 45 of the North Carolina insurance statutes) writes property insurance in the 18 coastal counties but not in the remaining 82 counties of North Carolina. In addition to writing homeowners policies, it writes dwelling fire and extended coverage and commercial property insurance policies.

The 18 coastal counties are divided into the “beach” area and the “coastal” area by statute. The beach area generally consists of areas south and east of the Inland Waterway, often called the Outer Banks or barrier islands. The coastal area consists of the remainder of those 18 counties. For homeowners and dwelling insurance, the Bureau subdivides these two areas into several insurance rating territories based on differences in expected loss costs.. For mobile home, the beach and coastal area are currently included within just one insurance rating territory. As will be discussed below however, this filing proposes that the rating territories for mobile home insurance be expanded to reflect a more actuarially sound differentiation of loss cost potential across the state including the expansion of the division of the beach and coastal area from one rating territory to two rating territories.

The other property residual market in North Carolina is the FAIR Plan. It writes essential property coverage (dwelling fire and extended coverage policies) throughout the state. Since the FAIR Plan does not write MH (F) policies, data from its policies are not included in the loss data in this Filing. As explained below, despite the fact that the FAIR Plan does not write MH (F) policies, the growing number of FAIR Plan policies increases the risk of assessments on companies writing MH (F) policies in North Carolina.

- Q. Please comment on the size and financial condition of the Beach Plan as those factors impact mobile home ratemaking.**

- A.** The size and financial condition of the Beach Plan bears on the likelihood of assessments of companies that elect to write MH (F) policies in North Carolina. A very large percentage of homeowners and dwelling premium in the 18 coastal counties goes to the Beach Plan. For instance, in the “beach” territories, approximately 77% of the homeowners premium is written by the Beach Plan, and in “coastal” territories approximately 55% of the homeowners premium is written by the Beach Plan. On a statewide basis, approximately 13% of homeowners premium is written by the Beach Plan, even though the Beach Plan

was intended by statute to be the market of last resort. The reason is largely that the Bureau manual rates are highly inadequate for the risk in those 18 coastal counties. Otherwise, normal competitive market forces would come into play and companies would write voluntarily. As explained in more detail below in connection with the factor in the Filing for the compensation for assessment risk, losses in the Beach Plan and the FAIR Plan can be assessed to companies writing mobile home insurance.

Q. Please explain assessments on companies and policyholders writing mobile home insurance that will occur when a catastrophic hurricane hits the coastal area and exceeds the ability of the Beach Plan and the FAIR Plan to pay losses.

A. When a truly catastrophic hurricane occurs, the inadequacy of homeowners and dwelling rates at the beach and coast will lead to one and possibly two types of assessments to pay for Beach Plan losses: “non-recoupable assessments” on the companies that voluntarily write MH (F) policies throughout the state and “catastrophe recovery charges” on all property insurance policyholders throughout the state. These assessments are established by the Beach Plan statutes, which essentially provide that assessments will be made after the Beach Plan’s surplus and reinsurance are exhausted. The first assessment to occur is on companies and is capped at \$1 billion dollars. The catastrophe recovery charge on property insurance policyholders statewide will occur following exhaustion of that assessment on companies. Mr. Anderson’s testimony goes into detail as to this process and the Beach Plan’s reinsurance program.

Since the assessment will be imposed in accordance with a formula reflecting each company’s property insurance writings across the entire state (including mobile home writings), a company will be assessed even if it elected not to write policies in the beach and coastal counties. Mr. Anderson has quantified the cost of this potential \$1 billion assessment to the companies, and it is reflected in the factor in the Filing called the “compensation for assessment risk.” The Property Rating Subcommittee reviewed and approved this factor.

Once the \$1 billion assessment on the companies is exhausted, the catastrophe recovery charge on policyholders throughout the state could be up to 10% of their property insurance premium per year. The voluntary companies will be required to administer the charge by billing and collecting the charge from policyholders. The 10% charge would continue annually as long as necessary to collect the amounts that were paid out for Beach Plan losses.

The ultimate effect of the regulatory system in North Carolina is that rates for policyholders insured through the Beach Plan area are being subsidized, both explicitly and implicitly. The explicit subsidy arises from the fact that insurance

companies have to pay the first \$1 billion of losses over and above the Beach Plan's existing surplus and reinsurance, and this Filing passes along this cost in the form of the provision for the compensation for assessment risk. This provision will be paid by mobile home policyholders throughout the state, not just those in the Beach Plan. In addition, there is the further subsidy in that mobile home and other property insurance policyholders across the state face the possibility of the 10% catastrophe recovery charge. Another way of looking at the situation is that the insurance industry and policyholders across the state are providing free reinsurance to the Beach Plan.

It is important to note that the companies' exposure to losses of the other residual market, the FAIR Plan, are not subject to the \$1 Billion cap that is applicable to Beach Plan losses. While the FAIR Plan does not write MH (F) policies that are the subject of this filing, it writes dwelling fire and extended coverage policies statewide, except in the beach territories. Such policies are vulnerable to losses from catastrophic hurricanes. Companies are subject to unlimited assessments from these losses. The FAIR Plan has experienced significant growth in the years before and during the experience period of this Filing.

Q: Has the risk of residual market assessments been considered in the Filing?

A: Yes. The prospect of residual market assessments is a cost of doing business in the state and is a condition for writing mobile home insurance. This cost is imposed by state law. As mentioned above and as set forth in Mr. Anderson's testimony, in the event that hurricanes render the Beach Plan unable to pay claims, a non-recoupable assessment will be imposed of up to \$1 billion dollars annually on the voluntary companies. Losses from the FAIR Plan are also assessed on the companies, but without the existence of any cap on those assessments. Assessments by the Beach Plan and the FAIR Plan constitute a significant consideration for companies choosing whether to write mobile home business in North Carolina and selecting the amount of insurance they are willing to write. The voluntary companies need adequate capital to contemplate these potential assessments. The Subcommittee reviewed an analysis done by Milliman on the compensation for this assessment risk. The analysis is explained in the testimony of Mr. Anderson. Based on this analysis, the Subcommittee determined that a 2.8% factor is appropriate to reflect in the Filing.

It is important to note that the assessment potential changes with the surplus level and size of the Beach Plan and the FAIR Plan. The compensation for assessment risk factor considers both of these factors at a single point in time. Therefore, the continually evolving growth and operations of the Beach and Fair Plans will affect exposure of the companies to this assessment risk in the future.

Q. What are some of the other consequences of the inadequacy of Bureau manual rates for property insurance at the coast?

The prospect of a Beach Plan assessment affects the willingness of a company to write mobile home insurance in North Carolina. A company knows that following a powerful hurricane, it will be subject to Beach Plan assessments for huge losses on business that the company did not choose to write in the first place. Companies that elect to write in the state make a further decision as to the extent that they will do so in areas of the state such as the beach and coastal territories.

The fact that rates at the beach and coast are significantly inadequate creates a dilemma for the Beach Plan. The inadequacy of rates diminishes the Beach Plan's ability to build up sufficient surplus from premiums in the "good" years, when there are no hurricanes or minor hurricanes, to provide a cushion to pay losses in the "bad" years when one or more severe hurricanes occur. Even in the good years, the Beach Plan still must pay claims for more frequent insured events such as fires, thefts, non-hurricane wind, personal injury, etc.

The Beach Plan addresses the risk of large losses, particularly from hurricane events, by purchasing reinsurance and engaging in the catastrophe bond market. However, whatever amounts the Beach Plan spends to protect itself by use of reinsurance and catastrophe bonds is at the expense of building up surplus in those good years when hurricanes do not affect North Carolina.

The greater the extent that homeowners and dwelling rates are inadequate in the beach and coastal areas, the more policies the Beach Plan writes because of inadequate rates. The more policies written, the greater the chance that Beach Plan losses will have to be paid by companies writing mobile home policies throughout the state. This can be a vicious cycle.

Q: Was the cost of reinsurance considered in the Filing?

A: Yes. There are numerous scenarios where the potential losses due to a single hurricane are far greater than the entire premium collected by all the companies for the entire state of North Carolina. To remain viable long-term and protect against insolvency, the industry must purchase reinsurance to account for these scenarios. The costs associated with such reinsurance are costs of doing business in the state.

Q: What is reinsurance?

A: Simply, reinsurance is insurance for insurers. When insurers are aware of situations in which the potential losses are greater than the company is willing or able to tolerate, they will frequently purchase reinsurance to mitigate those

situations. Additionally, insurers may issue catastrophe bonds to mitigate those situations. Essentially the insurers will use a portion of the premium to purchase reinsurance. This is common across the industry, including at Allstate.

Q: How are the reinsurance costs reflected in the Filing?

A: The costs of reinsurance are incorporated through the work of Aon, the largest reinsurance broker in the world. Based on Aon's extensive data and experience related to reinsurance transactions, Aon advised the Subcommittee as to the parameters of the reinsurance program that the hypothetical one company for which rates are being made in the Filing would reasonably select. Aon then applied these selected parameters to calculate the net cost of reinsurance. As the world's largest reinsurance broker, Aon maintains extensive and up to date data on reinsurance transactions and has vast experience as to those transactions. The parameters that were recommended by Aon and selected by the Subcommittee include the attachment and exhaustion points, the placement percentage, the perils that are commonly included in reinsurance treaties for a hurricane prone state such as North Carolina, and the inclusion of one reinstatement. The parameters reflect the amount of reinsurance that the hypothetical one company should purchase to optimally protect its solvency. Consistent with Aon's extensive experience and advice, the Subcommittee recommended the use of AIR's warm sea surface temperature event set and RMS' medium term rate model as the bases for determining the provision for reinsurance costs. Reinsurers, primary insurers and other parties customarily use such models to determine reinsurance rates. The results from those two models were used in the calculation of the net cost of reinsurance displayed in Section C of the Filing.

Q: Can reinsurance payments by each company writing a property line of insurance in North Carolina be allocated and aggregated for use in this Filing?

A: No. It is not possible to measure reinsurance costs of the various insurance companies applicable to a property line of insurance written in North Carolina. The first reason is that companies often do not enter reinsurance treaties exclusive to only one line or subline of insurance. The companies have hundreds of different treaties that cover many different lines of insurance (automobile, commercial property, homeowners, dwelling, etc.) as well as mobile home insurance. Second, reinsurance treaties generally are not exclusive to just North Carolina or for only one peril such as hurricane winds. Companies negotiate reinsurance treaties in many different geographical areas (portion of a state, single state, multiple states, Atlantic Basin areas, countrywide, international, etc.), and covering many different perils (such as automobile flooding, hurricanes, direct earthquake losses, tornados, wildfires, terrorism, etc.). Finally, reinsurance for a given set of risk exposure (such as North Carolina mobile home) is often not limited to one treaty. An individual company will purchase

reinsurance from different reinsurers for different layers of loss under different types of treaties, and they also use catastrophe bonds for different layers of loss. For these reasons, it is not feasible to measure reinsurance costs specific to North Carolina and specific to mobile home insurance in each individual treaty or bond or for each individual company.

It is important to note that the calculation of the net cost of reinsurance in this Filing relates exclusively to the loss costs in North Carolina. It would not be appropriate for North Carolina insureds to assume the reinsurance costs of exposures in other states and vice-versa. Aon's database and knowledge are based on actual reinsurance transactions as well as on conditions in the current reinsurance market and its database is updated regularly to reflect changes in actual market conditions. Aon's database and expertise are a great source of information as to actual reinsurance practices and costs for the hypothetical one company writing mobile home insurance in North Carolina.

Q. Is the reason that the Beach Plan purchases reinsurance similar to the reason that the hypothetical one company must purchase reinsurance?

A. Yes. The Beach Plan and companies must purchase reinsurance for essentially the same reasons. Likewise, for ratemaking purposes, the hypothetical "one company" for which the Bureau files rates must purchase reinsurance.

There are many scenarios in which hurricane losses are projected to be many multiples of the annual premium collected. If an individual company experienced a loss many multiples of its collected premium, it would first look to its surplus and reinsurance. If the surplus and reinsurance were not sufficient, then that company would become insolvent. Individual companies do not have a backstop like the Beach Plan which can call upon the companies and policyholders across the state to pay its claims. There has been a history of company insolvencies following major hurricanes in the United States. Following Hurricane Hugo that hit Charleston, South Carolina and Hurricane Andrew that hit Florida, there were multiple insolvencies.

It would be irresponsible and imprudent for the hypothetical one company not to purchase reinsurance. The net cost of reinsurance analysis prepared by Aon reflects the need of that hypothetical one company to purchase and maintain reinsurance. Aon has access to the world's largest database of reinsurance transactions and uses that database to calculate the net cost of reinsurance provision used in the Filing. The Rating Subcommittee reviewed and approved Aon's analysis.

Q: Have dividends to policyholders been considered in the Filing?

A: Yes. According to the Statement of Principles Regarding Property and Casualty Insurance Company Ratemaking, the rates should contemplate the cost of policyholder dividends. Policyholder dividends are returns of premium to a company's policyholders and are not the same as dividends that publicly traded stock companies (owned by shareholders) pay to their shareholders. The Subcommittee reviewed homeowners policyholder dividends over the years 2012 through 2016. It noted that payments have consistently been made and in material amounts. Therefore, the Filing has incorporated a provision of 0.4% of premium to reflect anticipated dividends during the prospective period for which rates are being made in this Filing. Reflecting anticipated dividends is an actuarially sound methodology in a rating bureau context such as that in North Carolina where rates are made for all companies.

Q: Have deviations been considered in the Filing?

A: Yes. Deviations are a cost of doing business in North Carolina for the insurers that have them approved by the Department. They are a cost of risk transfer and therefore need to be contemplated in the rates according to the Statement of Principles Regarding Property and Casualty Insurance Ratemaking. They constitute "savings" that must be considered pursuant to statute. Companies are required to report their approved deviations. If rates were set without contemplating them, the industry would not achieve the profit provision included in the rates. The Subcommittee reviewed the net variances from manual premium from deviations and consent to rate and provided for a 5% factor in the Filing. In the last MH (F) filing there was also a 5% factor for deviations. A 5% factor is consistent with a number of other Bureau property filings and with past findings by the Commissioner of Insurance in an automobile rate case that 5% of premium is an appropriate amount of deviations to anticipate when determining manual rate levels in a bureau context. While the Commissioner did not ultimately include the provision in his ordered rates in that automobile rate case, it is appropriate to reflect this cost of doing business in this Filing.

Q: Did the Subcommittee consider the profit provision?

A: Yes. The Subcommittee picked a conservative underwriting profit provision. Dr. Vander Weide provided a range for the current cost of capital, which was relied on by the Subcommittee. That range was 9.0% to 13.8% on net worth.

The committee selected an underwriting profit provision of 6.5% of premium. Based on Dr. Zanjani's analysis, this 6.5% underwriting profit provision would generate a statutory return on net worth of 6.83%. That return is significantly below Dr. Vander Weide's lower bound of 9.0%.

It is the statutory return that should be considered when determining the underwriting profit in North Carolina because it does not take into account

investment income on surplus. Clearly, the Subcommittee is being very conservative with its selection. Even if the 6.5% underwriting profit were to consider investment income on surplus in addition to investment income from insurance operations, the estimated return on net worth would be 10.74%. That return is within Dr. Vander Weide's range but well below the midpoint of that range, and thus the selected underwriting profit provision remains a conservative selection that is not excessive.

Furthermore, the Bureau has capped the filed rate changes below the indicated rates. Assuming all other assumptions in the Filing are realized, that would result in even lower profit margins being realized.

Q: Did the Subcommittee consider a contingency provision?

A: Yes, the Subcommittee selected a 1% contingency provision. This is consistent with past filings and is a common industrywide practice across the country. The contingency provision reflects the total systematic bias from multiple sources that causes the indicated rate level without this adjustment to be inadequate. These biases can cause actual losses to be higher than reflected in the rates as well as cause actual premiums to be lower. Both impacts bias the indicated rate towards being inadequate.

Sources of this systematic bias in property insurance include, but are not limited to, judicial decisions that extend policy coverage beyond what was anticipated in the rates, legislative changes, regulatory delay in achieving the indicated rate change or regulatory reduction of the rate change.

Courts rarely restrict coverage to less than intended in the policy forms and frequently expand coverage beyond what was intended. In addition, major unexpected losses can and do come from large and infrequent events of a type and magnitude that are not reflected in the experience period.

In addition to unforeseen claims, rate filings are generally not approved prior to their intended effective date or for more than requested while some much-needed rate filings are denied altogether.

Because of these factors, estimated premium that does not reflect a provision for these contingencies will fall short of adequate premium very frequently. When these premiums are inadequate and underwriting losses are observed, an insurer must borrow from surplus to properly indemnify its policyholders or claimants. According to the Actuarial Standard of Practice #30, "the actuary should include a contingency provision if the assumptions used in the ratemaking process produce cost estimates that are not expected to equal average actual costs, and if this difference cannot be eliminated by changes in other components of the ratemaking process." The Subcommittee believes that a contingency provision is appropriate and necessary, and has selected a 1% factor in this Filing. This is

the same as with all recent property insurance filings. The Subcommittee also believes this is a conservative estimate given the multitude of factors impacting this provision.

Q: Are the data in the Filing reliable and accurate for ratemaking purposes?

A. Yes. The data underlying the Filing are reliable, accurate and appropriate for ratemaking. There are three levels of quality checks performed by individual companies, statistical agents and Milliman. Individual insurance companies employ extensive procedures to assure the quality and reliability of ratemaking data used in the Filing. When individual companies submit their data to their statistical agents, the statistical agents review the data for possible errors and compliance with approved statistical plans. If an error is suspected, the statistical agents ask the company to review the data and to correct the data if necessary.

When Milliman aggregates premium, loss and expense data from the statistical agents, it reviews the accuracy of the data and similarly requests that the data be reviewed and corrected if errors are suspected.

These data include data for business written below the Bureau manual rate as a result of deviations, business written at the Bureau manual rate, and business written above the manual rate under consent to rate procedures. When the Bureau assembles expense data and furnishes it to Milliman, they also perform checks to determine the data's accuracy. Sometimes it is not feasible for a company to correct its data, and in these cases that company's data is excluded from the filing and that fact is noted in the filing.

Q. From the standpoint of individual companies, how does mobile home ratemaking in North Carolina differ from other states?

A. In almost every other state, each company files its own rates independently. However, in North Carolina, the Bureau has the responsibility to file rates on behalf of the entire industry. The filing process in North Carolina establishes a system of "Bureau rates" (often called "manual" rates) for use on all policies written in the state.

In essence, the Bureau makes rates for a hypothetical one company that is composed of the aggregate policyholder attributes and loss experience of all the policies written in the state. Those policies include attributes such as the dollar amount of insurance written on each mobile home, the geographic location of the mobile home, the deductible amount, etc.

Once the Bureau rate has been set through the filing and approval process, Bureau companies must charge that rate unless they file their own deviations

with the Department or engage in the consent to rate process. If the proposed premium exceeds the Bureau rate, the company must receive individual approval from the customer through the consent to rate process.

Q. You stated earlier that premiums are established at a level equal to expected losses plus expected expenses and a margin for a fair and reasonable profit. Does this mean that ratemaking is a simple matter of adding up past losses, past expenses and past profit and then putting them into a simple equation to equal premium?

A. That is not at all the case, for numerous reasons. The first reason is that ratemaking is prospective in nature. The ratemaking process requires the determination of the expected future losses and the expected future expenses of the composite company that will be incurred in the projection period. While it is important to consider past losses and expenses in determining expected future losses and expenses, the process is much more complex than that. There may be many reasons why past losses and expenses are not a perfectly accurate reflection of future loss and expense levels. Loss and expense cost trends can be driven by a wide range of factors such as inflation, cost of materials, frequency of weather events, etc. Therefore, trends need to be projected into the future to determine accurate projected losses and expenses.

Further, it is particularly difficult to estimate prospective losses for property lines of business such as mobile home insurance because loss amounts in those lines are so volatile. The average frequency of claims is lower than other lines of business, thereby providing fewer claims in the historical data to inform future loss levels. Another difficulty is that policies cover so many different situations and events. For instance, policies must pay for losses to mobile homes and contents for fires, as well as losses for numerous types of weather events, thefts and lawsuits. Even putting aside the potential impact of hurricanes, property lines are highly dependent upon weather events such as tornado outbreaks, winter storms, hail storms, freezing temperatures, etc. The Bureau's mobile home programs also cover flood losses, unlike all other Bureau property programs.

Such volatility is greatly compounded in hurricane prone states such as North Carolina. In North Carolina and other hurricane prone states, a significant percentage of the prospective long-term average annual losses in certain territories of the state are caused by intense hurricanes which are relatively infrequent but are devastating when they do occur. It would be actuarially unsound to rely on a few years of actual hurricane losses to estimate prospective hurricane losses because of the volatility of these losses driven by low frequency and high severity.

The volatility of property insurance in a hurricane prone state can be explained in part by a statistical concept of "independence" that is useful to consider in distinguishing between different lines of property casualty insurance. If one

mobile home is damaged by a hurricane, it is very likely that many other mobile homes in the same geographic region will be damaged at the same time. The risk of damage for each individual mobile home is not independent of the risk of damage to the other mobile homes because a single event can cause widespread damage. By contrast, in auto liability insurance, when there is one auto collision there generally is not a greater likelihood of there being numerous other auto collisions in the same geographic region at the same time. While the amount paid under bodily injury or property damage coverage because of that single auto collision may far exceed the premium collected for the individual policy involved, that fact is not replicated to numerous other policies because auto collisions are generally random and independent events. However, when intense hurricanes occur, there are likely to be payments far greater than the total premium collected on a large number of policies due to the geographic concentration of the event.

Q. Does the Filing in any manner require policyholders in North Carolina to pay the losses or subsidize the rates of policyholders in other states, particularly hurricane prone states such as Florida?

A: No, it would be actuarially inappropriate to do so. Each state is evaluated separately, and rates in North Carolina are based only on North Carolina's loss potential. Imposing such a subsidy would not be fair to North Carolina policyholders and would not be permitted by North Carolina regulators. There is a greater risk of hurricane losses in Florida than in North Carolina. It would not be fair or actuarially sound for North Carolina policyholders to be asked pay for Florida's losses or subsidize the insurance costs for persons in Florida. For the same reason, it would not be fair or actuarially sound for the Bureau to attempt to spread the hurricane exposure of the hypothetical one company in North Carolina to persons in other states such as in the midwest where there is little hurricane exposure. Policyholders and regulators in Iowa, for example, would not be willing to do that. To summarize, using other states losses to determine North Carolina rates is unfair and inequitable, and the Bureau does not do this for these reasons.

Q: Did the Subcommittee consider the territorial definitions and determine that they should be revised?

A: Yes, it did. While companies currently report their data based on a system involving numerous territories, the current rates were determined based on just three combinations or groups of territories. After examining the risk characteristics of the different territories across the state, the Subcommittee determined that it is actuarially appropriate to establish six territory groups instead of three for the purpose of determining the rates. The resulting territory groups are shown in the filing and are explained in Mr. Anderson's testimony.

Q. Did the Subcommittee review rate level adequacy by territory?

A. Yes. Once the six territory groups were established, Milliman was asked to prepare the indicated rate level changes for each of the six territory groups. The indicated change for each territory group was determined by comparing the required base class rate to the existing base class rate. Unlike the previous MH (F) filing, the underwriting profit and contingency provision were not allocated by territory or territory group and were factored into the rates on a statewide basis. However, the net cost of reinsurance was allocated by territory and then aggregated by territory group as this ratemaking element should generally be higher for coastal areas with higher catastrophic risk.

Q. Are you aware of changes in this filing other than to the rates?

A. Yes. The filing proposes several rating plan changes. One change was to move from three unique territory rating groups to six territory rating groups as mentioned above. Other changes relate to amount of insurance rating, deductibles, and age of mobile home rating. These changes are displayed in the filing documents and testimony prepared by Milliman. All of these changes achieve meaningful movement towards the actuarially indicated factors by segment. Age of mobile home is a new rating criterion similar to Age of home rating that currently exists in homeowners insurance rates promulgated by the Bureau.

These rating plan changes are being filed on a revenue neutral basis by way of off balance factors and therefore do not create additional overall rate increases or decreases on top of the filed amount.

Q: You referred earlier to the difference between the “indicated” rate level and the “filed” rate level. Can you please explain the nature and the effect of capping in this filing?

The indicated overall rate level change is 86.9%. That rate level change is the statewide composite of indications that vary by coverage and territory throughout the state. The indicated rate level is the actuarially sound rate level. It is the rate level necessary to ensure that rates cover prospective losses and expenses and provide a fair and reasonable profit. The indicated rate level is the one that complies with the statutory standard that the rates be neither excessive, inadequate nor unfairly discriminatory. In general, western territories have lower indicated rate level changes while the eastern and beach/coastal territories have higher indicated rate level changes.

The “filed” rates represent the rate changes proposed by the Bureau. The filed rates reflect a procedure known as “capping.” The Subcommittee considered capping scenarios to mitigate the impact of the filing on policyholders. The ultimate decision whether and how to cap was made by the Governing

Committee. The Governing Committee has often done so when indications are large, but with the intent that rates eventually will reach the full indicated rate level.

The Governing Committee decided to implement capping by limiting the increases by territory group. The overall filed rate level is +19.9% for MH(F) in aggregate as a result of this capping.

Capping is a common and justifiable practice in the industry that limits premium disruption to policyholders. Since the indicated changes generally were the largest in the eastern part of the state, the benefit of caps to policyholders was greatest in those areas. After the effects of capping, this Filing still allows for significant and meaningful movement towards the full actuarially indicated rate level.

Q. Can you identify Exhibit RB-1?

A. Yes. This is a large portion of the Filing submitted by the Bureau with respect to revised mobile home insurance rates in North Carolina. Exhibit RB-1 includes numerous exhibits, regulation responses and explanations pertaining to the indicated and filed rate level changes. The Filing also includes changes to the rate manual (Exhibit RB-1, Section B), as well as the prefiled testimony and exhibits of witnesses in addition to mine (Exhibits RB-3 through RB-19).

Q. Can you identify the document marked Exhibit RB-2?

A. Yes. Exhibit RB-2 includes the current manual of rules, rates and classifications used to write MH (F) insurance in North Carolina. It also includes representative forms and endorsements used in the MH (F) program. The forms, manual and any amendments have been approved by and are on file with the Department. Copies are maintained at the offices of the Bureau.

Q. What is your opinion as to whether the indicated rate level changes in the Filing are excessive, inadequate or unfairly discriminatory?

A. It is my opinion that the indicated rates in the Filing are actuarially sound and meet the legal standard of producing rates that are not excessive, inadequate or unfairly discriminatory. In that regard, I note that I have relied upon the accuracy of the data and analyses supplied by the statistical agents, the Bureau, Aon and Milliman as reviewed and checked. I have also relied on the profit analyses performed by Dr. Zanjani and Dr. Vander Weide. I qualify my opinion by noting that the filed rates have been developed by applying territory caps to the indicated rates. The filed rates are not excessive and the 19.9% filed rate increase is a reasonable step toward the adequate level.

Q. Does this conclude your prefiled testimony?

A. Yes.

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PRE-FILED DIRECT TESTIMONY OF ELIZABETH A HENDERSON
2019 MOBILE HOMEOWNERS INSURANCE RATE FILINGS
by the
NORTH CAROLINA RATE BUREAU

Q. Please state your full name and business address for the record.

A. My name is Elizabeth Ann Henderson. My business address is Aon, 200 East Randolph Street, 11th Floor, Chicago, Illinois 60601.

Q. What is your involvement in this matter?

A. My employer, Aon, has been retained by the North Carolina Rate Bureau (NCRB) to provide expertise and analysis with respect to the expected hurricane losses utilized in the NCRB 2019 Mobile Homeowners Insurance rate filings. I am part of the team at Aon that performed these services.

Q. What are your primary duties for Aon?

A. Aon’s Reinsurance Solutions division is the world’s largest reinsurance brokerage firm, and I am a Senior Managing Director of the Catastrophe Risk Analytics group. I lead a catastrophe risk management team, consisting of 25+ catastrophe modeling professionals, engineers, and meteorologists. I am responsible for providing catastrophe modeling support for reinsurance

1 placements and expected hurricane losses and am charged with positioning my
2 team as a key differentiator in client solutions including support for multi-model
3 analyses, benchmark pricing, data quality peer comparisons, model evaluation,
4 real-time event response, portfolio optimization, catastrophe cost allocations, and
5 rating agency questionnaire support. In effect, we assist our clients in all aspects
6 of managing their exposure to catastrophe risk.

7

8 **Q. Describe your professional and educational background.**

9

10 A. I have been with Aon for 15 years since graduating from Northwestern
11 University with Bachelor of Arts degrees in Mathematics and Philosophy. In my
12 role at Aon, I have participated in and led the modeling efforts for reinsurance
13 treaty placements on behalf of Aon's clients. My specializations include
14 providing risk management consulting and catastrophe modeling services to
15 United States property and casualty insurance companies, particularly in
16 personal lines property, small commercial property, and worker's compensation.
17 I have worked directly with companies to help them analyze the amount of risk
18 due to catastrophes against which they are exposing their capital and compare
19 that risk to their risk tolerances. In assessing their catastrophe risk, we utilize
20 two independent modeling firms: Risk Management Solutions (RMS) and Applied
21 Insurance Risk (AIR). We provide detailed analyses of the model results to
22 enable companies to make business decisions around catastrophe risk
23 management, including setting underwriting guidelines, developing rate

1 indications, determining the appropriate amount of reinsurance to purchase and
2 deploying growth capacity.

3

4 **Q. Describe your early career at Aon.**

5

6 A. I began working at Aon 15 years ago as a Catastrophe Risk Analyst. During
7 my tenure at Aon, I have worked within the Catastrophe Risk Analytics Group
8 and have been promoted through six positions (Analyst, Senior Analyst,
9 Associate Director, Director, Managing Director, and now Senior Managing
10 Director). My responsibilities grew with each new job as I expanded my
11 capabilities. When I began my career as an Analyst, I was responsible for the
12 day-to-day modeling for a variety of client accounts. This included processing
13 and profiling raw client data into model-specific import files, importing client data
14 into the models of AIR and RMS, setting up and executing model runs in AIR and
15 RMS, and pulling out results and building exhibits. I was responsible for ensuring
16 the accuracy of my work, and reporting back to my clients about their results and
17 how those results impacted their reinsurance treaties. In my early career, I spent
18 most of my time working within the models' framework and learning how different
19 types of insurance terms are handled in each model, how to properly code client
20 data to ensure accurate results, and how to interpret how portfolio changes and
21 model changes impact results.

22

1 I was working in this role in 2004 and 2005 during the very active hurricane
2 seasons that produced Hurricanes Katrina, Wilma, and others. These events
3 were among the first major tests of the hurricane models after Hurricane Andrew
4 in 1992. The utilization of modeling and understanding of how the models
5 worked when these events occurred was greatly impacted, and the new
6 knowledge resulting from those events led to changes that had a far-reaching
7 impact on the insurance industry. It was at this time that both RMS and AIR
8 developed their Medium-Term and Warm Sea-Surface Temperature hurricane
9 event sets.

10

11 **Q. How has your career progressed and changed over time?**

12

13 A. In my current role at Aon, I am responsible for the work output of a team of
14 over 25 catastrophe analysts covering many clients. My job has three distinct
15 areas of responsibility. First, I am responsible to my clients. I work directly with
16 clients on specific projects such as reviewing how their internal coding process
17 impacts model results and making recommendations on refining their data to
18 produce more accurate loss estimates. I help clients identify their profitable
19 business opportunities and build out a plan with regular monitoring to achieve the
20 clients' growth plans. In addition to working directly on client projects, I meet
21 regularly with my team to discuss and review other active client projects to
22 ensure that we are delivering best in class analytics to all of our clients.

1 My second responsibility is to my team. I am a mentor and a coach to all
2 members of my team and I take steps every day to align individual performance
3 goals with business and client needs. The number of clients and amount of
4 support we provide to our clients has increased significantly. As clients have
5 become dependent on using model input across their business, there has been a
6 large demand for support and evaluation of model results. We have increased
7 the number of engagements pertaining to model evaluation and validation.

8 My third responsibility is to the business unit. I help to set the strategic priorities
9 of the Catastrophe Analytics team within the context of the overall goals of Aon.
10 In that role, I am responsible for delivering innovative analytics solutions for Aon
11 clients. In the past year, I led a team that developed and launched a new,
12 interactive data and analytics platform: Analytics Dashboards. Analytics
13 Dashboards advance the way that business-critical data is visualized,
14 interpreted, and delivered.

15

16 **Q. Describe the role of Aon Reinsurance Solutions Analytics.**

17

18 A. Aon Reinsurance Solutions Analytics provides consultative services to clients
19 of Aon who sell primary insurance coverage and assists those insurers in the
20 assessment of the risk of catastrophe loss to their portfolio and in the placement
21 of reinsurance treaties to address that risk of catastrophe loss. The main areas of
22 services to Aon clients include: catastrophe modeling; catastrophe insurance rate
23 making assistance; actuarial services (e.g., range of loss and expense

1 estimation, enterprise risk management, reinsurance analysis, capital analysis);
2 rating agency modeling and analysis; insurance and reinsurance accounting; and
3 tax and finance related modeling and assistance.

4

5 **Q. Describe the role of the Catastrophe Analytics group.**

6

7 A. The Catastrophe Analytics group is a part of Aon's Reinsurance Solutions
8 division. The role of this group is to provide clients of Aon with analytics involving
9 the management of catastrophe risk and how it relates to their reinsurance
10 purchasing decisions. We provide clients with analyses of their catastrophe risk
11 and develop their understanding around different model views for their portfolio.
12 We help our clients develop a management view of their catastrophe risk against
13 which they can evaluate reinsurance purchasing decisions.

14

15

16 **Q. Describe your experience with catastrophe models.**

17

18 A. Beginning 15 years ago in my role as a catastrophe analyst, I have used
19 multiple models to evaluate catastrophe risk for my clients. My daily work
20 requires me to interpret and transform client data into appropriate "model-ready"
21 files. I determine how to best incorporate the client data into the different
22 models. I have prepared data and run analyses in the models RMS RiskLink,
23 AIR Touchstone, Impact Forecasting Elements, and CoreLogic RQE, and have

1 pulled and analyzed loss output from those models. I have observed and
2 reviewed changes in these models during my tenure at Aon. I use the output of
3 the models, such as Probable Maximum Loss (PML), Average Annual Loss
4 (AAL), Layer Expected Losses, and Historical Loss projections, to help clients
5 determine the exposures at risk to a catastrophe at various confidence intervals.
6 Clients compare those loss projections to their internal risk thresholds to
7 determine how much reinsurance they need to protect their earnings and capital.
8 The models are used by reinsurers to evaluate portfolios and determine an
9 appropriate price for risk transfer.

10

11 **Q. Describe your experience with catastrophe reinsurance.**

12

13 A. I work for Aon Reinsurance Solutions, the world's largest reinsurance
14 brokerage. My role as a catastrophe analyst means that I am directly involved
15 with our clients who are seeking to purchase catastrophe reinsurance. Output
16 from our modeling is used by our brokers, clients, and capital markets to
17 determine AALs and the appropriate amount of reinsurance to purchase and
18 what the appropriate fair market price for that reinsurance should be.

19

20 **Q. Do you speak on topics pertaining to catastrophe modeling?**

21

22 A. Yes. I speak annually at Aon's Reinsurance Solutions Analytics client
23 conference on various topics related to catastrophe modeling. That conference

1 is routinely attended by primary insurers, reinsurers, regulatory agencies, and
2 modeling firms.

3

4 **Q. What was Aon's role in this filing with respect to expected hurricane**
5 **losses?**

6

7 A. We provided advice to NCRB regarding how to input the exposure data it
8 provided, how to run the AIR and RMS models consistently based on that
9 exposure data, how to assure that the model output is correct and how to blend
10 the results of the two models in the manner utilized in the marketplace by Aon's
11 clients.

12

13 **Q. Did the NCRB ask Aon to run the AIR and RMS models?**

14

15 A. Yes. We ran the models of AIR Touchstone and RMS RiskLink. These are
16 the most commonly relied upon hurricane catastrophe models in the industry,
17 and we run these two models on all of our clients' data, regardless of whether
18 either model is used by the client to set rates. Our view is that it is important to
19 understand the two primary views of risk that exist in the industry. These two
20 models are routinely relied upon by reinsurers in pricing catastrophe risk and by
21 primary insurers in determining anticipated hurricane losses. More than half of
22 our clients use two models when evaluating their catastrophe risk and blend
23 those results, as opposed to relying only on one model for management

1 decisions. Of those that utilize two models, the vast majority blend the results
2 evenly, taking a straight average. Our recommendation is to use a straight
3 average when calculating a blend of the results. This means that we run the
4 individual models and determine the appropriate allocation of reinsurance and
5 loss costs independently for each model. Then we average the two results to
6 determine the blend. We have used this same approach here for the NCRB to
7 determine the appropriate modeled hurricane losses to use in the rate filing. The
8 vast majority of our clients who blend multiple models use this method. One
9 reason is due to the ease of understanding and auditing of results. Models
10 change frequently in different ways, and it is important for people making
11 business decisions based on those models to be able to track those changes at
12 every point. By first determining the losses from RMS and AIR independently,
13 you can gain insight into how each model interprets the risk differently. It is an
14 approach that balances an insurer's access to detailed information from both
15 models and then uses a blended metric to make purchasing decisions and
16 allocate costs.

17

18 **Q. Is it customary to run multiple models to determine catastrophe risk for**
19 **your clients?**

20

21 A. Yes. At Aon Reinsurance Solutions we believe it is important to understand
22 the various views of catastrophe risk that exist about any particular client's
23 portfolio. In a reinsurance transaction, multiple parties must agree upon a fair

1 estimate of the cost to transfer the risk. Our clients need to understand how the
2 market will be interpreting their catastrophe risk; therefore it is important for them
3 to understand how various models interpret their portfolios.

4

5 **Q. Is it common that modeled losses will differ between the various model**
6 **vendors?**

7

8 A. Yes. There exists a degree of uncertainty in predicting losses from
9 catastrophes. That is a natural consequence of the substantial volatility
10 associated with the occurrence of relatively infrequent and rare events. While all
11 modeling firms start with relatively similar meteorological and insurance data
12 inputs, such as information on past storm characteristics and claims data from
13 insurance companies, there are differences between modelers in their
14 approaches to interpreting and supplementing this data to build a robust model.
15 The process of developing the models brings with it a degree of uncertainty in the
16 results, although there is no inherent upward or downward bias in this degree of
17 uncertainty. Modelers must take the known meteorological data from actual
18 storms and employ standard statistical techniques to distribute that limited data
19 to create a distribution of storms that may happen in the future. This is how
20 models can take similar input and come up with different results. The spread
21 between two views of the same risk helps companies understand the uncertainty
22 inherent in these models. Through blending of the results of multiple models,
23 clients can better manage their catastrophe risks despite variation between

1 model results. Given the number of variables involved in the development of a
2 catastrophe model and the degree of uncertainty associated with each variable, it
3 would be unexpected and atypical if two independently derived models resulted
4 in the same output or conclusions on a given set of data.

5

6 **Q. How do the models change over time?**

7

8 A. Over time, modelers utilize advanced research and loss analyses to enhance
9 their methodology, applying the most recent and relevant scientific understanding
10 to their models. New research into past events, updates to building practices
11 and building codes, insight from engineering experiments, and findings from
12 recent events are among the many different types of information that are used to
13 inform how the modelers make updates to their models. Each modeling firm
14 takes a different approach to how frequently it updates its models and how it
15 prioritizes the schedule by which perils and regions will be updated.

16

17 **Q. Do modeled losses change as updated data is entered into the models?**

18

19 A. Yes. As noted above, the models are reliant on many sources of data. Data
20 on past storms and updated building code data, for example, will be used by
21 modeling firms as inputs in developing their models. For the insurer, changes in
22 coverage and the underlying policies-in-force will change the model output. Also,
23 changes in an insurer's portfolio composition (i.e., where they write new policies

1 and the geographic concentration of their exposures) over time will change the
2 results of the models.

3

4 **Q. How do clients typically account for variation in the model losses between**
5 **different models?**

6

7 A. It has become increasingly common for companies to use two models. As I
8 said, more than half of our clients use two models when evaluating their
9 catastrophe risk, blending those results. Of those that utilize two models, the vast
10 majority blend the results evenly, taking a straight average, as has been done for
11 the NCRB in this filing. The percentage of clients that blend models to build a
12 management view of risk has grown substantially in recent years. In my opinion,
13 this has been driven by large loss experience, most specifically from hurricanes,
14 that demonstrates the degree of uncertainty around any single selection, as well
15 as what I will call model change volatility. The blending of two models generally
16 produces less volatile and more reliable results over the long term than the use of
17 a single model.

18

19 Clients are also exposed to volatility related to model change. When the models
20 make changes to their underlying assumptions around frequency, hazard, and
21 vulnerability, clients will see their catastrophe loss estimates change. The fact that
22 modeling firms make updates on different schedules, and often interpret and apply
23 new research in different ways, results in a changing risk management

1 environment. Using a blended view will smooth out some of that model change
2 volatility over time.

3

4 **Q. Please describe further the work Aon Reinsurance Solutions performed**
5 **for the NCRB for these mobile homeowners insurance rate filings. Can you**
6 **describe the client data that was employed as input for the model runs?**

7

8 A. The data we employed was provided to us by the NCRB. The NCRB advised
9 us that the data consisted of the aggregate exposure information for all mobile
10 homeowners risks in North Carolina written under the NCRB's MH(C) and MH(F)
11 programs. In effect, the NCRB asked us to run the models using the aggregate
12 data as if there were a single company writing all of the mobile homeowners MH(C)
13 insurance policies and all of the mobile homeowners MH(F) insurance policies in
14 North Carolina.

15

16 **Q. Please describe what Aon Reinsurance Solutions then did with the data**
17 **provided by NCRB.**

18

19 A. As is customary in our work, we reviewed the data received from the NCRB for
20 completeness and reasonableness before we input it into the AIR and RMS
21 models. Since the two models have different formats for inputting data, we worked
22 with the NCRB to assure that the exposure data was properly and consistently
23 entered in the required format for each model. We are accustomed to this

1 procedure because we have to do the same thing for the many individual
2 companies that we represent.

3

4 The next step was to input the data and run the models. We ran the AIR Standard
5 model and the RMS Historical model for the purpose of determining the modeled
6 hurricane losses. We ran the AIR WSST model and the RMS Medium Term Rate
7 model for the purpose of analyzing the cost of reinsurance against our extensive
8 reinsurance market data, which is what we always do in assisting our clients with
9 their reinsurance placements. In my experience, it is standard practice throughout
10 the industry to rely upon the models we used to determine modeled hurricane
11 losses and to place reinsurance.

12

13 After the models were run, we reviewed each model's output individually to be sure
14 that the output resulted from a consistent entry of the same exposure data. We
15 again followed the same procedure for assuring data quality that we follow for all
16 of our clients. Then we blended the results of the two models, taking a straight
17 average of the results as I described earlier. We again reviewed the blended
18 results to assure that the blending procedures were correctly performed and that
19 the blended results were correct. Once we were satisfied that the results were
20 correct, we provided the blended modeled hurricane losses to the NCRB for use
21 in its mobile homeowners rate reviews. At the NCRB's request, we also provided
22 the results to Milliman for its use in the work it was doing as part of the NCRB's
23 mobile homeowners rate reviews. Exhibit RB-8 sets forth the blended modeled

1 hurricane losses resulting from the work I have described. Based on my
2 knowledge and experience and the input data provided by the NCRB, these
3 modeled hurricane losses are reasonable and appropriate projections of expected
4 hurricane losses for use by the NCRB in its mobile homeowners rate reviews and
5 rate filings.

6

7 Also, we employed the modeled hurricane losses as part of our work determining
8 and allocating the cost of reinsurance. My colleague, Steve Fiete, led our analysis
9 of the net cost of reinsurance, and his testimony is also included in this filing. I
10 assisted with that work and, from my perspective, the procedures that we followed
11 were consistent with our standard business practices in assisting our clients with
12 their reinsurance placements and produced results that are reasonable, sound and
13 reliable.

14

15 **Q. Does that conclude your testimony?**

16

17 A. Yes.

18

19

20

21

22

North Carolina Rate Bureau
Gross Modeled Hurricane Expected Losses including Cat LAE and Trend

Gross AAL								
Territory	MH(C)-A+D	MH(C)-B	MH(C)-C	MH(C)-Total	MH(F)-O	MH(F)-R	MH(F)-Total	MH C+F Total
110	437,057	41,855	34,365	513,278	798,587		798,587	1,311,865
120	789,073	75,566	62,044	926,683	1,467,827		1,467,827	2,394,510
130	125,350	12,004	9,856	147,210	205,383	173	205,556	352,766
140	715,600	68,530	56,267	840,398	1,862,081	885	1,862,966	2,703,364
150	700,986	67,131	55,118	823,235	929,695	587	930,282	1,753,517
160	686,971	65,789	54,016	806,775	1,009,995	360	1,010,355	1,817,130
170	82,682	7,918	6,501	97,101	91,514	54	91,568	188,669
180	851,568	81,551	66,958	1,000,077	1,305,367	837	1,306,204	2,306,281
190	411,430	39,401	32,350	483,182	636,567	429	636,996	1,120,177
200	162,601	15,572	12,785	190,958	327,495	126	327,621	518,579
210	362,128	34,680	28,474	425,282	340,917	132	341,049	766,331
220	373,591	35,777	29,375	438,743	526,042	279	526,320	965,063
230	456,798	43,746	35,918	536,462	864,792	298	865,090	1,401,552
240	1,072,630	102,722	84,340	1,259,692	838,991	308	839,299	2,098,991
250	338,414	32,409	26,609	397,431	514,651	178	514,829	912,261
260	359,007	34,381	28,228	421,616	318,781	62	318,843	740,459
270	350,302	33,547	27,544	411,393	218,796	88	218,884	630,277
280	98,819	9,463	7,770	116,052	89,449	33	89,482	205,534
290	79,088	7,574	6,219	92,880	198,013	58	198,071	290,951
300	72,144	6,909	5,673	84,726	144,082	47	144,129	228,855
310	343,204	32,867	26,986	403,057	332,307	113	332,420	735,477
320	364,806	34,936	28,684	428,426	313,308	114	313,422	741,849
330	24,817	2,377	1,951	29,145	23,483	9	23,492	52,637
340	282,656	27,069	22,225	331,950	228,182	59	228,241	560,190
350	194,677	18,644	15,307	228,628	166,309	40	166,349	394,978
360	243,936	23,361	19,180	286,477	238,410	66	238,476	524,953
370	9,022	864	709	10,595	8,171	2	8,173	18,769
380	34,773	3,330	2,734	40,837	27,188	7	27,195	68,032
390	42,515	4,072	3,343	49,930	23,088	6	23,095	73,025
Total	10,066,646	964,044	791,531	11,822,221	14,049,472	5,351	14,054,822	25,877,043

Modeled hurricane expected losses for North Carolina Rate Bureau, net of limits and deductibles. Results include demand surge and storm surge. Losses represent 50/50 blend of AIRv5.1 100k Standard event set and RMSv18 Historical event set. Results also include provisions for LAE and loss trend.

PRE-FILED DIRECT TESTIMONY OF STEPHEN C. FIETE
2019 MOBILE HOME INSURANCE RATE FILINGS
by the
NORTH CAROLINA RATE BUREAU

Q. Please state your full name and business address for the record.

A. My name is Stephen Charles Fiete. My business address is 200 East Randolph Street, 11th Floor, Chicago, Illinois 60601.

Q. What is your involvement in this matter?

A. I am an employee of the Aon Corporation working in the Catastrophe Management area of Aon Reinsurance Services. Aon has been retained by the North Carolina Rate Bureau (NCRB) to provide expertise and analysis with respect to the expected catastrophe losses and net cost of reinsurance utilized in the NCRB's 2019 Mobile Home Insurance rate filings. I manage an analytics group within the Catastrophe Management area which focuses on analysis of catastrophe cost as it relates to ratemaking and underwriting.

Q. You indicated that you are employed by Aon. Who is Aon and what are your primary duties for that employer?

A. Aon is a leading global professional services firm that provides advice and solutions to clients focused on risk, retirement, and health. I work in the Reinsurance Services area which represents insurance carriers and reinsurers in the reinsurance market. My position is Managing Director in the Catastrophe Management group. My primary responsibility is to assist insurance company clients of Aon in the areas of managing catastrophe risk. I work with carriers that purchase catastrophe reinsurance and perform analyses to provide insight into how segments of their portfolio contribute to their total catastrophe cost.

Q. Describe the role of the Catastrophe Management area within Aon Reinsurance Services.

A. The Catastrophe Management group provides consultative services to Aon's reinsurance clients. The main areas of services include: catastrophe modeling; catastrophe ratemaking assistance; catastrophe cost allocation; actuarial services; rating agency modeling and analysis; insurance and reinsurance accounting; and tax and finance related modeling and assistance.

Q. Describe the role of the analytics group that you manage.

A. This group performs analysis and provides tools to help Aon's reinsurance clients manage their total cost of catastrophe risk. The total cost of catastrophe risk consists of the following: expected average annual loss from modeled catastrophic perils, net cost of reinsurance, and cost of capital required to support the volatility of retained loss. The group draws on Aon's experience placing catastrophe reinsurance to develop an

understanding of the factors that drive reinsurance cost, which is used to develop a method to allocate portfolio level reinsurance cost to any subset of the portfolio. This method reflects the relationship between modeled loss distributions and market reinsurance prices. The analyses and tools are used in ratemaking, including rate filings, underwriting, and exposure management by carriers.

Q. What is catastrophe reinsurance, who buys it, and why do they buy it?

A. Catastrophe reinsurance is bought by insurance carriers to protect their solvency by transferring risk to other entities. It has some similarities to an individual who buys homeowners or mobile home insurance. For a homeowner, there is typically a deductible which means the homeowner would have to pay the cost of a portion of a loss when he or she files a claim, and the insurance company would also pay a portion of the loss up to a specified limit. The deductible is thus analogous to the attachment point in a reinsurance agreement. The key differences between an individual buying insurance and a carrier buying catastrophe reinsurance are:

1. The risk subject to reinsurance is typically a group of locations, where a homeowner insures loss to just a single property.
2. There is much more complexity and variation in reinsurance agreements.
3. Homeowners or mobile home insurance is provided to the homeowner by a single carrier. Reinsurance coverage for a single insurance carrier is typically provided by a group of reinsurers. The reason for this is that loss from a single reinsurance buyer can be very large. To ensure adequate funding is available, a reinsurance broker finds multiple reinsurers to participate in providing coverage for a single reinsurance buyer.

4. Instead of a deductible for a single property, the reinsurance agreement contains a “retention” for aggregate loss to a portfolio.
5. Reinsurance agreements have annual aggregate limits of loss; most homeowners or mobile home insurance policies do not.

Insurance carriers buy reinsurance primarily so that they will not have their solvency impaired if they experience a year with a large loss or multiple large losses. They also buy reinsurance to reduce income volatility.

Q. Describe your professional and educational background.

A. I have been employed as an actuary since 1992 and have focused on ratemaking for my entire career. From 1992 to 1999 I worked for CNA Insurance and worked in both commercial lines and personal lines pricing. From 2000 to early 2006 I worked in a pricing area of Allstate Insurance. I have performed state rate level indications, workers compensation program pricing, underwriting scorecard development and rating plan development.

I was hired by Aon in 2006 to lead, design, develop, and market underwriting tools based on Aon’s catastrophe cost allocation methodologies.

I received a BA in Math from West Virginia University in 1988 and an MS in Math from the University of Illinois at Urbana Champaign in 1991. I am an associate of the Casualty Actuarial Society (CAS). I have satisfied the continuing education requirements of and am in good standing with the CAS. I am also a Certified Specialist

in Predictive Analytics, which is a credential sponsored by the CAS Institute. The CAS Institute is a wholly-owned subsidiary of the Casualty Actuarial Society (CAS) that provides premier specialty credentialing and professional education to quantitative specialists in selected areas.

Q. Describe your experience with catastrophe models.

A. I have been using output from catastrophe models since joining Aon in 2006. My initial work was to develop an underwriting tool for carriers which would provide total catastrophe cost allocated to an individual location at the point of sale. I am still responsible for maintaining and enhancing the capabilities of that tool today. I have also designed tools for measuring incremental catastrophe volatility and reinsurance cost impact from changes to a portfolio that are larger than a single policy.

Q. Describe your experience with catastrophe reinsurance.

A. Since joining Aon in 2006 I have been working on projects which involve allocation of average annual loss, allocation of ceded average annual loss, allocation of reinsurance premium, and allocation of capital cost for Aon's reinsurance clients. Allocation has been done by geographic area and business division, and all the way to a location level. I have also developed tools for clients to calculate the effect on probable maximum loss (PML), and other volatility metrics, from possible changes to the client portfolio.

I have also collaborated with colleagues at Aon to adjust Aon's reinsurance and capital cost allocation methodology to reflect observed changes in market pricing.

Q. What was your role in this filing with respect to expected catastrophe losses?

A. In collaboration with my colleagues in the Catastrophe Management Group, I provided advice to the NCRB regarding best practices for estimating expected catastrophe losses for ratemaking based on my experience advising primary company clients.

Q. Are catastrophe simulation models commonly used by insurers for ratemaking in catastrophe-exposed lines and jurisdictions?

A. Yes, catastrophe models have become the standard method of estimating catastrophe risk in rate filings. I have personally provided data and analysis for Aon clients to use in their rate filings in multiple states.

Q. What is demand surge?

A. Demand surge is simply a function of the economic law of supply and demand. It represents the increase in the cost of labor, materials and services (lodging, for example) needed to repair or replace damaged property and meet other contractual obligations following a significant natural catastrophe event or series of events. This increase has been observed following such very large events and it is a natural result of the increased demand for labor, materials and services in those situations. As a result, the models incorporate it into their loss estimates.

Q. Which applications of catastrophe model output typically reflect demand surge?

A. All applications of catastrophe model output should reflect demand surge. There is no reason to underestimate the impact of large events by ignoring the increase in demand for labor, materials and services as a result of those events. In our experience, all companies run the models with demand surge. In fact, the only times we have ever run a model without demand surge are to measure the impact of demand surge for testing purposes and where specifically requested. Here, the Rate Bureau requested that we run the models without demand surge so that it could provide certain statutory information in the filing.

Q. Does any state prohibit the inclusion of demand surge in modeled losses for rate filings?

A. No. I am not aware of any prohibitions against the use of demand surge in rate filings in any jurisdiction. South Carolina asks for the impact of demand surge in filing forms, but does not prohibit its inclusion in expected losses. In fact, the Florida Commission on Hurricane Loss Projection Methodology standards actually require that accepted models incorporate demand surge based on relevant data and actuarially sound methods and assumptions.

Q. North Carolina has laws prohibiting “price gouging” following a hurricane. Does that eliminate demand surge?

A. No. Florida has a similar law. Demand surge can and does occur due to supply and demand economics in situations that would not be considered price gouging and/or that would not be prevented by statutes prohibiting price gouging.

Q. Does it make sense for North Carolina hurricane losses to include demand surge for very large events impacting other states even if those events were less significant in North Carolina?

A. The intent of the model is to reflect economic conditions that will influence construction prices and other aspects of insured loss (such as, for example, the increased period of time a carrier has to pay for hotel rooms for insureds while their damaged homes are repaired) after a hurricane occurs. The model assumes the economic conditions that would drive up costs in a nearby state due to demand for labor and materials would also affect North Carolina in situations involving massive hurricane damage. This makes sense because materials and labor can be quickly transferred between states.

Q. Are you aware of how the reinsurance program was designed for purposes of this rate filing?

A. Yes, I am. Our team reviewed the actual reinsurance programs currently in force for our client companies writing property insurance predominantly in the Southeast, including North Carolina, along with nationwide writers. (Companies whose peak exposure is in Florida are not included, as those costs would be higher than reasonably

expected in the other Southeastern states.) We set the attachment and exhaustion points of the proposed reinsurance program to match average attachment and exhaustion return periods of those actual programs for the subject portfolio used for this filing. The subject portfolio is the total industry portfolio of mobile homes in North Carolina written under the Bureau's MHC and MHF programs. The reinsurance layers between the attachment and exhaustion points were chosen by analyzing the change in standard deviation relative to the limit. We then sent this information to Aon brokers who work with companies in the reinsurance market to validate the reasonability of the structure. We then presented our proposed reinsurance structure to the committees of the Rate Bureau, and the Rate Bureau approved it. This reinsurance structure, as recommended by Aon and approved by the Rate Bureau, is shown in Exhibit RB-10A accompanying this testimony.

Q. Is the reinsurance structure selected by the Rate Bureau reasonable?

A. Yes. The structure is based upon and reflects how carriers have recently been purchasing catastrophe reinsurance in the market.

Q. How was the reinsurance premium estimated?

A. Aon's approach relies on a proprietary trend line analysis which fits rate-on-line based on the relationship between loss-on-line and rate-on-line for the most recent renewal period for regional insurers writing property insurance predominantly in the Southeast, including North Carolina, along with nationwide insurers. As stated above, companies whose peak exposure is in Florida are not included, as those costs would be

higher than is reasonably expected in the other Southeastern states. The trend line analysis is updated annually to reflect changes in the reinsurance market.

Exhibit RB-10B shows a summary of the reinsurance structure and the rates-on-line that result from our loss-on-line analysis, along with a summary of the resulting components of the reinsurance program.

Q. How was the reinsurance premium allocated?

A. For each territory, the average annual loss & loss adjustment expense (LAE) contributed to the portfolio ceded loss & LAE is calculated for each layer of the reinsurance program. The portfolio premium for each layer is allocated in proportion to the average annual ceded loss & LAE for each territory. Allocation is done separately for each model and the results are averaged to obtain the final allocation. Exhibit RB-10D shows the proportion of hurricane peril reinsurance premium, ceded average annual loss, and reinsurance margin (a.k.a. “net cost of reinsurance”) allocated to each territory for each layer. Exhibit RB-10E shows the dollar amount of reinsurance margin allocated by coverage/form and territory.

Q. How was the net cost of reinsurance calculated?

A. The net cost of reinsurance can be thought of simply as the reinsurance premium paid by the insurance company less expected ceded losses recoverable by the

insurance company from the reinsurer. However, there are two adjustments that need to be made.

The first adjustment stems from the standard practice of charging a “reinstatement premium” in the event of a ceded loss in a reinsurance treaty. If there is a big enough loss to trigger a payment from reinsurers, then the cedant (the insurance company that purchased reinsurance) must pay a “reinstatement premium” proportional to the size of the ceded loss in order for the full coverage of the reinsurance treaty to continue for the remainder of the reinsurance term. The reinstatement premium contributes to the net cost of reinsurance.

Second, reinsurance treaties typically cover loss adjustment expenses (LAE) that can be allocated to a catastrophe event. Assuming a 6% ratio of “catastrophe LAE” to catastrophe loss, we adjust all modeled loss events by a factor of 1.06. The factor of 1.06 was selected based on a review of LAE factors applied to catastrophe losses in AM Best SRQ submissions of Aon clients as shown in Exhibit RB-10C.

Finally, by simulating thousands of years of events using the two models, we determine the expected ceded losses and catastrophe LAE by layer as well as an expected reinstatement premium. Then, the net cost of reinsurance is simply deposit premium plus expected reinstatement premium less expected ceded losses and catastrophe LAE recoverable.

For the NCRB Mobile Home filings, our analysis shows that the total net cost of reinsurance is \$31,031,306 as shown on Exhibit RB-10E. The allocation of this amount

to MHC and MHF and to territory and coverage or form is shown on the same exhibit. The allocation by territory and coverage/form is done using the method described above.

Q. Given your experience in catastrophe reinsurance, do you find this approach to be reasonable?

A. Yes. Our approach is based on detailed information on current reinsurance market rates and underlying model output.

Q. Do you know whether the Rate Bureau has used in its 2019 Mobile Home filings the Aon net cost of reinsurance results you provided?

A. Yes, I am advised that the Rate Bureau has used in the filings both our statewide net cost of reinsurance results and those results allocated to territory and coverage/form.

Q. Are you aware of the provisions in the North Carolina statutes, in N.C.G.S. 58-36-10(7), that state:

Property insurance rates established under this Article may include a provision to reflect the cost of reinsurance to protect against catastrophic exposure within this State. Amounts to be paid to reinsurers, ceding commissions paid or to be paid to insurers by reinsurers, expected reinsurance recoveries, North Carolina exposure to catastrophic events relative to other states' exposure, and any other relevant information may be considered when determining the provision to reflect the cost of reinsurance.

A. Yes, I am.

Q. Do you have an opinion whether the analysis you and Aon have performed on behalf of the Rate Bureau on the net cost of reinsurance for these filings has taken into consideration the provisions of that statute?

A. Yes. Based on my experience with hurricane models and using modeled hurricane losses, and on my experience with catastrophe reinsurance and determining catastrophe reinsurance costs for rate filings, it is my opinion that the analysis we have performed on the net cost of reinsurance for these filings properly considers all of the items set out in that statute. Further, it is my opinion based on my experience in the actual marketplace that a reasonable and appropriate provision for the net cost of reinsurance must be incorporated into mobile home insurance rates in North Carolina in order for those rates to properly reflect and protect against the catastrophe exposure in this state.

Q. Do you have an opinion regarding the appropriateness of the net cost of reinsurance provisions incorporated into these Mobile Home filings?

A. Yes. Based on my experience with hurricane models and using modeled hurricane losses and my experience with catastrophe reinsurance and determining catastrophe reinsurance costs for rate filings, it is my opinion that the provisions for the net cost of reinsurance in these filings, at the statewide, territory, and coverage/form levels, are reasonable and appropriate.

Q. Does that conclude your testimony?

A. Yes.

Mobile Homeowners
All Perils PMLs
50/50 Blend

Return Period	Loss	
1,000	1,181	Over the Top
500	978	
250	761	
213	703	
100	497	\$303M xs \$400M
68	400	
50	347	\$200M xs \$200M
24	200	
12	100	\$100M xs \$100M
8	60	\$40M xs \$60M
6	34	\$26M xs \$34M
Avg Annual	40	Retention
Std Dev	112	

in \$Millions

The table above shows the trended PML curve with catastrophe LAE for the North Carolina Rate Bureau portfolio, along with the selected reinsurance program.

North Carolina Rate Bureau
Support for Selected Reinsurance Rates-On-Line

Reinsurance Layer	Rate-On-Line	Deposit Premium	Expected Reinstatement Premium	Expected Total Premium	Expected Ceded Loss	Net Cost of Reinsurance
\$303M xs \$400M	3.68%	11,135	82	11,217	2,250	8,967
\$200M xs \$200M	6.40%	12,800	250	13,050	3,973	9,077
\$100M xs \$100M	11.03%	11,025	493	11,518	4,638	6,880
\$40M xs \$60M	15.70%	6,280	487	6,767	3,291	3,477
\$26M xs \$34M	20.05%	5,213	588	5,801	3,171	2,630
Total		46,453	1,899	48,353	17,322	31,030

Amounts are in thousands of dollars

The table above shows indicated rates-on-line for the filing's reinsurance structure along with analysis of simulated modeled catastrophe losses. Rate-on-Line values have been selected using the current Loss-On-Line approach, which is a benchmarking analysis done using reinsurance treaties placed by Aon.

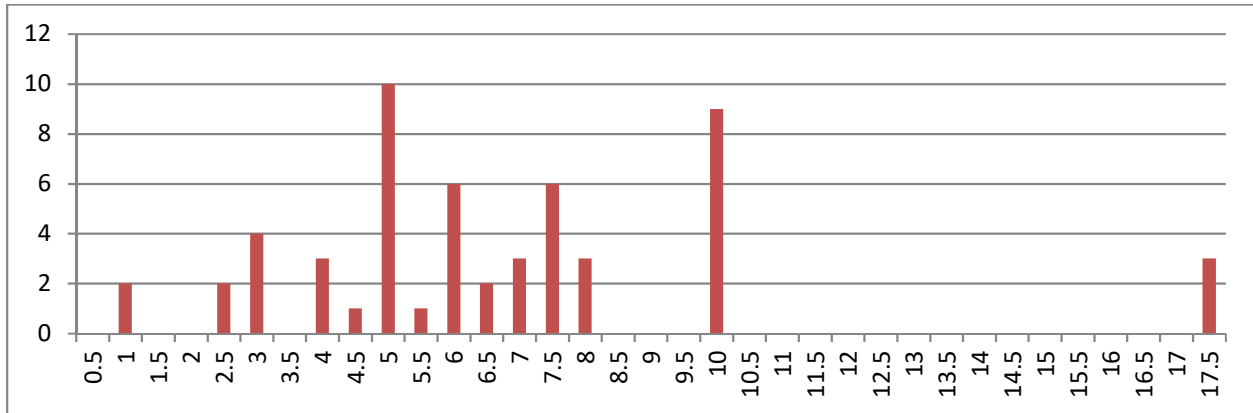
Deposit Premium is Rate-On-Line * Layer Limit

Expected Ceded Loss and Expected Reinstatement premium are the average annual amounts of each based on a simulation of catastrophe losses subject to the reinsurance program.

Expected Total Premium = Deposit Premium + Expected Reinstatement Premium

Net Cost of Reinsurance = Expected Total Premium – Expected Ceded Loss

North Carolina Rate Bureau
Support for Selected Catastrophe LAE Factor



This chart shows Catastrophe LAE factors applied to modeled catastrophe event losses in AM Best SRQ Submissions by Aon clients in 2016.

- Factors were rounded to the nearest 0.5
- A weighted average was used where factors varied by peril
- Multiple factors were counted where factors varied by company within a group
- Reflects all clients that included a provision for LAE

The mean factor is 6.8, the median is 6.0, and the mode is 5.0.

North Carolina Rate Bureau
Reinsurance Cost Allocation
CY 2016
Mobile Homeowners
AIR v5.0 / RMS v18.0

Peril	Territory	Layer 1 - MH(C) 26M xs 34M			Layer 1 - MH(F) 26M xs 34M		
		Premium [1]	Ceded AAL [2]	Reins Margin [3]	Premium [1]	Ceded AAL [2]	Reins Margin [3]
EQ		0.2%	0.3%	0.2%	0.0%	0.0%	0.0%
FF		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	110	2.0%	1.9%	2.1%	3.1%	3.0%	3.3%
HU	120	4.0%	4.0%	4.1%	6.4%	6.3%	6.6%
HU	130	0.7%	0.6%	0.7%	0.9%	0.9%	0.9%
HU	140	3.3%	3.3%	3.2%	7.3%	7.4%	7.1%
HU	150	3.7%	3.6%	3.9%	4.2%	4.1%	4.4%
HU	160	3.0%	3.0%	2.9%	3.7%	3.8%	3.7%
HU	170	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
HU	180	3.9%	3.8%	4.0%	5.1%	4.9%	5.2%
HU	190	1.8%	1.8%	1.8%	2.4%	2.3%	2.4%
HU	200	0.7%	0.7%	0.7%	1.3%	1.2%	1.3%
HU	210	1.6%	1.5%	1.7%	1.3%	1.2%	1.3%
HU	220	1.5%	1.5%	1.5%	1.8%	1.8%	1.8%
HU	230	1.8%	1.8%	1.8%	3.0%	3.0%	3.0%
HU	240	4.4%	4.2%	4.5%	2.9%	2.8%	3.1%
HU	250	1.3%	1.3%	1.3%	1.7%	1.7%	1.7%
HU	260	1.4%	1.3%	1.4%	1.0%	1.0%	1.1%
HU	270	1.3%	1.3%	1.3%	0.7%	0.7%	0.7%
HU	280	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
HU	290	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%
HU	300	0.3%	0.3%	0.3%	0.5%	0.5%	0.5%
HU	310	1.2%	1.2%	1.2%	1.0%	1.0%	1.0%
HU	320	1.3%	1.4%	1.3%	1.0%	1.0%	1.0%
HU	330	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
HU	340	1.1%	1.1%	1.1%	0.8%	0.8%	0.8%
HU	350	0.9%	0.9%	0.9%	0.6%	0.6%	0.6%
HU	360	1.1%	1.1%	1.2%	0.9%	0.9%	1.0%
HU	370	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	380	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%
HU	390	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%
OW		1.2%	1.9%	0.5%	1.0%	1.5%	0.4%
WT		0.3%	0.4%	0.2%	0.2%	0.3%	0.2%

North Carolina Rate Bureau
Reinsurance Cost Allocation
CY 2016
Mobile Homeowners
AIR v5.0 / RMS v18.0

Peril	Territory	Layer 2 - MH(C) 40M xs 60M			Layer 2 - MH(F) 40M xs 60M		
		Premium [1]	Ceded AAL [2]	Reins Margin [3]	Premium [1]	Ceded AAL [2]	Reins Margin [3]
EQ		0.2%	0.2%	0.2%	0.0%	0.0%	0.0%
FF		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	110	1.5%	1.4%	1.5%	2.3%	2.3%	2.3%
HU	120	3.7%	3.7%	3.8%	6.0%	5.9%	6.0%
HU	130	0.6%	0.6%	0.6%	0.8%	0.8%	0.8%
HU	140	3.1%	3.3%	3.0%	7.0%	7.3%	6.7%
HU	150	3.6%	3.5%	3.7%	4.1%	4.0%	4.2%
HU	160	3.1%	3.2%	2.9%	3.8%	4.0%	3.7%
HU	170	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
HU	180	4.1%	4.0%	4.1%	5.4%	5.3%	5.4%
HU	190	1.9%	1.9%	1.9%	2.5%	2.5%	2.6%
HU	200	0.8%	0.8%	0.8%	1.3%	1.3%	1.3%
HU	210	1.7%	1.7%	1.8%	1.4%	1.4%	1.4%
HU	220	1.7%	1.6%	1.7%	2.0%	2.0%	2.0%
HU	230	2.0%	2.0%	2.0%	3.3%	3.3%	3.3%
HU	240	4.9%	4.8%	5.1%	3.3%	3.2%	3.4%
HU	250	1.5%	1.5%	1.5%	1.9%	1.9%	1.9%
HU	260	1.6%	1.5%	1.6%	1.2%	1.2%	1.2%
HU	270	1.5%	1.5%	1.6%	0.8%	0.8%	0.8%
HU	280	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%
HU	290	0.3%	0.3%	0.3%	0.7%	0.7%	0.7%
HU	300	0.3%	0.3%	0.3%	0.5%	0.5%	0.5%
HU	310	1.4%	1.3%	1.5%	1.2%	1.1%	1.2%
HU	320	1.5%	1.5%	1.5%	1.1%	1.1%	1.1%
HU	330	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
HU	340	1.2%	1.2%	1.2%	0.8%	0.8%	0.8%
HU	350	0.8%	0.8%	0.8%	0.6%	0.6%	0.6%
HU	360	1.1%	1.0%	1.1%	0.9%	0.8%	0.9%
HU	370	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	380	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%
HU	390	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%
OW		0.4%	0.7%	0.1%	0.3%	0.6%	0.0%
WT		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

North Carolina Rate Bureau
Reinsurance Cost Allocation
CY 2016
Mobile Homeowners
AIR v5.0 / RMS v18.0

Peril	Territory	Layer 3 - MH(C) 100M xs 100M			Layer 3 - MH(F) 100M xs 100M		
		Premium [1]	Ceded AAL [2]	Reins Margin [3]	Premium [1]	Ceded AAL [2]	Reins Margin [3]
EQ		0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
FF		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	110	1.0%	1.0%	0.9%	1.5%	1.5%	1.5%
HU	120	3.3%	3.3%	3.3%	5.3%	5.2%	5.3%
HU	130	0.5%	0.5%	0.5%	0.7%	0.7%	0.7%
HU	140	2.9%	3.1%	2.8%	6.5%	7.0%	6.3%
HU	150	3.2%	3.1%	3.3%	3.7%	3.6%	3.8%
HU	160	3.1%	3.3%	3.0%	3.9%	4.1%	3.8%
HU	170	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%
HU	180	4.2%	4.1%	4.2%	5.5%	5.4%	5.5%
HU	190	2.0%	2.0%	2.0%	2.7%	2.7%	2.7%
HU	200	0.8%	0.8%	0.8%	1.3%	1.3%	1.3%
HU	210	1.9%	1.8%	1.9%	1.5%	1.5%	1.5%
HU	220	1.8%	1.8%	1.8%	2.2%	2.2%	2.2%
HU	230	2.2%	2.2%	2.2%	3.5%	3.5%	3.5%
HU	240	5.5%	5.4%	5.7%	3.7%	3.6%	3.8%
HU	250	1.7%	1.6%	1.7%	2.1%	2.1%	2.2%
HU	260	1.8%	1.8%	1.9%	1.4%	1.4%	1.4%
HU	270	1.8%	1.7%	1.8%	1.0%	0.9%	1.0%
HU	280	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%
HU	290	0.4%	0.4%	0.4%	0.8%	0.8%	0.8%
HU	300	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%
HU	310	1.7%	1.6%	1.7%	1.4%	1.3%	1.4%
HU	320	1.7%	1.7%	1.7%	1.2%	1.2%	1.2%
HU	330	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
HU	340	1.2%	1.3%	1.2%	0.9%	0.9%	0.9%
HU	350	0.8%	0.8%	0.8%	0.6%	0.6%	0.6%
HU	360	0.9%	1.0%	0.9%	0.8%	0.8%	0.8%
HU	370	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	380	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
HU	390	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
OW		0.1%	0.1%	0.0%	0.1%	0.1%	0.0%
WT		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

North Carolina Rate Bureau
Reinsurance Cost Allocation
CY 2016
Mobile Homeowners
AIR v5.0 / RMS v18.0

Peril	Territory	Layer 5 - MH(C) 303M xs 400M			Layer 5 - MH(F) 303M xs 400M		
		Premium [1]	Ceded AAL [2]	Reins Margin [3]	Premium [1]	Ceded AAL [2]	Reins Margin [3]
EQ							
FF							
HU	110	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
HU	120	0.5%	0.4%	0.5%	0.8%	0.6%	0.8%
HU	130	2.2%	2.2%	2.3%	3.6%	3.5%	3.7%
HU	140	0.4%	0.3%	0.4%	0.5%	0.4%	0.5%
HU	150	2.4%	2.6%	2.4%	5.4%	5.7%	5.3%
HU	160	2.4%	2.0%	2.5%	2.7%	2.3%	2.8%
HU	170	3.1%	3.3%	3.1%	3.9%	4.1%	3.9%
HU	180	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%
HU	190	4.1%	4.1%	4.1%	5.3%	5.3%	5.3%
HU	200	2.1%	2.1%	2.1%	2.8%	2.8%	2.8%
HU	210	0.8%	0.8%	0.8%	1.3%	1.3%	1.3%
HU	220	1.9%	1.9%	1.9%	1.5%	1.5%	1.5%
HU	230	2.2%	2.2%	2.2%	2.6%	2.6%	2.6%
HU	240	2.5%	2.5%	2.4%	4.0%	4.0%	3.9%
HU	250	6.3%	6.4%	6.3%	4.1%	4.2%	4.1%
HU	260	2.1%	2.1%	2.1%	2.7%	2.6%	2.7%
HU	270	2.2%	2.3%	2.2%	1.7%	1.7%	1.7%
HU	280	2.3%	2.3%	2.3%	1.2%	1.2%	1.2%
HU	290	0.7%	0.7%	0.7%	0.5%	0.5%	0.5%
HU	300	0.5%	0.5%	0.5%	1.1%	1.1%	1.1%
HU	310	0.4%	0.4%	0.4%	0.7%	0.7%	0.7%
HU	320	2.4%	2.3%	2.4%	2.0%	1.9%	2.0%
HU	330	2.3%	2.2%	2.3%	1.7%	1.7%	1.7%
HU	340	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%
HU	350	1.4%	1.5%	1.4%	1.0%	1.0%	1.0%
HU	360	0.7%	0.8%	0.7%	0.5%	0.6%	0.5%
HU	370	0.8%	1.0%	0.8%	0.7%	0.8%	0.6%
HU	380	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HU	390	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%
OW		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
WT		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

North Carolina Rate Bureau
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 CY 2016
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Territory	Allocated Reinsurance Margin							
	MH(C)-A&D	MH(C)-B	MH(C)-C	MH(C) Total	MH(F)-O	MH(F)-R	MH(F) Total	MH C+F Total
110	239,769	22,962	18,853	281,583	441,233	-	441,233	722,816
120	784,835	75,161	61,711	921,706	1,482,128	-	1,482,128	2,403,834
130	126,322	12,097	9,933	148,351	192,254	181	192,435	340,786
140	708,673	67,867	55,722	832,262	1,847,527	975	1,848,502	2,680,764
150	803,099	76,910	63,147	943,155	1,075,438	810	1,076,247	2,019,402
160	799,590	76,574	62,871	939,035	1,174,380	485	1,174,864	2,113,899
170	90,494	8,666	7,115	106,276	98,921	67	98,988	205,264
180	1,088,111	104,204	85,557	1,277,872	1,673,299	1,151	1,674,449	2,952,322
190	535,534	51,286	42,109	628,928	828,704	604	829,308	1,458,236
200	204,423	19,577	16,074	240,073	409,339	170	409,508	649,581
210	491,864	47,104	38,675	577,642	464,317	188	464,505	1,042,147
220	515,775	49,394	40,555	605,723	723,735	401	724,136	1,329,859
230	601,345	57,588	47,283	706,216	1,134,156	411	1,134,568	1,840,784
240	1,533,938	146,899	120,612	1,801,449	1,191,232	458	1,191,690	2,993,139
250	480,493	46,015	37,781	564,289	720,590	261	720,852	1,285,140
260	514,456	49,267	40,451	604,174	455,799	86	455,885	1,060,059
270	523,043	50,090	41,126	614,259	327,211	137	327,348	941,607
280	148,436	14,215	11,671	174,322	134,342	50	134,392	308,714
290	113,979	10,915	8,962	133,857	285,294	86	285,381	419,238
300	96,059	9,199	7,553	112,811	191,326	67	191,393	304,205
310	517,136	49,524	40,662	607,322	499,825	179	500,004	1,107,326
320	501,231	48,001	39,411	588,643	435,783	174	435,957	1,024,601
330	34,809	3,334	2,737	40,880	32,654	13	32,667	73,547
340	347,805	33,308	27,348	408,460	279,508	74	279,582	688,043
350	203,959	19,532	16,037	239,529	172,274	41	172,315	411,843
360	251,164	24,053	19,749	294,966	241,151	70	241,221	536,187
370	8,789	842	691	10,322	7,752	2	7,754	18,075
380	26,632	2,550	2,094	31,276	20,093	6	20,099	51,375
390	28,679	2,747	2,255	33,681	14,825	6	14,832	48,513
Total	12,320,438	1,179,881	968,745	14,469,064	16,555,089	7,153	16,562,242	31,031,306

Columns indicate Coverage and Form

MH(C)-A&D - Mobile Home Structures + Liability

MH(C)-B - Adjacent Structures

MH(C)-C - Personal Effects

MH(F)-O - Owners

MH(F)-R - Tenants

PREFILED TESTIMONY
OF
JAMES H. VANDER WEIDE

2019 MOBILE HOME INSURANCE RATE FILING
BY THE NORTH CAROLINA RATE BUREAU

Q. WHAT IS YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS?

A. My name is James H. Vander Weide. I am President of Financial Strategy Associates, a firm that provides strategic and financial consulting services to corporate clients. My business address is 3606 Stoneybrook Drive, Durham, North Carolina 27705.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PRIOR ACADEMIC EXPERIENCE.

A. I graduated from Cornell University with a Bachelor's Degree in Economics and then attended Northwestern University where I earned a Ph.D. in Finance. I joined the faculty of the School of Business at Duke University where I was subsequently named Assistant Professor, Associate Professor, Professor, and Research Professor. I have published research in the areas of finance and economics and taught courses in these fields at Duke for more than thirty-five years. I am now retired from my teaching duties at Duke.

I have taught courses in corporate finance, investment management, and management of financial institutions. I also taught a graduate seminar on the theory of public utility pricing and lectured in executive development seminars on

the cost of capital, financial analysis, capital budgeting, mergers and acquisitions, cash management, short-run financial planning, and competitive strategy.

I have served as Program Director and taught in numerous executive education programs at Duke, including the Duke Advanced Management Program, the Duke Management Challenge, the Duke Executive Program in Telecommunications, Competitive Strategies in Telecommunications, and the Duke Program for Manager Development for managers from the former Soviet Union. I have also taught in tailored programs developed for corporations such as ABB, Accenture, Allstate, AT&T, Progress Energy, GlaxoSmithKline, Lafarge, MidAmerican Energy, Norfolk Southern, The Rank Group, Siemens, TRW, and Wolseley PLC.

In addition to my teaching and executive education activities, I have written research papers on such topics as portfolio management, the cost of capital, capital budgeting, the effect of regulation on the performance of public utilities, and cash management. My articles have been published in *American Economic Review*, *Financial Management*, *International Journal of Industrial Organization*, *Journal of Finance*, *Journal of Financial and Quantitative Analysis*, *Journal of Bank Research*, *Journal of Accounting Research*, *Journal of Cash Management*, *Management Science*, *The Journal of Portfolio Management*, *Atlantic Economic Journal*, *Journal of Economics and Business*, and *Computers and Operations Research*. I have written a book titled *Managing Corporate Liquidity: an Introduction to Working Capital Management*, a chapter for *The Handbook of*

Modern Finance, “Financial Management in the Short Run,” and a chapter for the book, *The Handbook of Portfolio Construction: Contemporary Applications of Markowitz Techniques*, “Principles for Lifetime Portfolio Selection: Lessons from Portfolio Theory.”

Q. HAVE YOU PREVIOUSLY PRESENTED EVIDENCE ON THE COST OF CAPITAL AND OTHER REGULATORY ISSUES?

A. Yes. As an expert on financial and economic theory and practice, I have participated in more than five hundred regulatory and legal proceedings before the public service commissions of forty-five states and four Canadian provinces, the Federal Energy Regulatory Commission, the National Energy Board (Canada), the Federal Communications Commission, the Canadian Radio-Television and Telecommunications Commission, the United States Congress, the National Telecommunications and Information Administration, the insurance commissions of five states, the Iowa State Board of Tax Review, the National Association of Securities Dealers, and the North Carolina Property Tax Commission. In addition, I have prepared expert testimony in proceedings before the United States District Court for the District of Nebraska; the United States District Court for the District of New Hampshire; the United States District Court for the District of Northern Illinois; the United States District Court for the Eastern District of North Carolina; the Montana Second Judicial District Court, Silver Bow County; the United States District Court for the Northern District of California; the Superior Court, North Carolina; the United States Bankruptcy Court for the

Southern District of West Virginia; the United States District Court for the Eastern District of Michigan; and the Supreme Court of the State of New York.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by the North Carolina Rate Bureau to make an independent appraisal of the aggregate cost of equity capital for the companies writing mobile home insurance in North Carolina and to recommend a rate of return on equity that is fair, that allows those companies in the aggregate to attract and retain capital on reasonable terms, that is commensurate with returns on investments of comparable risk, and that maintains the financial integrity of those companies in the aggregate.

Q. WHAT DO YOU MEAN BY THE PHRASE "COST OF EQUITY CAPITAL?"

A. A firm's cost of equity capital is the rate of return expectation that is required in the marketplace on equity investments of comparable risk. If an investor does not expect to earn a return on an equity investment in a firm that is at least as large as the return the investor could expect to earn on other investments of comparable risk, then the investor will not invest in that firm's shares. Thus, a firm's cost of equity capital is also the rate of return expectation that is required in the marketplace in order to induce equity investors to purchase shares in that firm.

Q. IS THE COST OF EQUITY CAPITAL THE SAME AS THE RETURN ON EQUITY?

A. No. The cost of equity capital is a market-based concept that reflects investors' future expectations, while the return on equity is an accounting concept that measures results of past performance. The return on equity is equal to income available for common equity divided by the book value of common equity.

Q. HAVE YOU FORMED AN OPINION REGARDING THE COST OF EQUITY CAPITAL FOR THE AVERAGE COMPANY WRITING MOBILE HOME INSURANCE IN NORTH CAROLINA?

A. Yes.

Q. WHAT IS YOUR OPINION IN THAT REGARD?

A. The cost of equity capital for such a company is in the range 9.0 percent to 13.8 percent.

Q. WHAT ECONOMIC PRINCIPLES DID YOU CONSIDER IN ARRIVING AT THAT OPINION?

A. There are two primary economic principles relevant to my appraisal of the cost of equity capital. The first, relating to the demand for capital, states that a firm should continue to invest in its business only so long as the return on its investment is greater than or equal to its cost of capital. In the context of a regulated firm, this principle suggests that the regulatory agency should establish revenue levels which will offer the firm an opportunity to earn a return on its investment that is at least equal to its cost of capital.

The second principle, relating to the supply of capital, states that rational investors are maximizing their total return on capital only if the returns they expect to receive on investments of comparable risk are equal. If these returns are not equal, rational investors will reduce or completely eliminate investments in those activities yielding lower expected returns for a given level of risk and will increase investments in those activities yielding higher expected returns. The second principle implies that regulated firms will be unable to obtain the capital required to expand service on reasonable terms unless they are able to provide investors returns equal to those expected on investments of comparable risk.

Q. DO THESE ECONOMIC PRINCIPLES APPLY TO THE SETTING OF INSURANCE RATES?

A. Yes. These are general economic principles that apply to investing in any business activity, including insurance.

Q. HOW DID YOU GO ABOUT DETERMINING THE COST OF EQUITY CAPITAL FOR THE AVERAGE COMPANY WRITING MOBILE HOME INSURANCE IN NORTH CAROLINA?

A. I used two generally accepted methods to estimate the cost of equity: (1) the Discounted Cash Flow (DCF) Model, and (2) the Risk Premium Approach.

Q. PLEASE DESCRIBE THE DCF MODEL.

A. The DCF Model suggests that investors value an asset on the basis of the future cash flows they expect to receive from owning the asset. Thus, investors value

an investment in a bond because they expect to receive a sequence of semi-annual coupon payments over the life of the bond and a terminal payment equal to the bond's face value at the time the bond matures. Likewise, investors value an investment in a firm's stock because they expect to receive a sequence of dividend payments and, perhaps, expect to sell the stock at a higher price sometime in the future.

A second fundamental principle of the DCF approach is that investors value a dollar received in the future less than a dollar received today. This is because, if they had the dollar today, they could invest it in an interest earning account and increase their wealth. This principle is called the time value of money.

Applying the two fundamental DCF principles noted above to an investment in a bond suggests that investors should value their investment in the bond on the basis of the present value of the bond's future cash flows. Thus, the price of the bond should be equal to:

Equation 1

$$P_B = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \dots + \frac{C+F}{(1+i)^n}$$

where:

P_B	=	Bond price;
C	=	Cash value of the coupon payment (assumed for notational convenience to occur annually rather than semi-annually);
F	=	Face value of the bond;
i	=	The rate of interest the investor could earn by investing his money in an alternative bond of equal risk; and
n	=	The number of periods before the bond matures.

Applying these same principles to an investment in a firm's stock suggests that the price of the stock should be equal to:

Equation 2

$$P_s = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_n + P_n}{(1+k)^n}$$

where:

- P_s = Current price of the firm's stock;
- D_1, D_2, \dots, D_n = Expected annual dividend per share on the firm's stock;
- P_n = Price per share of stock at the time the investor expects to sell the stock; and
- k = Return the investor expects to earn on alternative investments of the same risk, i.e., the investor's required rate of return.

Equation (2) is frequently called the Annual Discounted Cash Flow (DCF) Model of stock valuation.

Q. HOW DO YOU USE THE DCF MODEL TO DETERMINE THE COST OF EQUITY CAPITAL?

A. The "k" in the equation is the cost of equity capital. We make certain simplifying assumptions regarding the other factors in the equation and then mathematically solve for "k."

Q. WHAT ARE THE ASSUMPTIONS YOU MAKE?

A. Most analysts make three simplifying assumptions. First, they assume that dividends are expected to grow at the constant rate ("g") into the indefinite future.

Second, they assume that the stock price at time “n” is simply the present value of all dividends expected in periods subsequent to “n.” Third, they assume that the investors’ required rate of return, “k,” exceeds the expected dividend growth rate, “g.”

Q. DOES THE ANNUAL DCF MODEL OF STOCK VALUATION PRODUCE APPROPRIATE ESTIMATES OF A FIRM’S COST OF EQUITY CAPITAL?

A. No. The Annual DCF Model of stock valuation produces appropriate estimates of a firm’s cost of equity capital only if the firm pays dividends just once a year. Since most firms pay dividends quarterly, the Annual DCF Model produces downwardly biased estimates of the cost of equity. Investors can expect to earn a higher annual effective return on an investment in a firm that pays quarterly dividends than in one which pays the same amount of dollar dividends once at the end of each year. A complete analysis of the implications of the quarterly payment of dividends on the DCF Model is provided in Exhibit RB-14. For the reasons cited there, I employed the Quarterly DCF Model throughout my calculations.

Q. PLEASE DESCRIBE THE QUARTERLY DCF MODEL YOU USED.

A. The Quarterly DCF Model I use is described by Equation 10 on page 10 in Exhibit RB-14. This equation shows that the cost of equity is: the sum of the dividend yield and the growth rate, where the dividend in the dividend yield is the equivalent dividend at the end of the year, and the growth rate is the expected growth in dividends or earnings per share.

Q. HOW DO YOU APPLY THE DCF APPROACH TO OBTAIN THE COST OF EQUITY CAPITAL FOR THE COMPANIES WRITING MOBILE HOME INSURANCE IN NORTH CAROLINA?

A. I apply the DCF approach to two groups of companies: Value Line's group of property/casualty insurance companies and the S&P 500.

Q. WHY DO YOU APPLY THE DCF APPROACH TO THE S&P 500 AS WELL AS TO VALUE LINE'S PROPERTY/CASUALTY INSURANCE COMPANIES?

A. As I noted previously, the cost of equity is defined as the rate of return investors expect to earn on investments in other companies of comparable risk. I apply the DCF approach to the S&P 500 because they are a large group of companies that, on average, are typically viewed as being comparable in risk to the property/casualty insurance industry. The use of a larger set of comparable risk companies should provide an accurate estimate of the cost of equity for the companies writing mobile home insurance in North Carolina.

Q. DO YOU INCLUDE ALL THE VALUE LINE PROPERTY/CASUALTY INSURANCE COMPANIES?

A. No. Among the Value Line property/casualty insurance companies, I only include companies which pay a quarterly dividend, have not lowered their dividends, and have a positive five-year earnings growth forecast available from I/B/E/S (formerly known as the Institutional Brokers Estimate System, now part of

Thomson Reuters). The Value Line property/casualty companies I use are shown in Exhibit RB-12.

Q. WHAT CRITERIA DO YOU USE TO SELECT COMPANIES IN THE S&P 500?

A. I include those firms which pay dividends and which have at least three five-year earnings forecasts available from I/B/E/S. I exclude the insurance companies in the S&P 500, as identified by I/B/E/S Thomson Reuters, because I have already calculated DCF results for the Value Line property/casualty insurance companies. The S&P 500 companies I use are shown in Exhibit RB-13.

Q. WHY DO YOU ELIMINATE ANY COMPANY WHICH HAD RECENTLY LOWERED ITS DIVIDEND OR WHICH FAILS TO PAY DIVIDENDS?

A. I eliminate those companies because it is difficult to make a reliable estimate of the future dividend growth rate for companies that have recently lowered their dividends or do not pay dividends. If a company has recently lowered its dividend, investors do not know whether the company will again lower its dividend in the future, or whether the company will attempt to increase its dividend back toward its previous level. If a company does not pay a dividend, one cannot mathematically apply the DCF approach.

Q. HOW DO YOU ESTIMATE THE GROWTH COMPONENT OF THE QUARTERLY DCF MODEL?

A. I use the average of analysts' estimates of future earnings per share (EPS) growth reported by I/B/E/S. As part of their research, financial analysts working at

Wall Street firms periodically estimate EPS growth for each firm they follow. The EPS forecasts for each firm are then published. The forecasts are used by investors who are contemplating purchasing or selling shares in individual companies.

Q. WHAT IS I/B/E/S?

A. I/B/E/S is a collection of analysts' forecasts for a broad group of companies expressed in terms of a mean forecast and a standard deviation of forecast for each firm. The mean forecast is used by investors as an estimate of future firm performance.

Q. WHY DO YOU USE THE I/B/E/S GROWTH ESTIMATES?

A. The I/B/E/S growth rates (1) are widely circulated in the financial community, (2) include the projections of reputable financial analysts who develop estimates of future growth, (3) are reported on a timely basis to investors, and (4) are widely used by institutional and other investors. For these reasons, I believe these estimates represent unbiased estimates of investors' expectations of each firm's long-term growth prospects and, accordingly, are incorporated by investors into their return requirements. Consequently, in my opinion, they provide the best available estimate of investors' long-term growth expectations.

Q. WHY DO YOU RELY EXCLUSIVELY ON ANALYSTS' PROJECTIONS OF FUTURE EPS GROWTH IN ESTIMATING THE INVESTORS' EXPECTED

GROWTH RATE RATHER THAN LOOKING AT PAST HISTORICAL GROWTH RATES?

A. There is considerable empirical evidence that analysts' forecasts are more highly correlated with stock prices than are firms' historical growth rates, and, thus, that investors actually use these forecasts.

Q. HAVE YOU PERFORMED ANY STUDIES CONCERNING THE USE OF ANALYSTS' FORECASTS AS THE BEST ESTIMATE OF INVESTORS' EXPECTED GROWTH RATE, G?

A. Yes, I prepared a study with Willard T. Carleton, Professor of Finance Emeritus at the University of Arizona, on why analysts' forecasts provide the best estimate of investors' expectations of future long-term growth. This study is described in a paper entitled "Investor Growth Expectations: Analysts vs. History," published in *The Journal of Portfolio Management*.

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR STUDY.

A. First, we performed a correlation analysis to identify the historically-oriented growth rates which best described a firm's stock price. Then we did a regression study comparing the historical growth rates with the consensus analysts' forecasts. In every case, the regression equations containing the average of analysts' forecasts statistically outperformed the regression equations containing the historical growth estimates. These results are consistent with those found by Cragg and Malkiel, the early major research in this area. These results are also consistent with the hypothesis that investors use analysts' forecasts, rather than

historically-oriented growth calculations, in making buy and sell decisions. They provide overwhelming evidence that the analysts' forecasts of future growth are superior to historically-oriented growth measures in predicting a firm's stock price.

Q. WHAT PRICE DO YOU USE IN YOUR DCF MODEL?

A. I use a simple average of the monthly high and low stock prices for each firm for the three-month period, June, July, and August 2018. These high and low stock prices are obtained from Thomson Reuters.

Q. WHY DO YOU USE THE THREE-MONTH AVERAGE STOCK PRICE, P_0 , IN APPLYING THE DCF METHOD?

A. I use a three-month average stock price in applying the DCF method because stock prices fluctuate daily, while financial analysts' forecasts for a given company are generally changed less frequently, often on a quarterly basis. Thus, to match the stock price with an earnings forecast, it is appropriate to average stock prices over a three-month period.

Q. PLEASE EXPLAIN YOUR INCLUSION OF FLOTATION COSTS.

A. All firms that have sold securities in the capital markets have incurred some level of flotation costs, including underwriters' commissions, legal fees, printing expense, etc. These costs are paid from the proceeds of the stock sale and must be recovered over the life of the equity issue. Costs vary depending upon the size of the issue, the type of registration method used and other factors, but

in general these costs range between four percent and five percent of the proceeds from the issue. In addition to these costs, the underwriter's offer price is set below the most recent closing price before the public offering in order to reduce the risk that the underwriters will be unable to sell the entire offering at the offer price. The difference between the offer price and the recent closing price is generally in the range two percent to three percent. Thus, the total flotation cost, including both issuance expense and underwriter discount, could range anywhere from five percent to eight percent of the proceeds of an equity issue. These cost ranges have been developed and confirmed in a number of generally accepted studies. I believe a combined five percent allowance for flotation costs is a conservative estimate that should be used in applying the DCF model in this proceeding.

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR APPLICATION OF THE DCF METHOD TO THE PROPERTY/CASUALTY INSURANCE COMPANIES AND THE S&P 500.

A. As shown in Exhibits RB-12 and RB-13, the average DCF cost of equity capital for my group of Value Line property/casualty companies is 12.9 percent; and for the S&P 500 companies, 13.8 percent.

Q. WHAT CONCLUSION DO YOU REACH FROM YOUR DCF ANALYSIS ABOUT THE COST OF EQUITY CAPITAL FOR COMPANIES WRITING MOBILE HOME INSURANCE IN NORTH CAROLINA?

A. On the basis of my DCF analysis, I would conclude that for companies writing mobile home insurance in North Carolina the cost of equity is approximately 13.4 percent.

Q. YOU NOTE THAT THE SECOND METHOD YOU USE TO ESTIMATE THE COST OF EQUITY CAPITAL FOR COMPANIES WRITING MOBILE HOME INSURANCE IN NORTH CAROLINA IS A RISK PREMIUM APPROACH. PLEASE DESCRIBE THAT APPROACH.

A. I perform a study of the comparable returns received by bond and stock investors over the last ninety-two years. I estimate the returns on stock and bond portfolios, using stock price and dividend yield data on the S&P 500 stock portfolio and bond yield data on Moody's A-rated utility bonds.

My study consists of analyzing the historically achieved returns on broadly based stock and bond portfolios going back to 1926. For stocks, I use the S&P 500 stock portfolio; and for bonds, I use Moody's A-rated utility bonds. The resulting annual returns on the stock and bond portfolios purchased in each year from 1926 through 2017 are shown on Exhibit RB-15. The difference between the stock return and the bond return over that period of time on an arithmetic average basis is 4.76 percentage points.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR RISK PREMIUM ANALYSES?

A. My own studies, combined with my analysis of other studies, provide strong evidence for the belief that investors today require an equity return of at least

4.76 percentage points above the expected yield on A-rated long-term debt issues.

The average yield on Moody's seasoned A-rated utility bonds for the three months June through August 2018 was 4.27 percent. On the basis of this information and my knowledge of bond market conditions, I conclude that the long-term yield on A-rated utility bonds is approximately 4.27 percent. Adding a 4.76 percentage point risk premium to the 4.27 percent expected yield on A-rated utility bonds, I obtain an expected return on equity of 9.0 percent.

Q. ARE THERE REASONS TO BELIEVE THAT THE RESULT OF YOUR EX POST RISK PREMIUM ANALYSIS MAY UNDERESTIMATE THE COST OF EQUITY AT THIS TIME?

A. Yes. The ex post risk premium model may produce an unrealistically low result because the model result is highly sensitive to the estimate of the bond yield. At this time, bond yields are unusually low, reflecting policy decisions of the United States government and the Federal Reserve Bank to keep interest rates low in order to stimulate the economy. The ex post risk premium cost of equity result is the sum of the risk premium and the bond yield; and, as a result, the use of an unusually low bond yield in the model may cause the ex post risk premium model result to underestimate the cost of equity. Further, because the cost of equity is a forward-looking concept, it would be reasonable to apply the ex post risk premium model using a forecast of the expected bond yield, rather than a recent bond yield. Because bond yields are expected to increase over the next several

years, the use of a forecasted bond yield would produce a significantly higher ex post risk premium estimate of the cost of equity. Thus, I consider my ex post risk premium model result to be conservative.

Q. BASED ON YOUR ANALYSES, WHAT IS YOUR OPINION AS TO THE COST OF CAPITAL FOR THE AVERAGE INSURANCE COMPANY WRITING MOBILE HOME INSURANCE IN NORTH CAROLINA?

A. Based on my review and studies, I believe that a conservative estimate of the cost of common equity capital for the average insurance company writing mobile home insurance in North Carolina is in the range 9.0 percent to 13.8 percent.

SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS FOR
PROPERTY/CASUALTY INSURANCE COMPANIES

	COMPANY	MOST RECENT QUARTERLY DIVIDEND (d ₀)	STOCK PRICE (P ₀)	FORECAST OF FUTURE EARNINGS GROWTH	DCF MODEL RESULT
1	Allstate Corp.	0.460	94.700	13.0%	15.3%
2	Amer. Financial Group	0.350	110.110	12.3%	13.9%
3	Berkley (W.R.)	0.350	75.752	15.5%	16.8%
4	Chubb Ltd.	0.730	132.785	10.0%	12.6%
5	Cincinnati Financial	0.530	72.038	4.7%	7.9%
6	CNA Fin'l	0.350	46.652	5.8%	8.9%
7	Erie Indemnity	0.840	121.098	10.0%	13.3%
8	Old Republic	0.195	21.014	10.0%	14.5%
9	RLI Corp.	0.220	71.432	9.8%	11.2%
10	Selective Ins. Group	0.180	58.775	13.1%	14.6%
14	Average				12.9%

Note:¹

- d₀ = Latest quarterly dividend.
d₁, d₂, d₃, d₄, = Expected next four quarterly dividends, calculated by multiplying the last four quarterly dividends per Value Line, by the factor (1 + g).
P₀ = Average of the monthly high and low stock prices during the three months ending August 2018 per Thomson Reuters.
FC = Flotation costs.
g = I/B/E/S forecast of future earnings growth August 2018.
k = Cost of equity using the quarterly version of the DCF Model and a five percent allowance for flotation costs as shown by the formula below:

$$k = \frac{d_1(1+k)^{75} + d_2(1+k)^{50} + d_3(1+k)^{25} + d_4}{P_0(1-FC)} + g$$

¹ At August 2018, I have conservatively eliminated DCF model results equal to 20.6 percent, 24.1 percent, and 46.5 percent.

SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS FOR
S&P 500 COMPANIES

	COMPANY	STOCK PRICE (P ₀)	DIVIDEND (D ₀)	FORECAST OF FUTURE EARNINGS GROWTH	MODEL RESULT
1	3M	202.10	5.44	9.70%	12.8%
2	ABBOTT LABORATORIES	63.47	1.12	11.84%	13.9%
3	ABBVIE	95.02	3.84	16.12%	21.1%
4	ACTIVISION BLIZZARD	74.57	0.34	15.10%	15.7%
5	ADV.AUTO PARTS	142.30	0.24	13.98%	14.2%
6	AETNA	188.44	2.00	9.69%	10.9%
7	AGILENT TECHS.	64.53	0.60	10.84%	11.9%
8	ALBEMARLE	94.84	1.34	12.70%	14.4%
9	ALLEGION	80.93	0.84	12.20%	13.4%
10	ALLERGAN	175.28	2.88	5.79%	7.6%
11	AMERICAN EXPRESS	100.92	1.40	11.80%	13.4%
12	AMERISOURCEBERGEN	86.00	1.52	10.20%	12.3%
13	AMGEN	190.21	5.28	5.38%	8.5%
14	ANTHEM	245.84	3.00	15.49%	17.0%
15	APPLE	196.75	2.92	12.78%	14.6%
16	APPLIED MATS.	47.49	0.80	17.82%	19.9%
17	APTIV	94.56	0.88	13.37%	14.5%
18	AT&T	32.36	2.00	6.20%	13.3%
19	AUTOMATIC DATA PROC.	136.88	2.76	14.60%	17.1%
20	AVERY DENNISON	107.27	2.08	13.31%	15.6%
21	BALL	37.83	0.40	10.57%	11.8%
22	BANK OF NEW YORK MELLON	54.00	1.12	8.13%	10.5%
23	BAXTER INTL.	73.17	0.76	13.00%	14.2%
24	BECTON DICKINSON	242.70	3.00	14.57%	16.1%
25	BEST BUY	76.03	1.80	13.70%	16.6%
26	BLACKROCK	505.21	12.52	13.80%	16.8%
27	BOEING	346.89	6.84	19.01%	21.5%
28	BORGWARNER	45.45	0.68	6.77%	8.5%
29	BRISTOL MYERS SQUIBB	56.92	1.60	10.98%	14.3%
30	BROADCOM	231.67	7.00	14.03%	17.7%
31	CARDINAL HEALTH	50.73	1.91	4.94%	9.2%
32	CARNIVAL	59.70	2.00	12.73%	16.8%
33	CBS 'B'	54.13	0.72	17.36%	19.0%
34	CENTERPOINT EN.	27.36	1.11	8.62%	13.3%
35	CH ROBINSON WWD.	90.24	1.84	13.21%	15.7%
36	CHURCH & DWIGHT CO.	53.58	0.87	10.34%	12.2%
37	CIGNA	177.76	0.04	14.48%	14.5%
38	CISCO SYSTEMS	43.40	1.32	10.28%	13.9%
39	CLOROX	133.51	3.84	7.46%	10.8%
40	CMS ENERGY	47.06	1.43	6.97%	10.4%
41	COCA COLA	44.83	1.56	7.25%	11.2%
42	COLGATE-PALM.	65.50	1.68	7.25%	10.2%

	COMPANY	STOCK PRICE (P ₀)	DIVIDEND (D ₀)	FORECAST OF FUTURE EARNINGS GROWTH	MODEL RESULT
43	CONSTELLATION BRANDS 'A'	216.43	2.08	12.00%	13.1%
44	CORNING	30.57	0.72	9.81%	12.6%
45	COSTCO WHOLESALE	214.44	2.28	11.96%	13.2%
46	COTY CL.A	13.39	0.50	15.23%	19.8%
47	CSX	68.70	0.88	20.38%	22.0%
48	CUMMINS	138.76	4.56	11.70%	15.6%
49	DANAHER	101.26	0.64	9.00%	9.7%
50	DARDEN RESTAURANTS	106.11	3.00	12.35%	15.7%
51	DISCOVER FINANCIAL SVS.	73.37	1.60	13.07%	15.7%
52	DOLLAR GENERAL	98.60	1.16	15.86%	17.3%
53	DOMINION ENERGY	68.66	3.34	6.34%	11.9%
54	DTE ENERGY	105.22	3.53	5.49%	9.3%
55	DUKE ENERGY	79.00	3.71	4.13%	9.4%
56	ECOLAB	143.35	1.64	13.65%	15.0%
57	ELI LILLY	93.31	2.25	12.10%	15.0%
58	ESTEE LAUDER COS.'A'	141.87	1.52	15.56%	16.9%
59	EVERSOURCE ENERGY	58.80	2.02	5.80%	9.7%
60	EXELON	42.21	1.38	4.30%	7.9%
61	EXPEDIA GROUP	127.84	1.28	17.69%	18.9%
62	EXPEDITOR INTL.OF WASH.	74.11	0.90	11.13%	12.6%
63	FEDEX	242.34	2.60	13.44%	14.7%
64	FIDELITY NAT.INFO.SVS.	105.77	1.28	13.41%	14.9%
65	FOOT LOCKER	52.05	1.38	7.64%	10.7%
66	GAP	30.87	0.97	12.08%	15.8%
67	GENERAL DYNAMICS	194.66	3.72	12.47%	14.7%
68	GENERAL ELECTRIC	13.28	0.48	6.17%	10.3%
69	GENERAL MOTORS	39.11	1.52	10.40%	15.0%
70	GLOBAL PAYMENTS	115.70	0.04	19.39%	19.4%
71	HARLEY-DAVIDSON	43.11	1.48	10.43%	14.5%
72	HCA HEALTHCARE	116.06	1.40	13.64%	15.1%
73	HERSHEY	95.85	2.69	9.37%	12.6%
74	HOME DEPOT	196.52	4.12	14.85%	17.4%
75	HONEYWELL INTL.	151.59	2.98	10.54%	12.8%
76	HP	23.47	0.56	9.46%	12.2%
77	HUMANA	310.29	2.00	15.23%	16.0%
78	HUNT JB TRANSPORT SVS.	123.67	0.96	20.81%	21.8%
79	ILLINOIS TOOL WORKS	141.44	4.00	12.31%	15.7%
80	INTEL	50.44	1.20	10.22%	13.0%
81	INTERCONTINENTAL EX.	74.35	0.96	12.20%	13.7%
82	INTERNATIONAL PAPER	53.38	1.90	14.99%	19.4%
83	INTERPUBLIC GROUP	22.82	0.84	7.30%	11.5%
84	JACOBS ENGR.	66.68	0.60	16.07%	17.2%
85	JOHNSON & JOHNSON	127.32	3.60	7.73%	11.0%
86	JP MORGAN CHASE & CO.	111.02	2.48	9.32%	11.9%
87	KELLOGG	68.94	2.24	6.92%	10.6%
88	KIMBERLY-CLARK	108.67	4.00	6.00%	10.2%

	COMPANY	STOCK PRICE (P ₀)	DIVIDEND (D ₀)	FORECAST OF FUTURE EARNINGS GROWTH	MODEL RESULT
89	KLA TENCOR	111.54	3.00	11.07%	14.2%
90	KRAFT HEINZ	61.31	2.50	5.31%	9.9%
91	KROGER	28.78	0.56	6.71%	8.9%
92	L BRANDS	33.27	2.40	7.38%	15.8%
93	LOWE'S COMPANIES	99.75	1.92	16.00%	18.4%
94	MARRIOTT INTL.'A'	128.95	1.64	18.16%	19.7%
95	MARTIN MRTA.MATS.	213.69	1.92	13.60%	14.7%
96	MASCO	38.48	0.42	14.77%	16.1%
97	MCCORMICK & COMPANY NV.	115.99	2.08	10.61%	12.7%
98	MEDTRONIC	88.93	2.00	7.10%	9.7%
99	MERCK & COMPANY	63.96	1.92	7.20%	10.6%
100	MICROSOFT	104.45	1.68	12.42%	14.3%
101	MOLSON COORS BREWING 'B'	66.74	1.64	7.44%	10.2%
102	MONDELEZ INTERNATIONAL CL.A	41.76	1.04	9.77%	12.7%
103	MOTOROLA SOLUTIONS	118.54	2.08	13.58%	15.7%
104	NETAPP	78.63	1.60	15.95%	18.5%
105	NEXTERA ENERGY	166.78	4.44	9.44%	12.5%
106	NIKE 'B'	77.81	0.80	12.21%	13.4%
107	NISOURCE	25.84	0.78	5.71%	9.1%
108	NORFOLK SOUTHERN	162.06	3.20	16.61%	19.1%
109	NORTHERN TRUST	108.11	2.20	15.14%	17.6%
110	NORTHROP GRUMMAN	307.72	4.80	15.89%	17.8%
111	OMNICOM GROUP	71.65	2.40	7.03%	10.9%
112	ORACLE	46.75	0.76	8.33%	10.2%
113	PACKAGING CORP.OF AM.	113.64	3.16	12.43%	15.8%
114	PARKER-HANNIFIN	164.26	3.04	8.03%	10.2%
115	PAYCHEX	69.59	2.24	8.33%	12.0%
116	PEPSICO	110.50	3.71	7.23%	11.1%
117	PERKINELMER	79.13	0.28	14.90%	15.3%
118	PFIZER	38.46	1.36	7.00%	11.0%
119	PHILIP MORRIS INTL.	81.13	4.56	8.15%	14.7%
120	PPG INDUSTRIES	106.21	1.83	9.60%	11.6%
121	PROCTER & GAMBLE	79.05	2.87	6.50%	10.6%
122	PUB.SER.ENTER.GP.	52.34	1.80	6.34%	10.2%
123	PVH	153.37	0.15	12.27%	12.4%
124	QUEST DIAGNOSTICS	110.25	2.00	9.87%	12.0%
125	RALPH LAUREN CL.A	135.40	2.50	10.05%	12.2%
126	REPUBLIC SVS.'A'	70.82	1.50	13.83%	16.4%
127	ROCKWELL AUTOMATION	175.55	3.68	12.17%	14.7%
128	ROCKWELL COLLINS	136.57	1.32	12.51%	13.7%
129	ROSS STORES	87.03	0.90	10.89%	12.1%
130	S&P GLOBAL	204.66	2.00	15.17%	16.4%
131	SEAGATE TECH.	55.50	2.52	7.12%	12.3%
132	SEMPRA EN.	113.77	3.58	8.89%	12.5%
133	SHERWIN-WILLIAMS	422.88	3.44	16.71%	17.7%
134	SKYWORKS SOLUTIONS	96.92	1.52	13.03%	14.9%

	COMPANY	STOCK PRICE (P ₀)	DIVIDEND (D ₀)	FORECAST OF FUTURE EARNINGS GROWTH	MODEL RESULT
135	SOUTHERN	46.22	2.40	2.10%	7.8%
136	SOUTHWEST AIRLINES	55.19	0.64	17.08%	18.5%
137	STANLEY BLACK & DECKER	140.78	2.64	10.82%	13.0%
138	STARBUCKS	52.03	1.44	13.87%	17.2%
139	STATE STREET	91.04	1.88	11.38%	13.8%
140	STRYKER	169.67	1.88	10.00%	11.3%
141	SYMANTEC	20.40	0.30	10.56%	12.3%
142	SYSCO	69.07	1.44	12.58%	15.1%
143	TAPESTRY	47.38	1.35	9.74%	13.1%
144	TE CONNECTIVITY	93.08	1.76	10.39%	12.6%
145	TECHNIPFMC	31.15	0.52	14.57%	16.6%
146	TEXAS INSTRUMENTS	112.48	2.48	14.41%	17.1%
147	THERMO FISHER SCIENTIFIC	221.65	0.68	11.91%	12.3%
148	TIFFANY & CO	133.42	2.20	10.91%	12.8%
149	TJX	97.71	1.56	10.63%	12.5%
150	TOTAL SYSTEM SERVICES	90.29	0.52	15.24%	15.9%
151	TRACTOR SUPPLY	79.22	1.24	13.64%	15.5%
152	TWENTY-FIRST CENTURY FOX CL.B	45.67	0.36	11.91%	12.8%
153	UNION PACIFIC	146.01	3.20	18.01%	20.8%
154	UNITED PARCEL SER.'B'	115.46	3.64	11.38%	15.1%
155	UNITEDHEALTH GROUP	253.92	3.60	15.37%	17.1%
156	UNIVERSAL HEALTH SVS.'B'	118.95	0.40	10.74%	11.1%
157	US BANCORP	51.88	1.20	6.80%	9.4%
158	V F	88.10	1.84	13.17%	15.7%
159	VERIZON COMMUNICATIONS	51.25	2.36	5.39%	10.6%
160	VIACOM 'B'	29.36	0.80	4.79%	7.8%
161	VISA 'A'	137.54	0.84	19.11%	19.9%
162	WALGREENS BOOTS ALLIANCE	65.58	1.76	11.64%	14.8%
163	WALMART	88.46	2.08	5.07%	7.7%
164	WALT DISNEY	109.37	1.68	11.23%	13.0%
165	WASTE MANAGEMENT	85.93	1.86	12.60%	15.2%
166	WEC ENERGY GROUP	64.43	2.21	4.54%	8.4%
167	WESTERN DIGITAL	74.20	2.00	5.63%	8.7%
168	WESTERN UNION	20.20	0.76	4.17%	8.4%
169	WHIRLPOOL	139.43	4.60	9.63%	13.5%
170	XCEL ENERGY	45.75	1.52	5.95%	9.7%
171	XILINX	70.86	1.44	14.02%	16.5%
172	ZOETIS	87.04	0.50	16.46%	17.2%
173	Average				13.8%

Note: In applying the DCF Model to the S&P 500, I include in the DCF analysis only those companies in the S&P 500 group which pay a dividend, have a positive growth rate, and have at least three analysts' long-term growth estimates. In addition, I exclude all companies in the I/B/E/S group of insurance companies. I also eliminate those companies with DCF results that vary from the mean by one standard deviation or more.

D_0	=	Latest dividend per Thomson Reuters.
d_0	=	Latest quarterly dividend.
P_0	=	Average of monthly high and low stock prices June, July, and August 2018 per Thomson Reuters.
FC	=	Selling and flotation costs.
g	=	I/B/E/S forecast of future earnings growth August 2018.
k	=	Cost of equity using the quarterly version of the DCF Model and a five percent allowance for flotation costs as shown by the formula below:

$$k = \left[\frac{d_0(1+g)^{\frac{1}{4}}}{P_0(1-FC)} + (1+g)^{\frac{1}{4}} \right]^4 - 1$$

THE QUARTERLY DCF MODEL

The simple DCF Model assumes that a firm pays dividends only at the end of each year. Since firms in fact pay dividends quarterly and investors appreciate the time value of money, the annual version of the DCF Model generally underestimates the value investors are willing to place on the firm's expected future dividend stream. In this appendix, we review two alternative formulations of the DCF Model that allow for the quarterly payment of dividends.

When dividends are assumed to be paid annually, the DCF Model suggests that the current price of the firm's stock is given by the expression:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_n + P_n}{(1+k)^n} \quad (1)$$

where

- P_0 = current price per share of the firm's stock,
- D_1, D_2, \dots, D_n = expected annual dividends per share on the firm's stock,
- P_n = price per share of stock at the time investors expect to sell the stock, and
- k = return investors expect to earn on alternative investments of the same risk, i.e., the investors' required rate of return.

Unfortunately, expression (1) is rather difficult to analyze, especially for the purpose of estimating k . Thus, most analysts make a number of simplifying assumptions. First, they assume that dividends are expected to grow at the constant rate g into the indefinite future. Second, they assume that the stock price at time n is simply the present value of all dividends expected in periods subsequent to n . Third, they assume that the investors' required rate of return, k , exceeds the expected dividend growth rate g . Under the above simplifying assumptions, a firm's stock price may be written as the following sum:

$$P_0 = \frac{D_0(1+g)}{(1+k)} + \frac{D_0(1+g)^2}{(1+k)^2} + \frac{D_0(1+g)^3}{(1+k)^3} + \dots, \quad (2)$$

where the three dots indicate that the sum continues indefinitely.

As we shall demonstrate shortly, this sum may be simplified to:

$$P_0 = \frac{D_0(1+g)}{(k-g)}$$

First, however, we need to review the very useful concept of a geometric progression.

Geometric Progression

Consider the sequence of numbers 3, 6, 12, 24, ..., where each number after the first is obtained by multiplying the preceding number by the factor 2. Obviously, this sequence of numbers may also be expressed as the sequence $3, 3 \times 2, 3 \times 2^2, 3 \times 2^3, \dots$. This sequence is an example of a geometric progression.

Definition: A geometric progression is a sequence in which each term after the first is obtained by multiplying some fixed number, called the common ratio, by the preceding term.

A general notation for geometric progressions is: a , the first term, r , the common ratio, and n , the number of terms. Using this notation, any geometric progression may be represented by the sequence:

$$a, ar, ar^2, ar^3, \dots, ar^{n-1}.$$

In studying the DCF Model, we will find it useful to have an expression for the sum of n terms of a geometric progression. Call this sum S_n . Then

$$S_n = a + ar + \dots + ar^{n-1}. \quad (3)$$

However, this expression can be simplified by multiplying both sides of equation (3) by r and then subtracting the new equation from the old. Thus,

$$rS_n = ar + ar^2 + ar^3 + \dots + ar^n$$

and

$$S_n - rS_n = a - ar^n,$$

or

$$(1 - r) S_n = a (1 - r^n).$$

Solving for S_n , we obtain:

$$S_n = \frac{a(1 - r^n)}{(1 - r)} \quad (4)$$

as a simple expression for the sum of n terms of a geometric progression. Furthermore, if $|r| < 1$, then S_n is finite, and as n approaches infinity, S_n approaches $a \div (1 - r)$. Thus, for a geometric progression with an infinite number of terms and $|r| < 1$, equation (4) becomes:

$$S = \frac{a}{1 - r} \quad (5)$$

Application to DCF Model

Comparing equation (2) with equation (3), we see that the firm's stock price (under the DCF assumption) is the sum of an infinite geometric progression with the first term

$$a = \frac{D_0(1+g)}{(1+k)}$$

and common factor

$$r = \frac{(1+g)}{(1+k)}$$

Applying equation (5) for the sum of such a geometric progression, we obtain

$$S = a \cdot \frac{1}{(1-r)} = \frac{D_0(1+g)}{(1+k)} \cdot \frac{1}{1 - \frac{1+g}{1+k}} = \frac{D_0(1+g)}{(1+k)} \cdot \frac{1+k}{k-g} = \frac{D_0(1+g)}{k-g}$$

as we suggested earlier.

Quarterly DCF Model

The Annual DCF Model assumes that dividends grow at an annual rate of $g\%$ per year (see Figure 1).

Figure 1

Annual DCF Model

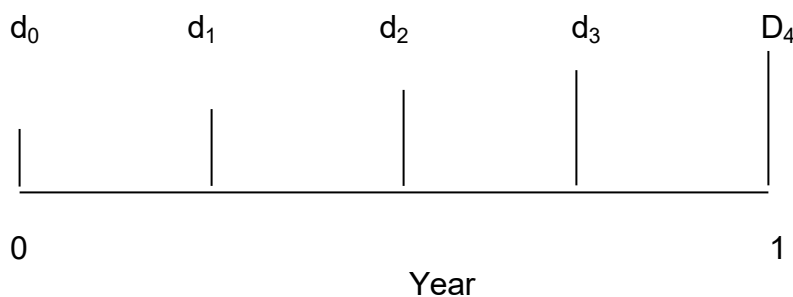


$D_0 = 4d_0$

$D_1 = D_0(1 + g)$

Figure 2

Quarterly DCF Model (Constant Growth Version)



$d_1 = d_0(1+g)^{.25}$

$d_2 = d_0(1+g)^{.50}$

$d_3 = d_0(1+g)^{.75}$

$d_4 = d_0(1+g)$

In the Quarterly DCF Model, it is natural to assume that quarterly dividend payments differ from the preceding quarterly dividend by the factor $(1 + g)^{.25}$, where g is expressed in terms of percent per year and the decimal .25 indicates that the growth has only occurred for one quarter of the year. (See Figure 2.) Using this assumption, along with the assumption of constant growth and $k > g$, we obtain a new expression for the firm's stock price, which takes account of the quarterly payment of dividends. This expression is:

$$P_0 = \frac{d_0(1+g)^{\frac{1}{4}}}{(1+k)^{\frac{1}{4}}} + \frac{d_0(1+g)^{\frac{2}{4}}}{(1+k)^{\frac{2}{4}}} + \frac{d_0(1+g)^{\frac{3}{4}}}{(1+k)^{\frac{3}{4}}} + \dots \quad (6)$$

where d_0 is the last quarterly dividend payment, rather than the last annual dividend payment. (We use a lower case d to remind the reader that this is not the annual dividend.)

Although equation (6) looks formidable at first glance, it too can be greatly simplified using the formula [equation (4)] for the sum of an infinite geometric progression. As the reader can easily verify, equation (6) can be simplified to:

$$P_0 = \frac{d_0(1+g)^{\frac{1}{4}}}{(1+k)^{\frac{1}{4}} - (1+g)^{\frac{1}{4}}} \quad (7)$$

Solving equation (7) for k , we obtain a DCF formula for estimating the cost of equity under the quarterly dividend assumption:

$$k = \left[\frac{d_0(I+g)^{\frac{1}{4}}}{P_0} + (I+g)^{\frac{1}{4}} \right]^4 - I \quad (8)$$

An Alternative Quarterly DCF Model

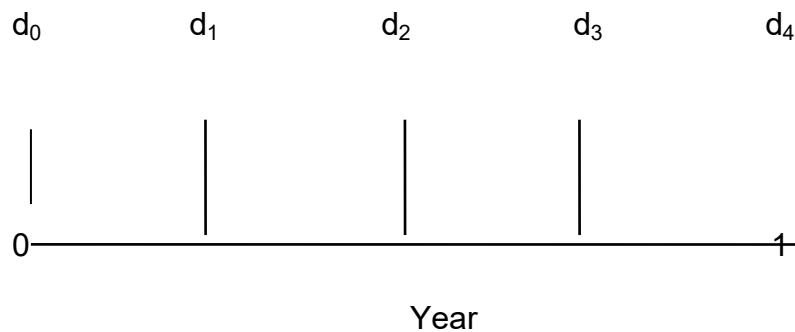
Although the constant growth Quarterly DCF Model [equation (8)] allows for the quarterly timing of dividend payments, it does require the assumption that the firm increases its dividend payments each quarter. Since this assumption is difficult for some analysts to accept, we now discuss a second Quarterly DCF Model that allows for constant quarterly dividend payments within each dividend year.

Assume then that the firm pays dividends quarterly and that each dividend payment is constant for four consecutive quarters. There are four cases to consider, with each case distinguished by varying assumptions about where we are evaluating the firm in relation to the time of its next dividend increase. (See Figure 3.)

Figure 3

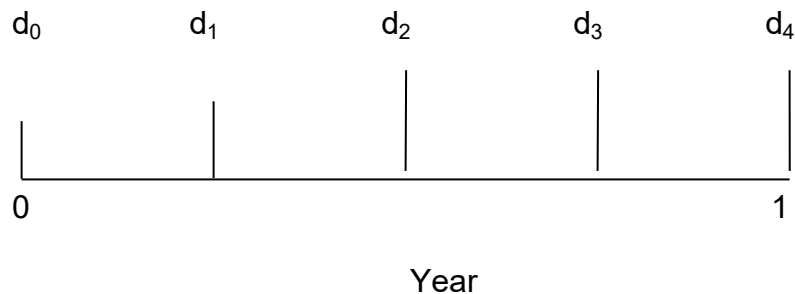
Quarterly DCF Model (Constant Dividend Version)

Case 1



$$d_1 = d_2 = d_3 = d_4 = d_0(1+g)$$

Case 2

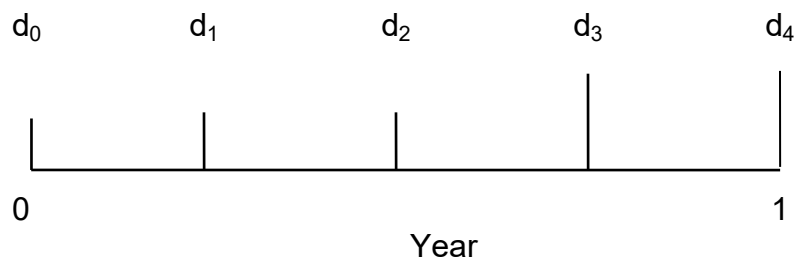


$$d_1 = d_0$$

$$d_2 = d_3 = d_4 = d_0(1+g)$$

Figure 3 (continued)

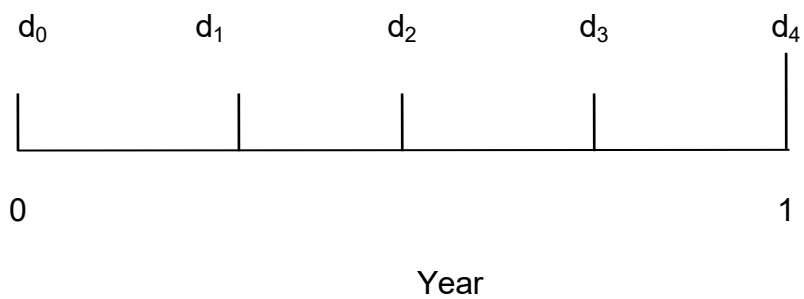
Case 3



$$d_1 = d_2 = d_0$$

$$d_3 = d_4 = d_0(1+g)$$

Case 4



$$d_1 = d_2 = d_3 = d_0$$

$$d_4 = d_0(1+g)$$

If we assume that the investor invests the quarterly dividend in an alternative investment of the same risk, then the amount accumulated by the end of the year will in all cases be given by

$$D_1^* = d_1 (1+k)^{3/4} + d_2 (1+k)^{1/2} + d_3 (1+k)^{1/4} + d_4$$

where d_1 , d_2 , d_3 and d_4 are the four quarterly dividends. Under these new assumptions, the firm's stock price may be expressed by an Annual DCF Model of the form (2), with the exception that

$$D_1^* = d_1 (1 + k)^{3/4} + d_2 (1 + k)^{1/2} + d_3 (1 + k)^{1/4} + d_4 \quad (9)$$

is used in place of $D_0(1+g)$. But, we already know that the Annual DCF Model may be reduced to

$$P_0 = \frac{D_0(1+g)}{k-g}$$

Thus, under the assumptions of the second Quarterly DCF Model, the firm's cost of equity is given by

$$k = \frac{D_1^*}{P_0} + g \quad (10)$$

with D_1^* given by (9).

Although equation (10) looks like the Annual DCF Model, there are at least two very

important practical differences. First, since D_1^* is always greater than $D_0(1+g)$, the estimates of the cost of equity are always larger (and more accurate) in the Quarterly Model (10) than in the Annual Model. Second, since D_1^* depends on k through equation (9), the unknown “ k ” appears on both sides of (10), and an iterative procedure is required to solve for k .

**COMPARATIVE RETURNS ON S&P 500 STOCKS
AND MOODY'S A-RATED UTILITY BONDS 1926-2017**

YEAR	S&P 500 STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RATE OF RETURN	RISK PREMIUM
2017	2,275.12	0.0209	24.71%	\$96.13	10.75%	13.97%
2016	1,918.60	0.0222	20.80%	\$95.48	4.87%	15.93%
2015	2,028.18	0.0208	-3.32%	\$107.65	-7.59%	4.26%
2014	1,822.36	0.0210	13.39%	\$89.89	24.20%	-10.81%
2013	1,481.11	0.0220	25.24%	\$97.45	-3.65%	28.89%
2012	1,300.58	0.0214	16.02%	\$94.36	7.52%	8.50%
2011	1,282.62	0.0185	3.25%	\$77.36	27.14%	-23.89%
2010	1,123.58	0.0203	16.18%	\$75.02	8.44%	7.74%
2009	865.58	0.0310	32.91%	\$68.43	15.48%	17.43%
2008	1,378.76	0.0206	-35.16%	\$72.25	0.24%	-35.40%
2007	1,424.16	0.0181	-1.38%	\$72.91	4.59%	-5.97%
2006	1,278.72	0.0183	13.20%	\$75.25	2.20%	11.01%
2005	1,181.41	0.0177	10.01%	\$74.91	5.80%	4.21%
2004	1,132.52	0.0162	5.94%	\$70.87	11.34%	-5.40%
2003	895.84	0.0180	28.22%	\$62.26	20.27%	7.95%
2002	1,140.21	0.0138	-20.05%	\$57.44	15.35%	-35.40%
2001	1,335.63	0.0116	-13.47%	\$56.40	8.93%	-22.40%
2000	1,425.59	0.0118	-5.13%	\$52.60	14.82%	-19.95%
1999	1,248.77	0.0130	15.46%	\$63.03	-10.20%	25.66%
1998	963.36	0.0162	31.25%	\$62.43	7.38%	23.87%
1997	766.22	0.0195	27.68%	\$56.62	17.32%	10.36%
1996	614.42	0.0231	27.02%	\$60.91	-0.48%	27.49%
1995	465.25	0.0287	34.93%	\$50.22	29.26%	5.68%
1994	472.99	0.0269	1.05%	\$60.01	-9.65%	10.71%
1993	435.23	0.0288	11.56%	\$53.13	20.48%	-8.93%
1992	416.08	0.0290	7.50%	\$49.56	15.27%	-7.77%
1991	325.49	0.0382	31.65%	\$44.84	19.44%	12.21%
1990	339.97	0.0341	-0.85%	\$45.60	7.11%	-7.96%
1989	285.41	0.0364	22.76%	\$43.06	15.18%	7.58%
1988	250.48	0.0366	17.61%	\$40.10	17.36%	0.25%
1987	264.51	0.0317	-2.13%	\$48.92	-9.84%	7.71%
1986	208.19	0.0390	30.95%	\$39.98	32.36%	-1.41%
1985	171.61	0.0451	25.83%	\$32.57	35.05%	-9.22%
1984	166.39	0.0427	7.41%	\$31.49	16.12%	-8.72%
1983	144.27	0.0479	20.12%	\$29.41	20.65%	-0.53%
1982	117.28	0.0595	28.96%	\$24.48	36.48%	-7.51%
1981	132.97	0.0480	-7.00%	\$29.37	-3.01%	-3.99%
1980	110.87	0.0541	25.34%	\$34.69	-3.81%	29.16%
1979	99.71	0.0533	16.52%	\$43.91	-11.89%	28.41%
1978	90.25	0.0532	15.80%	\$49.09	-2.40%	18.20%
1977	103.80	0.0399	-9.06%	\$50.95	4.20%	-13.27%
1976	96.86	0.0380	10.96%	\$43.91	25.13%	-14.17%
1975	72.56	0.0507	38.56%	\$41.76	14.75%	23.81%

**COMPARATIVE RETURNS ON S&P 500 STOCKS
AND MOODY'S A-RATED UTILITY BONDS 1926-2017**

YEAR	S&P 500 STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RATE OF RETURN	RISK PREMIUM
1974	96.11	0.0364	-20.86%	\$52.54	-12.91%	-7.96%
1973	118.40	0.0269	-16.14%	\$58.51	-3.37%	-12.77%
1972	103.30	0.0296	17.58%	\$56.47	10.69%	6.89%
1971	93.49	0.0332	13.81%	\$53.93	12.13%	1.69%
1970	90.31	0.0356	7.08%	\$50.46	14.81%	-7.73%
1969	102.00	0.0306	-8.40%	\$62.43	-12.76%	4.36%
1968	95.04	0.0313	10.45%	\$66.97	-0.81%	11.26%
1967	84.45	0.0351	16.05%	\$78.69	-9.81%	25.86%
1966	93.32	0.0302	-6.48%	\$86.57	-4.48%	-2.00%
1965	86.12	0.0299	11.35%	\$91.40	-0.91%	12.26%
1964	76.45	0.0305	15.70%	\$92.01	3.68%	12.02%
1963	65.06	0.0331	20.82%	\$93.56	2.61%	18.20%
1962	69.07	0.0297	-2.84%	\$89.60	8.89%	-11.73%
1961	59.72	0.0328	18.94%	\$89.74	4.29%	14.64%
1960	58.03	0.0327	6.18%	\$84.36	11.13%	-4.95%
1959	55.62	0.0324	7.57%	\$91.55	-3.49%	11.06%
1958	41.12	0.0448	39.74%	\$101.22	-5.60%	45.35%
1957	45.43	0.0431	-5.18%	\$100.70	4.49%	-9.67%
1956	44.15	0.0424	7.14%	\$113.00	-7.35%	14.49%
1955	35.60	0.0438	28.40%	\$116.77	0.20%	28.20%
1954	25.46	0.0569	45.52%	\$112.79	7.07%	38.45%
1953	26.18	0.0545	2.70%	\$114.24	2.24%	0.46%
1952	24.19	0.0582	14.05%	\$113.41	4.26%	9.79%
1951	21.21	0.0634	20.39%	\$123.44	-4.89%	25.28%
1950	16.88	0.0665	32.30%	\$125.08	1.89%	30.41%
1949	15.36	0.0620	16.10%	\$119.82	7.72%	8.37%
1948	14.83	0.0571	9.28%	\$118.50	4.49%	4.79%
1947	15.21	0.0449	1.99%	\$126.02	-2.79%	4.79%
1946	18.02	0.0356	-12.03%	\$126.74	2.59%	-14.63%
1945	13.49	0.0460	38.18%	\$119.82	9.11%	29.07%
1944	11.85	0.0495	18.79%	\$119.82	3.34%	15.45%
1943	10.09	0.0554	22.98%	\$118.50	4.49%	18.49%
1942	8.93	0.0788	20.87%	\$117.63	4.14%	16.73%
1941	10.55	0.0638	-8.98%	\$116.34	4.55%	-13.52%
1940	12.30	0.0458	-9.65%	\$112.39	7.08%	-16.73%
1939	12.50	0.0349	1.89%	\$105.75	10.05%	-8.16%
1938	11.31	0.0784	18.36%	\$99.83	9.94%	8.42%
1937	17.59	0.0434	-31.36%	\$103.18	0.63%	-31.99%
1936	13.76	0.0327	31.10%	\$96.46	11.12%	19.99%
1935	9.26	0.0424	52.84%	\$82.23	22.17%	30.66%
1934	10.54	0.0336	-8.78%	\$66.78	29.13%	-37.91%
1933	7.09	0.0542	54.08%	\$79.55	-11.03%	65.11%
1932	8.30	0.0822	-6.36%	\$70.67	18.23%	-24.59%
1931	15.98	0.0550	-42.56%	\$84.49	-11.63%	-30.93%

COMPARATIVE RETURNS ON S&P 500 STOCKS
AND MOODY'S A-RATED UTILITY BONDS 1926-2017

YEAR	S&P 500 STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RATE OF RETURN	RISK PREMIUM
1930	21.71	0.0438	-22.01%	\$81.19	8.99%	-31.00%
1929	24.86	0.0336	-9.31%	\$83.95	1.48%	-10.79%
1928	17.53	0.0431	46.12%	\$86.71	1.43%	44.69%
1927	13.40	0.0502	35.84%	\$83.28	8.92%	26.92%
1926	12.65	0.0446	10.39%	\$80.81	8.01%	2.38%
Average 1926 - 2017			11.57%		6.82%	4.76%

Note: See Page 4 for an explanation of how stock and bond returns are derived and the source of the data presented.

COMPARATIVE RETURNS ON S&P 500 STOCKS
AND MOODY'S A-RATED UTILITY BONDS 1926-2017

RISK PREMIUM APPROACH

SOURCE OF DATA

Stock price and yield information is obtained from Standard & Poor's Security Price publication. Standard & Poor's derives the stock dividend yield by dividing the aggregate cash dividends (based on the latest known annual rate) by the aggregate market value of the stocks in the group. The bond price information is obtained by calculating the present value of a bond due in thirty years with a \$4.00 coupon and a yield to maturity of a particular year's indicated Moody's A-rated Utility bond yield. The values shown on the ex post risk premium schedule are the January values of the respective indices.

Calculation of Stock and Bond Returns

Sample calculation of "Stock Return" column:

$$\text{StockReturn}(2017) = \left[\frac{\text{StockPrice}(2018) - \text{StockPrice}(2017) + \text{Dividend}(2017)}{\text{StockPrice}(2017)} \right]$$

where $\text{Dividend}(2017) = \text{Stock Price}(2017) \times \text{Stock Div. Yield}(2017)$

Sample calculation of "Bond Return" column:

$$\text{Bond Return}(2017) = \left[\frac{\text{Bond Price}(2018) - \text{Bond Price}(2017) + \text{Interest}(2017)}{\text{Bond Price}(2017)} \right]$$

where $\text{Interest} = \$4.00$.

**PREFILED TESTIMONY
OF
GEORGE ZANJANI**

**MOBILE HOMEOWNERS (F) INSURANCE RATE FILING
NORTH CAROLINA RATE BUREAU
FEBRUARY, 2019**

I. Qualifications and Summary

Q: What is your name, occupation, and business address?

A: My name is George Zanjani. I am Professor of Finance and the holder of the Frank Park Samford Chair of Insurance at the University of Alabama. My business address is 1074 Alderwood Lane NE, Marietta, Georgia 30068.

Q: Please describe your educational and employment background.

A: A complete curriculum vitae is attached as Exhibit RB-19 with this testimony. To summarize, my undergraduate studies were at Stanford University from 1987-1990, where I earned an A.B./B.S in Economics and Biology. I joined the commercial lines actuarial department of Fireman's Fund Insurance Companies in 1990 as an Assistant Actuarial Analyst. Upon leaving in 1994, I was a Senior Actuarial Analyst, an Associate of the Casualty Actuarial Society, and the head of the company's Workers Compensation actuarial unit. I did my graduate studies in Economics at the University of Chicago, earning a Ph.D. in 2000. I joined the Research Department of the Federal Reserve Bank of New York in the Capital Markets Function as a Research Economist in 2000, leaving as a Senior Economist in 2008. I joined the Robinson College of Business of Georgia State University in 2008 as an Associate Professor of Risk Management and Insurance and was honored as the inaugural holder of the AAMGA Distinguished Chair in Risk Management and Insurance in 2011. I started my current position in 2017.

Q: Please elaborate on some of your professional activities.

A: My professional career has been focused on insurance. After four years of actuarial work in commercial lines insurance, my dissertation addressed the economics of insurance pricing. I specialized on insurance issues while at the Federal Reserve Bank of New York. In particular, I served for the Bank on the Presidential Working Group on Financial Markets during its review of the renewal of the Terrorism Risk Insurance Act in 2006 and on the Committee on the Global Financial System Task Force on Institutional Investors, Global Savings, and Asset Allocation.

My academic service activities include 1) service as referee for various academic journals, 2) service as an associate editor of the *Journal of Insurance Issues*, and 3) (current) service as a senior editor for the *Journal of Risk and Insurance*. In addition, I have served on the Board of the American Risk and Insurance Association and served as President of that association. I have also served as President of the Risk Theory Society. I currently serve on the International Research Advisory Board of National Chengchi University.

As an academic, I continue to write on insurance pricing, participate in academic conferences on insurance, and engage in various sponsored research and consulting activities related to insurance. The latter activities include two research projects on capital allocation sponsored by the Casualty Actuarial Society during the last decade and a project on the financial crisis and the insurance industry sponsored by the Society of Actuaries in 2009. In addition, I have taught various courses at the undergraduate and graduate levels over the past decade, including classes on financial risk management, risk modeling, and property-casualty insurance.

Q: Have you published any papers or books?

A: Yes. I have published various articles, book chapters, reviews, and white papers on insurance pricing and other aspects of insurance markets. Published or forthcoming work includes articles on insurance topics in the *American Economic Review*, *Insurance: Mathematics and Economics*, the *Journal of Financial Economics*, the *Journal of Public Economics*, the *Journal of Risk and Insurance*, *Management Science*, and the *North American Actuarial Journal*. My co-authors and I have two chapters in the 2013 edition of the Handbook of Insurance, one on capital allocation for insurance companies, and the other on the financial pricing of insurance. Two papers have won awards for their contributions to the field of actuarial science: I received the 2010 ARIA award from the Casualty Actuarial Society and shared the 2015 Charles A. Hachemeister Prize (also from the Casualty Actuarial Society) with a co-author.

Q: Are you a member of any professional organizations?

A: I am a member of the American Economic Association, the American Finance Association, the American Risk and Insurance Association, and the Risk Theory Society. I am also an Associate of the Casualty Actuarial Society. I served on the Board of Directors of the American Risk and Insurance Association from 2007 to 2014 and served as President in 2012-2013. I served as President of the Risk Theory Society in 2012.

Q: Have you ever testified in insurance rate regulatory proceedings?

A: Yes. I have offered testimony in workers compensation insurance rate hearings in Florida (2015 and 2017) and Virginia (2016). I also supplied testimony for the North Carolina Rate Bureau's 2019 auto insurance rate filing.

Q: What was the nature of your testimony in those previous cases?

A: In these cases, I offered testimony on the underwriting profit factors used in the rates. Specifically, I evaluated the suitability of the methods and assumptions used to develop those factors, as well as whether the rate of return on capital implied by those factors was reasonable.

Q: What is the purpose of your testimony?

A: I was asked by the North Carolina Rate Bureau 1) to assist the Bureau committee with the underwriting profit factor selection, 2) to determine the expected return on insurance net worth implicit in the filing, and 3) to assess whether the expected return on net worth constitutes a reasonable rate of return and thus whether the selected underwriting profit factor selection satisfies North Carolina's statutory requirements.

Q: Please summarize the main findings of your testimony.

A: Using a pro forma return model, I analyzed how the selected underwriting profit provisions used in the filing translate into expected returns on net worth. Consistent with previous filings, and with North Carolina law stipulating that the investment income earned on capital and surplus is not to be considered in determining the appropriate rate of return for the insurance industry, I refer to the expected return on net worth without including investment income on capital and surplus as the *statutory return*. When calculating the expected return on net worth including investment income earned on capital and surplus, I refer to the figure as the *total return*. My calculations for Mobile Homeowners Insurance (F) are detailed in Exhibit RB-17. To summarize, I found that the 6.5% underwriting profit provision used in the filing generates a statutory return on net worth of 6.83% and a total return on net worth of 10.74%.

I then reviewed Dr. Vander Weide's testimony on the cost of insurance capital and considered other third-party estimates of the cost of insurance capital. I also considered adjustments to those cost of capital estimates that I deemed necessary for the North Carolina mobile homeowners insurance market. In particular, since a significant portion of the market is underwritten by non-public companies, I considered the effects of non-public ownership on the cost of equity. Ultimately, I found the expected returns implied by the underwriting profit provisions used in the filing to be reasonable and not excessive. Specifically, the expected returns fall toward the lower end of the range of cost of equity estimates produced by Dr. Vander Weide and others. Moreover, my conclusion is unchanged after adjusting the cost of capital to reflect both 1) the presence of debt financing at insurance holding companies and 2) a market value-to-book value premium at insurance holding companies.

II. Expected Return on Net Worth

Q: In general terms, how did you determine the expected return on net worth implied by the underwriting profit provision used in the filing?

A: I used a *pro forma* return model similar to that used in previous filings in North Carolina. The model accounts for underwriting income, installment payment income, investment income on unearned premium and loss/loss adjustment expense (LAE) reserves, and taxes as a percentage of premium. Total after-tax income from these sources (as a percentage of premium) is then related to net worth (as a percentage of premium) to obtain an expected return on net worth.

Q: What do you mean by *pro forma*?

A: The model is *pro forma* in the sense that it assumes 1) that the indicated rate change will be implemented and 2) that all loss, expense, and investment return realizations will coincide with their projected expected values.

The results of the model and supporting information are presented in Exhibit RB-17.

Q: Could you state what you mean by "net worth"?

A: Net worth is the book value of equity of a company under Generally Accepted Accounting Principles (GAAP) rather than Statutory Accounting Principles (SAP).

Q: Did you account for investment income on capital and surplus in calculating the expected return?

A: It is my understanding that North Carolina law provides that insurance rates are to be set such that those rates are expected to provide a return to insurers that is equal to the returns of industries of comparable risk and that, in calculating that expected return, the investment income on capital and surplus is to be excluded from consideration. Therefore, I present the expected return projected to result from the selected underwriting profit provision excluding investment income on capital and surplus. However, for informational purposes, I also present the expected return projected to result from the selected underwriting profit provision including investment income on capital and surplus.

Q: Would you please elaborate on the elements of the return and how they are calculated?

A: The return is composed of underwriting profit (Line 2 of Exhibit RB-17, Pages 1 and 1A), installment fee income (Line 3 of Exhibit RB-17, Pages 1 and 1A) and investment gain on insurance transaction (Line 7 of Exhibit RB-17, Pages 1 and 1A). In the calculation that includes investment income on surplus for informational purposes, I additionally include investment gain on surplus (Line 8 of Exhibit RB-17, Page 1A). (Please note that, in my exhibits and sometimes in my testimony, I refer to investment income on surplus as a shorthand reference to investment income on capital and surplus.) All of the foregoing income components are adjusted for taxes. The components are discussed in greater detail below:

Underwriting profit and installment fee income - As a matter of arithmetic and definition, the underwriting profit as a percentage of premium matches the underwriting profit provision selected by the NCRB. It is the percentage of premium left over after accounting for the loss and expense provisions, with the projected loss and LAE ratio and fixed expense ratios being adjusted to reflect the indicated rate change. Installment fee income is based on the average installment charges as a percentage of premium over the past five years (Exhibit RB-17, Page 3). The underwriting profit income and installment fee income are both assumed to be taxed at the current corporate rate of 21% (Line 4 of Exhibit RB-17, Pages 1 and 1A), as revised in the Tax Cut and Jobs Act of 2017. I also account for additional tax liabilities relating to IRS rules regarding the treatment of unearned premium reserves and of loss reserves (Line 5 of Exhibit RB-17, Pages 1 and 1A). Details of the calculation of these additional tax liabilities are found on Pages 4 to 6 of Exhibit RB-17.

Net Investment Gain on Insurance Transaction – This portion of the return reflects investment income on investible funds generated by the insurance transaction. Specifically, this quantity is calculated as the product of an investment yield and the average loss/LAE and unearned premium reserves. An adjustment is made for investment income on agents balances (specifically, to account for the fact that agents balances, which are premiums held by agents and not yet remitted to the company, are not available for investment by the insurance

company). The details of the estimation of investible reserves and the investment income generated from those reserves are found on Pages 7 to 9 of Exhibit RB-17. The tax liability is based on a weighted average of estimated tax rates on the different sources of investment income, with the weights based on the composition of the overall property-casualty industry portfolio.

Investment Gain on Surplus – This portion of the return would reflect investment income generated from surplus. The investment yield is applied to investible surplus, the amount of which is based on the six-year average premium-to-surplus ratio for groups writing mobile homeowners insurance in North Carolina from Page 14 of Exhibit RB-17. The tax liability is again based on a weighted average of estimated tax rates on the different sources of investment income, with the weights based on the composition of the overall property-casualty industry portfolio.

These components of after-tax return, which are all denominated as a percent of premium, are then summed and related to net worth. This is accomplished by multiplying the returns as percent of premium by the product of the premium-to-surplus ratio from Page 14 of Exhibit RB-17 and the inverse of the industry-wide net worth-to-surplus ratio from Page 15 of Exhibit RB-17.

Q: Please explain how the investment yield is calculated.

A: My understanding is that the conventional approach in North Carolina, based on a decision by the Commissioner in the 1990's, is to estimate the investment yield as an average of the "embedded yield" based on the industry statutory annual statement reports and a "current yield" based on current market rates. I have followed this convention in my analysis. For the current yield, I start with the overall industry invested asset portfolio and use various sources to estimate the current market yields for those assets. Sources for current market rates, and a summary of the overall calculation, are provided on Page 11 of Exhibit RB-17. For each of the bond subcategories, I obtain a maturity distribution for the industry portfolio in that subcategory from the Schedule D summary exhibits and match each maturity level from the exhibits to a corresponding bond yield of similar maturity, so that the average yield shown on Page 11 is a weighted average across maturities according to the industry portfolio. The overall pre-tax current yield on the industry portfolio as thus determined is 4.60%. The embedded yield calculations, based on the actual investment income reported by the industry, are shown on Pages 12 and 13 of Exhibit RB-17; the pre-tax embedded yield is 3.42%. For the pro forma calculations, I average these two figures to obtain 4.01% (shown on Page 10 of Exhibit RB-17).

The tax liability for investment income is determined for each asset class, reflecting tax advantages as appropriate on municipal bond interest, preferred and common stock dividends, and capital gains on stock. The expected return on equity is split into a capital gain and dividend component, for tax purposes, based on the experience of the S&P 500 over the 1998-2017 period.

Q: What is the expected return on net worth?

A: To calculate the implied return on insurance company equity, components of after-tax return are summed and related to net worth, which, as a percentage of premium, is calculated based on the product of the premium-to-surplus ratio from Page 14 of Exhibit RB-17 and the inverse of the industry-wide net worth-to-surplus ratio from Page 15 of Exhibit RB-17. This approach indicates that the selected underwriting profit factor of 6.5%, if achieved, would yield an expected statutory return on net worth of 6.83% (without including investment income on surplus) and a total return on net worth of 10.74% (when including investment income on surplus).

Q: How was the underwriting profit factor determined?

A: The Bureau selected the 6.5% provision. I participated in the Bureau's Property Rating Subcommittee meeting for the discussion of the profit portion of the rate review. I described for the committee my pro forma profit analysis and provided an array of underwriting profit provisions and their associated returns on net worth, both without including investment income on surplus and including investment income on surplus. The returns shown in that array spanned the range for the cost of equity that had been provided by Dr. Vander Weide. Following my presentation and the committee discussion, the committee selected the underwriting profit factor.

III. Rate of Return on Capital

Q: What steps did you take in the course of assessing whether the returns described above would produce a reasonable rate of return on equity?

A: I first reviewed Dr. Vander Weide's testimony. I then compared his results to other independent estimates based on various methodologies. I then made adjustments to both sets of estimates to account for the particular ownership structures that prevail in the North Carolina market. Finally, I compared the estimated statutory and total return on net worth determined in Section II above to these adjusted cost of equity estimates.

Q: What was the nature of Dr. Vander Weide's analysis?

A: The cost of equity for an industry is a difficult figure to pin down, and Dr. Vander Weide uses two approaches to estimate it. The first is a discounted cash flow (DCF) model, which estimates the cost of equity under the assumption that the current equity price is a discounted present value of future dividend cash flows. The critical input to this calculation is the dividend growth rate estimate, which he bases on analyst forecasts. His final estimates under this approach are 12.9%, which he obtains when restricting his attention to property-casualty firms specifically, and 13.8% when using the S&P 500, which he views as having generally similar risk characteristics as the property-casualty industry. The second approach is a risk premium approach, which estimates the current cost of equity as a current bond yield plus a spread, or risk premium. This analysis, which again uses the S&P 500 for purposes of estimating the risk premium, produces an estimate of 9.0%.

Q: How do Dr. Vander Weide's estimates compare with other estimates of the cost of equity for the industry?

A: The two methods employed by Dr. Vander Weide---the DCF and the risk premium method---are perhaps the two most widely accepted and widely deployed methods for estimating the cost of equity. However, there is substantial variation in implementation of these methods, which can have significant effects on the estimates. For example, the DCF/dividend growth model is sometimes estimated with different time period stages, with time-varying growth rates. There is also substantial methodological variation in implementation of the risk premium method---differences in averaging techniques, differences in the sample period used to estimate the risk premium, differences in the choice of the reference bond yield, differences in the methods used to estimate the relative risk of the industry of interest, and so forth. To get a sense of the import of these differences, I reviewed some additional third-party estimates of the cost of equity for the property-casualty industry, particularly those from Damodaran Online (an open-access website maintained by Aswath Damodaran, a valuation expert affiliated with New York University) and Duff & Phelps (a consultancy that took over the pioneering Ibbotson Cost of Capital franchise). The most recent estimates from Damodaran Online (January 2019) and Duff & Phelps (September 2018 edition of *Valuation Handbook – U.S. Industry Cost of Capital*, for the SIC Code Composite) are listed along with Dr. Vander Weide’s estimates in the table below.

Property-Casualty Industry Cost of Equity Estimates

Source	Method	Estimate
James Vander Weide	Risk Premium	9.0%
Duff & Phelps	Risk Premium (CAPM)	8.2%
Damodaran Online	Risk Premium (CAPM)	7.1%
James Vander Weide	DCF	12.9% to 13.8%
Duff & Phelps	DCF (1-stage)	19.9%
Duff & Phelps	DCF (3-stage)	18.6%
Duff & Phelps	CAPM + Size Premium	8.6%
Duff & Phelps	Fama-French	11.3%

As can be seen from the table, Dr. Vander Weide’s estimates are comparable to other estimates for the industry.

Q: In the table, you also listed additional cost of equity estimates from Duff & Phelps. Can you explain these methods and their relevance to this filing?

A: Yes. While the CAPM and DCF methods are the basic models and are widely used, various extensions have gained acceptance over the years because of the need to draw finer distinctions among industries and firms when calculating the cost of equity. In particular, the “CAPM + size premium” recognizes the higher cost of capital endured by smaller firms and thus corrects for the average size of firms within an industry. The Fama-French-5-factor model extends the single risk factor framework of the CAPM to a five factor risk framework, thus pricing an industry’s equity on the basis of its sensitivity to four additional factors in addition to overall market returns. These methods produce higher estimates for the cost of equity in the property-casualty industry than the single factor risk premium model approaches. They provide additional perspective on the cost of equity.

Q: Do you believe any adjustments are necessary to the estimated cost of equity in the context of this filing?

A: Yes. All of the foregoing estimates are based on the data of publicly traded companies, which have the easiest access to financing and thus the lowest costs of capital. However, I found that operating companies affiliated with publicly traded holding companies wrote only 83.2% of the 2017 mobile homeowners direct premiums written for North Carolina. The remaining 16.8% was underwritten by companies associated with private, often mutual, ownership---a segment well-known to have more difficulty in accessing the capital markets. The industry average cost of equity needs to be adjusted upward to account for this non-public ownership.

Q: How much higher is the cost of equity for non-public firms?

A: Research dating back at least as far as the 1960's has demonstrated that private equity trades at a substantial discount to public equity. The discount is thought to derive from a variety of factors, including the illiquid nature of private equity stakes (also known as a "lack of marketability") as well as information, monitoring, and control issues. The discount translates into a higher cost of equity. For example, if a public firm's cost of equity is estimated at 10% and the equity of a comparable private firm is selling at a 20% discount to that of the public firm, the private firm's cost of equity would be estimated as:

$$12.5\% = 10\% / (1 - 20\%)$$

The discount is difficult to estimate. Exhibit RB-18 summarizes some of the academic research on the private firm discount. Studies have taken a variety of approaches to measurement. "IPO" studies compare the prices of pre-IPO share transactions in a private company with post-IPO share prices after the company is public. "Acquisition" studies compare the valuations of acquired private companies versus the valuations of acquired public companies. "Restricted stock" and "private placement" studies compare the prices of restricted stock issued by public companies with the prices of their traded shares.

All the approaches have their flaws. IPO studies, for example, are thought to have a bias toward overstating the discount because of the differences in timing of transactions. Restricted stock and private placement studies tend to understate the discount: Since they confine their attention to public companies, they do not account for factors other than the discount for lack of marketability (DLOM), and, moreover, the actual restrictions on marketability for private placements have been loosened significantly over the years by the Securities and Exchange Commission.

On balance, however, the studies point to a substantial discount. For purposes of this testimony, I use a discount of 25%, which is slightly below the average of the averages of the three groups in Exhibit RB-18 (when taking the midpoint of the ranges for the studies with ranges of estimates).

Q: How would this affect the estimated cost of equity for the industry?

A: Assuming a 25% private company discount and a 16.8% market share for non-public companies, I calculate adjusted estimates of the private cost of equity and the public cost of equity:

$$16.8\% * \left(\frac{COE}{(1 - 0.25)} \right) + (83.2\%) * (COE),$$

where *COE* is the estimated cost of equity for public companies. The adjusted estimates are as follows:

Cost of Equity Estimates, Adjusted for Non-Public Ownership

Source	Method	Adjusted Estimate
James Vander Weide	Risk Premium	9.5%
Duff & Phelps	Risk Premium (CAPM)	8.7%
Damodaran Online	Risk Premium (CAPM)	7.5%
James Vander Weide	DCF	13.6% to 14.6%
Duff & Phelps	DCF (1-stage)	21.0%
Duff & Phelps	DCF (3-stage)	19.6%
Duff & Phelps	CAPM + Size Premium	9.1%
Duff & Phelps	Fama-French	11.9%

Q: How do these figures speak to the issue of whether or not the pro forma expected return on net worth is reasonable?

A: There are at least two schools of thought on this issue.

The first is that the “net worth” in the pro forma return exhibit should be interpreted as an equity investment akin to the equity analyzed by Dr. Vander Weide and others. Thus, it should be entitled to a similar rate of return. Under this school of thought, the return on net worth calculated in the previous section should be compared directly with the figures in the table above. If one does this, the projected returns are, in my opinion, clearly not excessive, even when including investment income on surplus in the calculation of the return. The projected total return of 10.74% falls toward the lower end of the span of estimates above, which range from 7.5% to 21.0%. If one instead focuses on the statutory return by excluding investment income on surplus, the projected returns for both coverages are slightly below the lowest available estimate for the cost of equity.

A second school of thought is that, although the capital of the operating subsidiaries may be fully financed by equity, one should “look through” the operating subsidiaries to the level of the holding companies to determine a cost of capital, which is important because the holding companies---unlike the insurance subsidiaries---typically hold some debt in the capital structure. Holding companies that are typically classified as property-casualty companies have, in recent history and on average, had in the neighborhood of 20% debt. Thus, the cost of capital for the holding company is, under this school of thought, calculated as a weighted average of the cost of equity and the cost of debt, with the weights based on each component’s share of the capital structure. The result is a weighted average cost of capital (WACC), which is typically lower than the cost of equity as a reflection of the lower cost of debt. On the other hand, another

consideration is that the market value of the capital of the holding company will be different than the book value of the capital invested in the insurance subsidiaries. Thus, a particular return on net worth at the level of the operating subsidiary will translate into a lower (higher) return on holding company capital if the market value of the holding company capital exceeds (is less than) the net worth of the insurance subsidiaries.

The following table shows the most current WACC estimates for the property-casualty industry from Damodaran Online and Duff & Phelps, after adjusting the cost of equity for non-public ownership as described above. It also shows the required return on operating company net worth under different assumptions about the ratio of holding company equity market capitalization to holding company net worth and under the assumption of 20% debt (trading at par) in the capital structure. For example, the required return on operating company net worth for a WACC estimate of 10.0% and a Market-to-Net Worth Ratio of 1.2, would be:

$$10\% * (1.2 * 80\% + 20\%) = 11.6\%$$

Note that the WACC estimates vary, due not only to the previously described differences in estimating the cost of equity, but also due to different estimates for the cost of debt and for the share of debt in the capital structure.

Property-Casualty WACC Estimates, Adjusted for Non-Public Ownership

Source	Method	WACC Estimate	Required Return on Net Worth, Assuming Market-to-Net Worth Ratio of:		
			1	1.2	1.4
			Duff & Phelps	Risk Premium (CAPM)	7.9%
Damodaran Online	Risk Premium (CAPM)	6.6%	6.6%	7.6%	8.7%
Duff & Phelps	DCF (1-stage)	18.5%	18.5%	21.5%	24.5%
Duff & Phelps	DCF (3-stage)	17.4%	17.4%	20.2%	22.9%
Duff & Phelps	CAPM + Size Premium	8.3%	8.3%	9.6%	11.0%
Duff & Phelps	Fama-French	10.7%	10.7%	12.4%	14.2%

At current stock market valuations, the market-to-net worth ratio of the public companies underwriting mobile homeowners insurance in North Carolina, using January 26, 2019 market capitalization data and the most recent available accounting data from Yahoo Finance (9/30/18, in most cases), is typically well above 1. However, even if one sets this ratio to 1, the table above demonstrates that a total return on capital of 10.74% (counting investment income on surplus) is not excessive, as is a statutory return on capital of 6.83% (not counting investment income on surplus).

In summary, the expected return on net worth calculated in Section II is, in my opinion, consistent with a reasonable and not excessive return on invested capital.

IV. Conclusion

Q: Based on your knowledge and experience and on the studies and analyses you have performed, have you come to any conclusions regarding the underwriting profit factor selected by the Bureau and used in its indicated rate level calculations in this filing?

A: Yes. For Mobile Homeowners (F), based on my pro forma return analysis, I found that the expected statutory return on net worth implied by the selected 6.5% underwriting profit factor was 6.83% (not including investment income on surplus): The expected total return on net worth was 10.74% (including investment income on surplus). After reviewing and analyzing the cost of capital estimates for the industry produced by Dr. Vander Weide and others, I found the expected returns on net worth resulting from the selected underwriting profit factors to be consistent with a reasonable and not excessive return on invested capital. Thus, I believe that the selected underwriting profit factors are reasonable and not excessive.

An important caveat to this analysis, however, is that all conclusions are predicated on the assumption that the indicated rate level is achieved. In the event that a lower rate level is implemented, the expected rate of return could be inadequate.

NCRB - Pro Forma Statutory Rate of Return MOBILE HOMEOWNERS (F) INSURANCE			
	Pre-Tax	Tax Liability	Post-Tax
1 Premiums	100.00%		
Loss & LAE	46.73%		
Commissions	16.60%		
Other Acquisition & General	6.94%		
Taxes, Licenses, & Fees	2.90%		
Policyholder Dividends	0.40%		
Net Cost of Reinsurance	18.49%		
Compensation for Assessment Risk	1.44%		
2 Pro Forma Underwriting Profit	6.50%		
3 Installment Fee Income	0.28%		
4 Regular Tax		1.42%	
5 Additional Tax Due to IRS Treatment of Reserves		0.02%	
6 Total Return from Underwriting Post-Tax			5.33%
7 Investment Gain on Insurance Transaction	1.67%		
Less Investment Income on Agents Balances	0.64%		
Net Investment Gain on Insurance Transaction	1.02%	0.17%	0.85%
8 Total Return as a Percent of Premium (post-tax)			6.19%
9 Premium-to-Net Worth Ratio			1.10
10 Total Return as a Percent of Net Worth (post-tax)			6.83%

Lines (1) to (8) are expressed as a percentage of premium.

Assumptions and Parameters

(a) Underwriting Income Tax Rate	21.00%
(b) Investment Income Tax Rate	16.40%
(c) Pre-tax Investment Yield	4.01%
(d) Premium-to-Surplus Ratio	1.26
(e) Net Worth-to-Surplus Ratio	1.14
(f) Installment Fee Income	0.28%
(g) Additional Tax Due to IRS Treatment of Loss Reserves and UEPR	0.02%
(h) Net Cost of Reinsurance	18.49%
(i) Compensation for Assessment Risk	1.44%

Notes to Exhibit RB-17 Page 1

- 1 The expense provisions are those used in Exhibit RB-1, adjusted for the proposed rate change.
- 2 Selected by North Carolina Rate Bureau
- 3 See Exhibit RB-17, Page 3
- 4 $[(2) + (3)] \times (a)$
- 5 See Exhibit RB-17, Pages 4-6
- 6 $(2) + (3) - (4) - (5)$
- 7 Investment income on agents balances is calculated as $.157 \times 1.022 \times (c)$, where .157 is the factor for agents balances held for less than 90 days and 1.022 is a factor to correct for overdue balances. The figures are based on the Homeowners line and are sourced from ISO.
- 8 $(6) + (7)$
- 9 $(d) / (e)$
- 10 $(8) \times (9)$

Assumptions

- (a) Current corporate tax rate, based on the Tax Cut and Jobs Act of 2017.
- (b) See Exhibit RB-17, Pages 11-13. Calculated as $1 - \text{average post-tax yield} / \text{average pre-tax yield}$.
- (c) See Exhibit RB-17, Page 10
- (d) See Exhibit RB-17, Page 14
- (e) See Exhibit RB-17, Page 15
- (f) See Exhibit RB-17, Page 3
- (g) See Exhibit RB-17, Pages 4-6
- (h) Net Cost of Reinsurance based on the analysis of AON and incorporated in the filing, adjusted for the indicated rate change.
- (i) Compensation for Assessment Risk based on the analysis of Milliman incorporated in the filing, adjusted for the indicated rate change.

NCRB - Pro Forma Statutory Rate of Return (Including Investment Income on Surplus) MOBILE HOMEOWNERS (F) INSURANCE			
	Pre-Tax	Tax Liability	Post-Tax
1 Premiums	100.00%		
Loss & LAE	46.73%		
Commissions	16.60%		
Other Acquisition & General	6.94%		
Taxes, Licenses, & Fees	2.90%		
Policyholder Dividends	0.40%		
Net Cost of Reinsurance	18.49%		
Compensation for Assessment Risk	1.44%		
2 Pro Forma Underwriting Profit	6.50%		
3 Installment Fee Income	0.28%		
4 Regular Tax		1.42%	
5 Additional Tax Due to IRS Treatment of Reserves		0.02%	
6 Total Return from Underwriting Post-Tax			5.33%
7 Investment Gain on Insurance Transaction	1.67%		
Less Investment Income on Agents Balances	0.64%		
Net Investment Gain on Insurance Transaction	1.02%	0.17%	0.85%
8 Investment Gain on Surplus	4.24%	0.69%	3.54%
9 Total Return as a Percent of Premium (post-tax)			9.73%
10 Premium-to-Net Worth Ratio			1.10
11 Total Return as a Percent of Net Worth (post-tax)			10.74%

Lines (1) to (8) are expressed as a percentage of premium.

Assumptions and Parameters

(a) Underwriting Income Tax Rate	21.00%
(b) Investment Income Tax Rate	16.40%
(c) Pre-tax Investment Yield	4.01%
(d) Premium-to-Surplus Ratio	1.26
(e) Net Worth-to-Surplus Ratio	1.14
(f) Installment Fee Income	0.28%
(g) Additional Tax Due to IRS Treatment of Loss Reserves and UEPR	0.02%
(h) Net Cost of Reinsurance	18.49%
(i) Compensation for Assessment Risk	1.44%

Notes to Exhibit RB-17 Page 1A

1 The expense provisions are those used in Exhibit RB-1, adjusted for the proposed rate change.

2 Selected by North Carolina Rate Bureau

3 See Exhibit RB-17, Page 3

4 $[(2) + (3)] \times (a)$

5 See Exhibit RB-17, Pages 4-6

6 $(2) + (3) - (4) - (5)$

7 Investment income on agents balances is calculated as $.157 \times 1.022 \times (c)$, where .157 is the factor for agents balances held for less than 90 days and 1.022 is a factor to correct for overdue balances. The figures are based on the Homeowners line and are sourced from ISO.

8 $(c) \times [1 / (d) + .5137 \times .5127]$, where .5137 is the prepaid expense ratio from Page 7 and .5127 is the UEPR ratio from Page 7.

9 $(6) + (7) + (8)$

10 $(d) / (e)$

11 $(9) \times (10)$

Assumptions

(a) Current corporate tax rate, based on the Tax Cut and Jobs Act of 2017.

(b) See Exhibit RB-17, Pages 11-13. Calculated as $1 - \text{average post-tax yield} / \text{average pre-tax yield}$.

(c) See Exhibit RB-17, Page 10

(d) See Exhibit RB-17, Page 14

(e) See Exhibit RB-17, Page 15

(f) See Exhibit RB-17, Page 3

(g) See Exhibit RB-17, Pages 4-6

(h) Net Cost of Reinsurance based on the analysis of AON and incorporated in the filing, adjusted for the indicated rate change.

(i) Compensation for Assessment Risk based on the analysis of Milliman incorporated in the filing, adjusted for the indicated rate change.

**NORTH CAROLINA
MOBILE HOMEOWNERS (F) INSURANCE
INSTALLMENT PAYMENT INCOME**

Year	Installment Charges	Mobile Home Written Premium	Percentage
2017	333,749	115,100,136	0.29%
2016	345,366	116,108,907	0.30%
2015	315,705	111,821,183	0.28%
2014	305,302	110,598,408	0.28%
2013	306,133	110,368,646	0.28%
Selected Value			0.28%

Source: NCRB

**North Carolina
MOBILE HOMEOWNERS (F) INSURANCE
Calculation of Additional Tax Liability**

1. Collected Earned Premium for Current Year	100.00%
2. Unearned Premium Reserve 12/31/Current	51.72%
3. Unearned Premium Reserve 12/31/Prior	50.97%
4. Increase: (2) - (3)	0.75%
5. 20% of Increase = Taxable Income	0.15%
6. Additional Tax Liability due to Unearned Premium Reserve	0.03%
7. Unpaid Loss Current Year	10.05%
8. Discounted Unpaid Loss Prior Year	9.75%
9. Unpaid Loss Prior Year	9.91%
10. Discounted Unpaid Loss Prior Year	9.56%
11. Additional Income	-0.04%
12. Additional Tax Liability due to Loss Reserve Discounting	-0.01%
13. Total Additional Tax Liabilities (6) + (12)	0.02%

**NORTH CAROLINA
MOBILE HOMEOWNERS (F) INSURANCE
Calculation of Taxable Income**

Calculation of Unpaid Loss for Current Accident Year (AY)					Calculation of Discounted Unpaid Loss for Current AY			Calculation of Discounted Unpaid Loss for Prior AY			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AY Avg Acc Date	AY Pay Pattern	Percent Unpaid	Total Losses	Unpaid Losses	AY at 12/31 yr t	Discount Factor	Discounted Unpaid Loss	AY at 12/31/yr t-1	Unpaid Losses	Discount Factor	Discounted Unpaid Loss
0.5	84.27%	15.73%	46.726	7.35	2017	0.975977	7.1735				
1.5	96.37%	3.63%	46.047	1.67	2016	0.958627	1.6024	2016	7.243	0.971096	7.0339
2.5	98.71%	1.29%	45.378	0.59	2015	0.949872	0.5560	2015	1.647	0.955623	1.5741
3.5	99.45%	0.55%	44.719	0.25	2014	0.95152	0.2340	2014	0.577	0.946789	0.5462
4.5	99.74%	0.26%	44.069	0.11	2013	0.937836	0.1075	2013	0.242	0.942233	0.2284
5.5	99.87%	0.13%	43.428	0.06	2012	0.901726	0.0509	2012	0.113	0.918898	0.1038
6.5	99.93%	0.07%	42.797	0.03	2011	0.919076	0.0275	2011	0.056	0.913257	0.0508
7.5	100.00%	0.00%	42.175	0.00	2010	0.921445	0.0000	2010	0.030	0.911536	0.0269
								2009	0.000	0.916659	0.0000
Totals				10.05	9.75			9.91		9.56	

Notes to Pages 4 and 5

Page 4

- 2 Page 8, line (2) divided by Page 8, line (1)
- 3 (2) divided by 1 plus the 10 year average growth rate of MHF premiums in North Carolina
- 4 (2) - (3)
- 5 (4) x 20%
- 6 (5) x current corporate tax rate
- 7 Unpaid current-year losses at year-end as a percent of current year premium.
Sum of Page 5, Column (5)
- 8 Discounted unpaid current-year losses at year-end as a percent of current year premium.
Sum of Page 5, Column (8)
- 9 Unpaid prior-year losses at year-end as a percent of current year premium.
Sum of Page 5, Column (10)
- 10 Discounted unpaid prior-year losses at year-end as a percent of current year premium.
Sum of Page 5, Column (12)
- 11 Change in loss reserve discount: [(7) - (8)] - [(9) - (10)]
- 12 (11) x current corporate tax rate
- 13 (6) + (12)

Page 5

- 1 Midpoint of number of years since end of accident period
- 2 HO accident year payout pattern developed from NC HO policy year losses
- 3 1 - (2)
- 4 Latest period losses are based on projected loss ratio from Page 1. For previous years,
losses are detrended at the 10 year average premium growth rate for MHF in North Carolina.
- 5 (3) x (4)
- 6 Accident Year at current year end
- 7 IRS discount factor for multiple peril lines for each accident year applicable for the current tax year
- 8 (5) x (7)
- 9 Accident Year at prior year end
- 10 Column (3), previous period x Column (4), current period
- 11 IRS discount factor for multiple peril lines for each accident year applicable for the prior tax year
- 12 (10) x (11)

**NCRB Investment Income Calculation
MOBILE HOMEOWNERS (F) INSURANCE**

**Projected Investment Earnings on Loss, Loss
Adjustment Expense and Unearned Premium Reserves**

A. UNEARNED PREMIUM RESERVES

1. Direct Earned Premiums		1,000,000
2. Mean Unearned Premium Reserve	51.27%	512,706
3. Deductions for Prepaid Expenses		
Commissions & Brokerage	16.60%	
Taxes, Licenses, & Fees (5/6)	2.42%	
Other Acquisition & General (1/2)	3.47%	
Cost of Reinsurance	28.88%	
Total	51.37%	
4. Deduction for Prepaid Expense: (2) x (3)		263,379
5. Net Unearned Premium Reserve Subject to Investment (2) - (4)		249,326

B. Loss and Loss Expense Reserves

1. Direct Earned Premiums		1,000,000
2. Expected Incurred Loss & LAE-to-Premium Ratio	46.73%	467,263
3. Expected Mean Loss and LAE Reserve-to-Incurred Ratio	35.58%	166,268

C. Net Policyholder Funds Subject to Investment (A5 + B3) 415,594

D. Average Rate of Return 4.01%

E. Investment Earnings from Net Reserves: (C) x (D) 16,651

F. Average Rate of Return as a Percent of Direct Earned Premiums: (E) / (A1) 1.67%

**NORTH CAROLINA
MOBILE HOMEOWNERS (F) INSURANCE**

**ESTIMATED INVESTMENT EARNINGS ON UNEARNED
PREMIUM RESERVES AND ON LOSS RESERVES**

EXPLANATORY NOTES

Line A-1

Calculations displayed are per million of direct earned premiums.

Line A-2

The mean unearned premium reserve (UEPR) is determined by multiplying the direct earned premiums in line (1) by the ratio of the mean unearned premium reserve to the direct earned premium for the current calendar year ended 12/31. The data are for North Carolina Homeowners (NC HO) insurance (from statutory Page 14 of the Annual Statement) for all companies which wrote Mobile Homeowners F in the most recent calendar year. Volume amounts are in thousands of dollars.

1 NC HO Direct Earned Premium for most recent calendar year	1,042,753
2 NC HO UEPR at end of most recent calendar year	539,298
3 NC HO UEPR at end of previous calendar year	529,953
4 Mean NC HO UEPR	534,625
5 Ratio [(4) / (1)]	51.27%

Line A-3

Deduction for prepaid expenses

Certain production expenses, such as commissions and reinsurance, are assumed to be incurred when the policy is written and before the premium is paid. In addition, half of Other Acquisition and General expenses and 5/6 of Taxes, Licenses and Fees are assumed to be prepaid.

**NORTH CAROLINA
MOBILE HOMEOWNERS (F) INSURANCE**

**ESTIMATED INVESTMENT EARNINGS ON UNEARNED
PREMIUM RESERVES AND ON LOSS RESERVES**

EXPLANATORY NOTES

Line B-2

The expected loss and loss adjustment expense ratio is consistent with the expense provisions used in the filing.

Line B-3

The mean loss reserve is calculated by multiplying the incurred losses in (2) by the ratio for mean loss reserves to incurred losses. The latter figures are based on total statutory Page 14 figures for NC HO direct losses incurred and direct losses unpaid for all companies writing Mobile Homeowners F in North Carolina in 2017. The adjustment for loss expense reserves is based on nationwide industry aggregates for the HO line. Volume amounts are in thousands of dollars.

6 Direct Losses Incurred	2013	408,245
7 Direct Losses Incurred	2014	433,022
8 Direct Losses Incurred	2015	423,733
9 Direct Losses Incurred	2016	603,534
10 Direct Losses Incurred	2017	526,611
11 Direct Losses Unpaid	2012	154,427
12 Direct Losses Unpaid	2013	148,720
13 Direct Losses Unpaid	2014	137,228
14 Direct Losses Unpaid	2015	141,106
15 Direct Losses Unpaid	2016	187,316
16 Direct Losses Unpaid	2017	165,313
17 Mean Loss Reserve	2013	151,573
18 Mean Loss Reserve	2014	142,974
19 Mean Loss Reserve	2015	139,167
20 Mean Loss Reserve	2016	164,211
21 Mean Loss Reserve	2017	176,314
22 Ratio	2013	37.13%
23 Ratio	2014	33.02%
24 Ratio	2015	32.84%
25 Ratio	2016	27.21%
26 Ratio	2017	33.48%
27 Average Loss Reserve		32.74%
28 Ratio of LAE Reserves to Loss Reserves		0.262
29 Ratio of Incurred LAE to Incurred Loss		0.161
30 Loss & LAE Reserve [(27) x (1+(28))/(1+(29))]		0.356

**NORTH CAROLINA
MOBILE HOMEOWNERS (F) INSURANCE**

**ESTIMATED INVESTMENT EARNINGS ON UNEARNED
PREMIUM RESERVES AND ON LOSS RESERVES**

EXPLANATORY NOTES

Line E

The average rate of return is the average of the pretax current yield calculated on Page 11 and the pretax embedded yield. The embedded yield (see Page 12) is the sum of the ratio of investment income to invested assets for the most recent year plus the ten year average ratio of capital gains to invested assets (see Page 13). The current yield is the estimated currently available rate of return (including both income and capital gains) on the industry investment portfolio (see Page 11).

Embedded Yield	3.42%
Current Yield	4.60%
Average	4.01%

Portfolio Yield and Tax Rate - Current Yield					
Investable Asset	Percent of Assets	Estimated Prospective Pre-Tax Return	Tax Rate	Estimated Prospective Post-Tax Return	
Bonds					
US Gov't	9.80%	2.74%	21.00%	2.17%	
Municipal	25.81%	2.49%	5.25%	2.36%	
Industrial	28.53%	3.47%	21.00%	2.74%	
Preferred Stock	0.34%	5.72%	13.13%	4.97%	
Common Stock	26.13%	10.31%	19.33%	8.32%	
Mortgage Loans	1.10%	4.72%	21.00%	3.73%	
Real Estate	0.82%	7.56%	21.00%	5.97%	
Cash & Short-term Investments	7.46%	2.22%	21.00%	1.75%	
Rate of Return Before Expenses	100.00%	4.90%	17.98%	4.02%	
Investment Expenses		0.30%	21.00%	0.24%	
Portfolio Rate of Return		4.60%	17.78%	3.78%	

Sources

Preferred Stock	Current yield on iShares Preferred Stock Index ETF, 11/15/2018
Real Estate	REIT Sector Cost of Equity, using 3 month average T-Bill for risk free rate, 8.09% ERP, 0.66 Beta (source: Damodaran Online)
Cash	3 month Treasury rate, averaged over 3 months (source: US Treasury)
Municipal	Maturity weighted avg of 3 month avg MBIS Investment Grade yield curve; linearly interpolated
Industrial	Three month average of HQM par yields (source: FRED); linearly interpolated
Treasury	Three month average of Treasury yields; linearly interpolated (source: US Treasury)
Common Stock	8.09% ERP (source: Damodaran Online) plus 3 month average T-Bill Rate
Investment Expenses	Investment Expenses from Page 12 Exhibit of Net Inv Inc divided by Cash and Inv Assets (Page 2)

Portfolio Yield and Tax Rate			
Embedded Yield			
		Income	Tax Rate
Bonds			
	Taxable	23,362,682	21.00%
	Non-Taxable	9,714,339	5.25%
Stocks			
	Taxable	7,610,774	13.13%
	Non-Taxable	1,785,853	5.25%
Mortgage Loans		755,495	21.00%
Real Estate		1,839,346	21.00%
Contract Loans		622	21.00%
Cash & Short Term Inv		980,167	21.00%
All Other		10,228,290	21.00%
Total		56,277,568	16.72%
Inv. Expenses		5,185,109	21.00%
Net Inv. Income		51,092,459	16.29%
Mean Invested Assets		1,676,831,258	
Inv. Inc. Yield Rate		3.05%	16.29%
Capital Gains (10 yr. avg.)		0.37%	0.00%
(% of Inv. Assets)			
Invest. Yield Rate (pre-tax)		3.42%	14.53%
Invest. Yield Rate (post-tax)		2.92%	

Source: A.M. Best's Aggregates and Averages, 2018 Edition, Page 12 - Exhibit of Net Investment Income (Column 2 - Earned During Year). For capital gains, see Exhibit RB-17, Page 13.

**Realized Capital Gains or Losses
As a Percentage of Mean Invested Assets
(Amounts in Thousands of Dollars)**

Calendar Year	Mean Invested Assets	Realized Capital Gains Amount	Percent
2008	1,288,393,875	(21,018,623)	-1.63%
2009	1,274,678,809	(8,079,575)	-0.63%
2010	1,330,998,082	8,100,143	0.61%
2011	1,366,568,026	7,563,305	0.55%
2012	1,400,656,619	9,035,405	0.65%
2013	1,473,600,834	12,163,890	0.83%
2014	1,543,882,375	12,093,078	0.78%
2015	1,567,611,077	9,887,732	0.63%
2016	1,596,937,470	8,086,268	0.51%
2017	1,676,831,258	15,725,303	0.94%
Total	14,520,158,422	53,556,926	0.37%

"Mean Invested Assets" is the average of current and prior year values for Total Invested Assets (Page 2). Source for data is 2008-2018 editions of A.M. Best's Aggregates and Averages.

North Carolina**MOBILE HOMEOWNERS (F) INSURANCE****Premium-to-Surplus Ratios**

Year	Ratio
2017	1.38
2016	1.25
2015	1.23
2014	1.24
2013	1.20
2012	1.23
Average	1.26

Data from NAIC Statutory Filings and from A.M. Best's Aggregates and Averages, various years, for all groups writing Mobile Homeowners insurance in North Carolina, weighted by North Carolina Mobile Homeowners premiums.

North Carolina
MOBILE HOMEOWNERS (F) INSURANCE
Calculation of Ratio of GAAP Net Worth to Statutory Surplus

	2012	2013	2014	2015	2016
Policyholder Surplus	587,061,063,988	653,380,281,255	675,233,591,461	674,150,481,028	700,833,588,840
+ Deferred Acquisition Costs	28,717,782,350	30,010,149,317	31,242,614,928	32,401,590,297	33,046,102,666
+ Non-Admitted DTA Provision	12,829,214,564	11,638,345,594	11,237,499,832	12,112,807,244	11,544,280,333
+ Non-admitted Assets (non-tax part)	36,238,971,886	33,348,888,924	33,563,586,431	40,260,421,135	43,722,898,341
+ Provision for Reinsurance	2,595,871,371	2,471,928,096	2,392,301,235	2,251,585,712	2,185,395,913
+ Provision for FASB 115(after-tax)	42,220,449,087	14,722,750,582	25,814,318,855	16,081,984,811	10,015,172,605
- Surplus Notes	(12,279,333,642)	(12,190,299,603)	(11,673,768,635)	(12,446,044,946)	(12,027,889,160)
GAAP-adjusted Net Worth	697,384,019,604	733,382,044,165	767,810,144,106	764,812,825,281	789,319,549,538
Ratio of Net Worth to Surplus	1.19	1.12	1.14	1.13	1.13
Five Year Average	1.14				

Source: ISO

Sample of Findings on the Private Company Discount

Study	Years	Discount	Type
Emory (1994)	1992-1993	45%	IPO
Willamette Management Associates (various)	1975-1997	29% to 60%	IPO
Garland and Reilly (2004)	1998-2002	35%	IPO
Larcker et al. (2018)	2017	39% to 47%	IPO
Koeplin et al. (2000)	1984-1998	20% to 30%	Acquisitions
Block (2007)	1999-2006	20% to 25%	Acquisitions
Officer (2007)	1979-2003	15% to 30%	Acquisitions
Paglia and Harjoto (2010)	1993-2008	65% to 70%	Acquisitions
Jaffe et al. (2018)	1985-2014	0%	Acquisitions
Silber (1991)	1981-1988	34%	Restricted Stock
Johnson (1999)	1991-1995	20%	Restricted Stock
Bajaj et al. (2001)	1990-1995	7%	Private placements
Comment (2012)	2004-2010	5% to 6%	Private placements
Finnerty (2013)	1991-1997	21%	Private placements
Finnerty (2013)	1997-2007	15%	Private placements
Chen et al. (2015)	1999-2012	10%	Private placements

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* The Willamette research studies were unpublished but reported in [Business Valuation Discounts and Premiums](#), Chapter 5, by Shannon Pratt (New York: John Wiley & Sons, Inc., p. 85).

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ACAS, Casualty Actuarial Society, 1994
A.B. / B.S., Economics and Biology, Stanford University, 1990

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Professor of Finance and Frank Park Samford Chair of Insurance, 2017-

Georgia State University (Atlanta, Georgia)

AAMGA Distinguished Chair in Risk Management & Insurance, 2011-2017
Associate Professor, 2008-2017

Nanyang Technological University (Singapore)

Visiting Senior Research Fellow, 2011-12, 2013-2014

Federal Reserve Bank of New York (New York, New York)

Senior Economist, 2006-2008
Economist, 2000-2006

Fireman's Fund Insurance Companies (Novato, California)

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Actuarial Analyst, 1991-1993
Assistant Actuarial Analyst, 1990-1991

Publications: Refereed Scholarly

"Dynamic Capital Allocation with Irreversible Investments," (with Daniel Bauer, Shinichi Kamiya, and Xiaohu Ping), *Insurance: Mathematics and Economics*, (forthcoming)

"What Drives Tort Reform Legislation? Economics and Politics of the State Decisions to Restrict Liability Torts," (with Yiling Deng), *Journal of Risk & Insurance*, (forthcoming)

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"Economic Analysis of Risk and Uncertainty Induced by Health Shocks: A Review and Extension," (with Tomas J. Philipson), in *Handbook of the Economics of Risk and Uncertainty*, Volume 1, Mark J. Machina and W. Kip Viscusi (eds.), North Holland: Elsevier (2014)

"Capital Allocation and Its Discontents," (with Daniel Bauer), in *Handbook of Insurance* (2nd edition), Georges Dionne (ed.), New York: Springer (2013)

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"Catastrophe Bonds, Reinsurance, and the Optimal Collateralization of Risk Transfer," (with Darius Lakdawalla), *Journal of Risk & Insurance* 79, pp. 449-76 (2012)

"An Economic Approach to Capital Allocation," *Journal of Risk and Insurance* 77, pp. 523-549 (2010) [Winner of Casualty Actuarial Society ARIA Award, 2010]

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"Public versus Private Underwriting of Catastrophe Risk: Lessons from the California Earthquake Authority," in *Risking House and Home: Disasters, Cities, Public Policy*, John M. Quigley and Larry A. Rosenthal (eds.), Berkeley: Berkeley Public Policy Press (2008)

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Publications: Professional/Practitioner

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“Microinsurance Lessons from History,” (with Rick Koven), *Microinsurance Learning and Knowledge (MILK)* (2013).

“Institutional Investors and Asset Allocations: Accounting and Regulation of Private Defined Benefit Pension Plans and Other Institutional Investors in the United States, Mexico, and Australia,” (with John Broadbent, Michael Palumbo, and Julio Santaella), *CGFS Publication No. 27, Working Group on Institutional Investors, Global Savings, and Asset Allocation* (2006)

“An Overview of Political Risk Insurance” (with Kausar Hamdani and Elise Liebers), *CGFS Publication No. 22, Working Group on Foreign Direct Investment in the Financial Sector of Emerging Market Economies* (2005)

Work in Progress

“Market Discipline and Guaranty Funds in Life Insurance,” (with Martin Grace, Shinichi Kamiya, and Robert W. Klein), working paper, 2018.

“The Effect of Government Guarantees on Market Discipline in the Property-Casualty Insurance Industry,” (with Yiling Deng and Ty Leverty), working paper, 2017

“The Marginal Cost of Risk in a Multi-Period Model,” (with Daniel Bauer), working paper, 2017. [Winner of Casualty Actuarial Society Hachemeister Prize, 2015]

- “An Integrated Approach to Measuring Asset and Liability Risks in Financial Institutions,” (with Daniel Bauer), working paper, 2017
- “Optimal Insurance Contracts with Insurer Background Risk,” (with Xiaohu Ping), working paper, 2015
- “The Effect of Banking Crises: Evidence from Non-Life Insurance Consumption,” (with Shinichi Kamiya and Jackie Li), working paper, 2015
- “Bankruptcy in the Core and Periphery of Financial Groups: The Case of the Property-Casualty Insurance Industry” working paper, 2010
- “The Rise and Fall of the Fraternal Life Insurer: Law and Organizational Form in U.S. Life Insurance, 1870-1920,” working paper, (*revise and resubmit, Journal of Law & Economics*), 2007
- “Organizational Form and the Underwriting Cycle: Theory with Evidence from the Pennsylvania Fire Insurance Market, 1873-1909,” working paper, 2004
- “Consumption versus Production of Insurance,” (with Tomas Philipson), *NBER Working Paper #6225*, 1997

External Research Projects and Consulting

- 2017 Expert Witness, Florida Workers’ Compensation Rate Hearing
- 2016 Expert Witness, Virginia Assigned Risk Workers’ Compensation Rate Hearing
- 2015 Expert Witness, Florida Workers’ Compensation Rate Hearing
- 2015 NCCI Revision of Underwriting Profit and Contingency Internal Rate of Return Model
- 2015 An Extension of the Project on the Costs of Holding Capital, sponsored by the CAS
- 2013 Microinsurance Centre Lessons from History Project
- 2012 Allocation of the Costs of Holding Capital, sponsored by the CAS,
- 2011 CRO Risk Index Project, co-sponsored by SOA and Bloomberg, co-founder
- 2009 “The Financial Crisis and Lessons for Insurers,” \$50,000 SOA grant, role: report co-author

Papers Presented at Professional Meetings

- 2015 “The Marginal Cost of Risk in a Multi-Period Model,” CAS Annual Meeting, Philadelphia, PA
- 2015 “Dynamic Capital Allocation,” IME Annual Conference, Liverpool UK
- 2015 “What Drives Tort Reform Legislation? Economics and Politics of the State Decisions to Restrict Liability Torts,” ASSA Annual Meeting, Boston, MA
- 2014 “The Marginal Cost of Risk in a Multi-Period Model,” CAS Centennial, New York, NY
- 2014 “Market Discipline and Guaranty Funds in Life Insurance,” EGRIE Annual Seminar, St. Gallen, CH
- 2014 “Dynamic Capital Allocation with Irreversible Investments,” EGRIE Annual Seminar, St. Gallen, CH

- 2014 "What Drives Tort Reform Legislation? Economics and Politics of the State Decisions to Restrict Liability Torts," ARIA Annual Meeting, Seattle, WA
- 2014 "The Marginal Cost of Risk in a Multi-Period Model," ARIA Annual Meeting, Seattle, WA
- 2014 "Market Discipline and Guaranty Funds in Life Insurance," ARIA Annual Meeting, Seattle, WA
- 2014 "The Marginal Cost of Risk in a Multi-Period Model," IME Conference, Shanghai, CN
- 2014 "The Effect of Banking Crises: Evidence from Non-Life Insurance Consumption," Risk Theory Seminar, Munich, Germany
- 2013 "The Effect of Banking Crises: Evidence from Non-Life Insurance Consumption," ASSA Annual Meeting, Philadelphia, PA
- 2013 "Optimal Insurance Contracts with Insurer Background Risk," EGRIE Annual Meeting, Paris, FR
- 2013 "The Effect of Banking Crises: Evidence from Non-Life Insurance Consumption," ARIA Annual Meeting, Washington D.C.
- 2013 "The Marginal Cost of Risk, Risk Measures, and Capital Allocation," IRFRC Catastrophe Risk Conference, Singapore
- 2013 "Optimal Insurance Contracts with Insurer Background Risk," ARIA Annual Meeting, Washington D.C.
- 2013 "The Marginal Cost of Risk, Risk Measures, and Capital Allocation," CEAR/ETH Indices of Risk and New Risk Measures Conference, Zurich, CH
- 2012 "The Marginal Cost of Risk, Risk Measures, and Capital Allocation," CAS Spring Meeting, Phoenix, AZ
- 2012 "The Marginal Cost of Risk, Risk Measures, and Capital Allocation," Symposium: Risk and Catastrophic Events, State College, PA
- 2012 "The Marginal Cost of Risk, Risk Measures, and Capital Allocation," ASSA Annual Meeting, Chicago, IL
- 2011 "The Marginal Cost of Risk, Risk Measures, and Capital Allocation," NBER Insurance Project Workshop, Cambridge, MA
- 2010 "Bankruptcy in the Core and Periphery of Financial Groups: The Case of the Property-Casualty Insurance Industry," ASSA Annual Meeting, Atlanta, GA
- 2009 "Bankruptcy in the Core and Periphery of Financial Groups: The Case of the Property-Casualty Insurance Industry," Risk Management and Corporate Governance Conference, Loyola University of Chicago
- 2009 "Bankruptcy in the Core and Periphery of Financial Groups: The Case of the Property-Casualty Insurance Industry," ARIA Annual Meeting, Providence, RI
- 2008 "An Economic Approach to Capital Allocation," Risk Theory Society, Annual Meeting, Fort Collins, CO
- 2007 "Federal Financial Exposure to Catastrophic Risk," ARIA Annual Meeting, Quebec City, CA
- 2007 "Catastrophe Bonds, Reinsurance, and the Optimal Collateralization of Risk Transfer," EFMA Annual Meeting, Vienna, AT
- 2007 "Catastrophe Bonds, Reinsurance, and the Optimal Collateralization of Risk Transfer," 5th Infiti Conference on International Financial Integration, Dublin, IE
- 2007 "Federal Financial Exposure to Catastrophic Risk," NBER Conference on Measuring and Managing Federal Financial Risk, Evanston, IL
- 2006 Insuring Catastrophic Losses: The Status of TRIA and Proposed Natural Disaster Backstops, Wash., D.C.
- 2006 "Catastrophe Bonds, Reinsurance, and the Optimal Collateralization of Risk Transfer," Risk Theory Society, Annual Meeting, Richmond, VA
- 2006 "Public versus Private Underwriting of Catastrophe Risk: Lessons from the California Earthquake Authority," Berkeley Symposium on Real Estate, Catastrophic Risk, and Public Policy
- 2006 "Catastrophe Bonds, Reinsurance, and the Optimal Collateralization of Risk Transfer," NBER Insurance Project Workshop, Cambridge, MA
- 2005 "Regulation, Capital, and the Evolution of Organizational Form in U.S. Life Insurance," NBER Insurance Project Workshop, Cambridge, MA
- 2004 "The Rise and Fall of the Fraternal Life Insurer: Law and Organizational Form in U.S. Life Insurance," NBER Insurance Project Workshop, Cambridge, MA
- 2004 "Regulation, Capital, and the Evolution of Organizational Form in U.S. Life Insurance," American Finance Association, Annual Meeting, San Diego, CA

- 2003 “Insurance, Self-Protection, and the Economics of Terrorism,” Risk Theory Society, Annual Meeting, Atlanta, GA
- 2003 “Terrorism Insurance Policy and the Public Good,” St. John’s Journal of Legal Commentary 10th Annual Legal Symposium: Terrorism and its Impact on Insurance: Legislative Responses and Coverage Issues, Queens, NY
- 2003 “Insurance, Self-Protection, and the Economics of Terrorism,” NBER Insurance Project Workshop, Cambridge, MA
- 2002 “Pricing and Capital Allocation in Catastrophe Insurance,” CAS Risk and Capital Management Seminar, Toronto, CA
- 2002 “Market Discipline and Government Guarantees in U.S. Life Insurance,” Risk Theory Society, Annual Meeting, Urbana-Champaign, IL
- 2001 “Pricing and Capital Allocation in Catastrophe Insurance,” Risk Theory Society, Annual Meeting, Montreal

Other Conferences Talks and Panel Participation

- 2017 International Conference on Business Sciences, Cairo University, Egypt
- 2016 IIF Insurance Colloquium, Basel, Switzerland
- 2016 Surplus Lines Association of California, California (keynote)
- 2014 Surplus Lines Automation Conference, Florida
- 2011 PRMIA Annual Risk Leadership Conference, Atlanta, GA
- 2011 7th International Microinsurance Conference, Rio de Janeiro, Brazil
- 2010 Property Loss Research Bureau Eastern Adjusters Conference, Atlanta, GA (keynote)
- 2008 NCOIL Annual Meeting, Duck Key, FL
- 2007 Capital Markets Symposium on Securitizing Insurance Risk, New York, NY
- 2006 Insuring Catastrophic Losses: The Status of TRIA and Proposed Natural Disaster Backstops, Wash., D.C.
- 2006 Catastrophe Bonds and Insurance Linked Securities Summit, New York, NY
- 2005 12th Annual International Conference Promoting Business Ethics, New York, NY

Service Activities in Academic and Professional Organizations

American Risk & Insurance Association President (2012-13)
Risk Theory Society President (2011-2012)
American Risk & Insurance Association Board Member (2007-2014)
International Research Advisory Board, Risk and Insurance Research Center, NCCU, Taiwan
Editorial Board, *Journal of Insurance Issues* (2012-2014)
Huebner Colloquium Panelist (2016-2018)

External Committees

American Risk & Insurance Association Program Committee, 2006, 2011, 2012; ARIA Nominations Committee, 2015, 2016; Kulp-Wright Book Award Committee, 2005

Discussant: *ARIA Annual Meeting, Chicago, 2018; ARIA Annual Meeting, Boston, 2016; SIFR Insurance Conference, Stockholm, 2015; EGRIE Annual Seminar, St. Gallen, 2014; ARIA Annual Meeting, Seattle, 2014; ARIA Annual Meeting, San Diego, 2011; CEAR Workshop on Insurance for the Poor, Atlanta, 2010; CEAR Workshop on Risk Perception and Subjective Beliefs, Atlanta, 2010; Midwest Finance Association Annual Meeting, Chicago, 2009; 5th Infiniti Conference, Dublin, 2007; EFMA Annual Meeting, Vienna, 2007; AEA Annual Meeting, San Diego, 2004*

Session Chair: *ARIA Annual Meeting, Chicago, 2018, ARC, Atlanta, 2017; IME, Atlanta, 2017; ARIA Annual Meeting, San Diego, 2011; Midwest Finance Association Annual Meeting, Chicago, 2009; ARIA Annual Meeting, Quebec City, 2007; EFMA Annual Meeting, Vienna, 2007;*

Referee for *Asia-Pacific Journal of Risk and Insurance, Astin Bulletin, Australian Social Monitor, Contemporary Economic Policy, Current Issues in Economics and Finance, Defense and Peace Economics, European Economic Review, Financial Review, Geneva Papers: Issues and Practice, Geneva Risk and Insurance Review, Health Affairs, Insurance: Mathematics and Economics, Journal of Banking and Finance, Journal of Business, Journal of Finance, Journal of Financial Intermediation, Journal of Financial Services Research, Journal of Law and Economics, Journal of Money, Credit, and Banking, Journal of Political Economy, Journal of Risk and Insurance, Management Science, North American Actuarial Journal, Proceedings of the National Academy of Sciences, Review of Financial Studies, Risk Management and Insurance Review, Scandinavian Actuarial Journal, and Science.*

Working Group Participation

Committee on the Global Financial System, Working Group on Institutional Investors, Global Savings, and Asset Allocation (2006); Presidential Working Group on Financial Markets, Working Group on Terrorism Insurance (2006)

Continuing Education Activities

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| 2004-2007 | Central Banking Seminar, Federal Reserve Bank of New York, Topics: Introduction to U.S. Financial Markets; Introduction to Non-bank Financial Institutions |
| 2009 | Texas Farm Bureau Program, Georgia State University, Topic: Securitization, the Insurance Industry, and the Panic of 2007 |
| 2009-2012 | Horst K. Jannott Visiting Fellows Program, Georgia State University, Topics: Securitization, the Insurance Industry, and the Panic of 2007; Introduction to Statistics; |