



**Tennessee Department of Commerce &  
Insurance**

**Review of NCCI Loss Cost Filing  
Effective March 1, 2017**

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*September 30, 2016*

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September 30, 2016

Mr. Mike Shinnick  
Manager, Workers' Compensation  
Tennessee Department of Commerce & Insurance  
500 James Robertson Parkway  
Nashville, TN 37243-0565

Re: NCCI Loss Cost Filing Effective 3/1/2017

Dear Mr. Shinnick:

NCCI has submitted a Workers' Compensation loss cost filing to the Department of Commerce & Insurance with a proposed effective date of March 1, 2017. The recommended change to the overall loss cost level is -12.8%, including a change of -13.1% due to change in experience, trend & benefits, and a change of +0.3% due to a change in estimated loss adjustment expenses.

We are of the opinion that the actuarial methodology & assumptions employed by NCCI in the calculation of these requested changes are sound and appropriate and are in material compliance with all applicable Actuarial Standards of Practice.

We were asked by the Department to provide the Advisory Council with our own best estimate of the indicated loss cost change. While certain factors in our analysis produced modest differences in the indication, the differences were largely offsetting, resulting in an overall indicated change that was materially in agreement with those of NCCI.

**Our analysis produced an indicated overall loss cost change of -8.7%. This is our recommended loss cost change to you and to the Advisory Council.**

Please let me know if I can be of further assistance. Thank you for the opportunity to serve the State of Tennessee.

Sincerely,



Christopher J. Burkhalter, FCAS, MAAA  
President & Principal

Enclosure

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## TABLE OF CONTENTS

PURPOSE .....	4
DISTRIBUTION AND USE .....	5
DATA RELIANCE .....	6
REVIEW OF OVERALL STATEWIDE INDICATION.....	7
Overall Ratemaking Methodology .....	7
Reasonableness & Consistency of Data.....	8
Loss Development Factor Selection.....	8
Loss Ratio Trend Selection.....	10
Loss Adjustment Expense Provision Selection .....	11
Experience Period and Variability of Projections .....	12
CALCULATION OF INDICATED RATE CHANGE .....	14

## PURPOSE

The Tennessee Department of Commerce & Insurance (“TN DOCI”) has engaged Bickerstaff, Whatley, Ryan & Burkhalter, Inc. (“BWR&B”) to perform a review of the Workers’ Compensation loss cost filing submitted by the National Council on Compensation Insurance, Inc. (“NCCI”) for loss costs effective March 1, 2017.

This report outlines the findings of BWR&B concerning the actuarial aspects of the NCCI filing. While this report does not contain a fully independent actuarial analysis of Tennessee loss costs, it does include an analysis of these loss costs that is based on the methodology of NCCI and contains alternate assumptions made by BWR&B where deemed appropriate.

## DISTRIBUTION AND USE

This report, along with the conclusions and opinions contained therein, is being provided to the Tennessee Department of Commerce & Insurance, NCCI, and the Tennessee Advisory Council on Workers' Compensation.

It is our understanding that copies of this report will be made available to various interested third parties. Such distribution is permitted, subject to the condition that the report is distributed in its entirety; portions or excerpts of this report should not be distributed separately from the entire report. The intended recipients of this report and third parties are cautioned that this analysis constitutes a statement of professional judgment; it is in no way intended to replace the informed judgment and due diligence of its users. Bickerstaff, Whatley, Ryan & Burkhalter, Inc. (BWR&B) cannot warrant or guarantee the results, conclusions, or opinions produced by this report.

## DATA RELIANCE

In producing this report Bickerstaff, Whatley, Ryan & Burkhalter, Inc. (BWR&B) has relied on documents and data provided by the Tennessee Department of Commerce & Insurance (“TN DOCI”) and the National Council on Compensation Insurance, Inc. (“NCCI”). The data sets provided were not independently audited or verified. They were, however, reviewed for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The information received included loss cost filings and technical supplements submitted by NCCI to TN DOCI over the last several years, as well as presentations and materials prepared for prior hearings of the Tennessee Advisory Council on Workers’ Compensation.

All professional opinions and conclusions in this report depend on the validity and accuracy of the underlying data. While care was taken to assure the consistency and reasonableness of the data, any errors or inaccuracies in the data set could invalidate any or all of the conclusions drawn from this analysis. Should such errors or inaccuracies be discovered, BWR&B should be contacted to evaluate the need for revision of this analysis.

## REVIEW OF OVERALL STATEWIDE INDICATION

In performing our review of the NCCI loss cost filing, we concentrated on the following areas:

- overall ratemaking methodology;
- reasonableness & consistency of data;
- loss development factor selection;
- loss ratio trend selection;
- loss adjustment expense provision selection; and,
- experience period and variability of projections.

Additionally, we reviewed the allocation procedure of the proposed loss cost change to occupational classification. The details of our review will be described below.

### **Overall Ratemaking Methodology**

The methodology employed by NCCI is industry standard, having been used in one form or another for many decades. At its core, it involves the comparison of standard earned premium, stripped of any underwriting expenses, investment income, or other financial considerations, with actual ultimate loss and loss adjustment expense (“LAE”). All of these elements are actuarially adjusted to account for intervening loss cost changes, statutory benefit changes, and emerging trends. The overall methodology employed in this analysis, if used with actuarial adjustments, is in our opinion

appropriate and conforms to the Actuarial Standards of Practice. The actuarial assumptions used will be discussed below.

### **Reasonableness & Consistency of Data**

While an audit of the underlying data is beyond the scope of our review, the data sets used in the current loss cost filing were reviewed for reasonableness and consistency with data used in prior filings. All material elements of data used in the loss cost filing were found to be generally reasonable. After comparison with prior filings, the differences were found to be immaterial or explainable by appropriate intervening actuarial adjustments. NCCI documents which companies' data sets are excluded from the analysis, providing an estimate of market share of excluded companies, which was found to be immaterial to the conclusions and calculations.

### **Loss Development Factor Selection**

The paid and reported losses that are used to calculate loss ratios for the experience period are from relatively recent years. As such, these losses will develop over time until they reach their ultimate level. To bring these losses to their estimated ultimate value for use in the loss ratio calculations, loss development factors ("LDF's") are applied to these losses. These LDF's are chosen after a review of historical loss development in the target data.

Prior to the filing of loss costs effective March 1, 2016, NCCI used only the history of paid plus case incurred losses to bring losses to their ultimate level (i.e. the "incurred development method").

NCCI now also analyzes the history of paid losses and uses the straight average of these two methods as the total estimated ultimate losses for a given policy year.

For the paid loss development method, NCCI's selection of LDF's are based on a straight two-year average of historical development for each loss development interval; and for incurred loss development, NCCI's selection of LDF's are a straight five-year average of historical development. NCCI made one exception in the medical incurred development from 1<sup>st</sup> to 2<sup>nd</sup> report by removing the highest and lowest development factors, and averaging the remaining three-of-five. This is a common and reasonable practice when high volatility is present and a straight five-year average might be biased toward either the extreme low or extreme high.

Based on our review of the historical development factors and the NCCI selections, we are of the opinion that these selections are generally reasonable and appropriate for the analysis contained in the current filing. We do note that certain medical LDFs in the incurred development method appear to have registered significantly lower development during the last twelve months than during the previous three years (these intervals include development through the 6<sup>th</sup> report).

Previously, a general upward trend to the development factors over the last eight years was evident in several of the development intervals. In response to this trend, a three-year average of LDF's was used to project loss development. The most recent loss development shows a reversion to longer-term averages. Taking in these considerations, it was deemed appropriate to use development factors reflecting an average of a five-year period to reflect a longer-term average. Additionally, because the incurred medical development in the 1-2 year interval appears to be unusually low, the selected LDF for this interval was chosen as the five-year average excluding the high and low values in this

interval; this treatment mirrors that of NCCI. Using these assumptions instead of the three-year average that was previously used (in isolation from any other actuarial assumption departures) results in an indicated rate change impact of less than 0.1%.

“Tail factors” are loss development factors designed to reflect development on the oldest of claims, in the case of this filing, those claims 19 years and older. NCCI uses paid tail factors of 1.009 for indemnity losses and 1.160 for medical losses and incurred tail factors of 1.003 for indemnity losses and 1.035 for medical losses. These factors reflect little or no change from those filed in the previous year (1.010 paid indemnity, 1.168 paid medical, 1.004 incurred indemnity, and 1.037 incurred medical). After review of the historical factors, we concur with the NCCI selections and have used them without modification.

### Loss Ratio Trend Selection

Loss ratios are adjusted to reflect emerging trends in indemnity and medical benefits. The selected annual loss ratio trends used in recent filings were:

Filing	Indemnity	Medical
<u>Eff. Date</u>	<u>Trend</u>	<u>Trend</u>
3/1/2012	-3.0%	+1.0%
3/1/2013	-3.0%	+0.5%
3/1/2014	-3.0%	0.0%
3/1/2015	-3.5%	0.0%
3/1/2016	-4.0%	-0.5%

3/1/2017 -5.0% -1.5%

The current selections are very close to the exponential least-squares best-fit trend for the 15-year period. Analysis of shorter periods results in more negative annual trends.

Trend	Indemnity	Medical
<u>Period</u>	<u>Best Fit</u>	<u>Best Fit</u>
15 Years	-4.4%	-1.0%
10 Years	-5.0%	-2.4%
7 Years	-6.0%	-3.7%
5 Years	-7.2%	-4.8%

This effect illustrates that the negative cost trends experienced in the Tennessee Workers' Compensation market appear to be accelerating in recent years, and that the use of a 15-year trend period might include implicit conservatism. However, the shorter trend periods also result in diminished correlation to the data. Therefore, we believe that use of a 15-year trend period is appropriate in maintaining stability of the projections and used the NCCI selected trends in our projections.

### Loss Adjustment Expense Provision Selection

Loss adjustment expenses ("LAE") are loaded into the indicated loss costs as a percentage of underlying losses. NCCI uses a countrywide analysis of LAE, both defense & cost containment expense ("DCCE") and adjusting & other expense ("AOE"). It selects AOE ratios based on the

countrywide experience, while the DCCE provision is selected using Tennessee-specific experience, as well.

The LAE-to-loss ratios used in the NCCI analysis are stated to be fully developed. However, if recent loss cost filings are compared, it can be shown that these “developed” ratios have tended to exhibit further downward development over recent years. This can be seen in Exhibit 5. NCCI has provided explanation for this effect, as well as assurances that the current estimates are sound. In the past, we have applied development factors to these ratios to adjust them to what we project to be their ultimate levels. We have observed, however, that there has been no additional downward development in the last twelve months for the most recent five policy years. Because this reversal is uniform across all of the most recent policy periods, and because our adjustment using past development statistics would result in an immaterial impact to the overall rate indication, we have used the NCCI selection without modification for the current analysis. Should the downward development resume in the next twelve months, further analysis would be warranted.

### **Experience Period and Variability of Projections**

NCCI methodology implicitly assumes full credibility of the two-policy-year experience period used to project loss costs in the prospective year. While the volume of data certainly supports this judgment, the variability of subsequent policy years belies an environment with high uncertainty and difficulty of predictability going forward. Actuaries routinely balance stability and responsiveness of the data used to make projections. To assess the stability of the data underlying the calculations, five policy years of experience were analyzed and considered in the selection of the indicated changes.

The selection of an appropriate experience period necessarily falls within the realm of actuarial judgment. After reviewing the indicated changes produced by the last five policy years' experience, it was our opinion that a reasonable statistic on which to base our recommendation was the weighted average of the last five policy years, giving most weight to the most recent year (30%) and decreasing the contribution of each older year (25%, 20%, 15%, and 10%). We believe that this adequately reflects the recent improving experience in the state, while not fully relying on the most recent experience, which is most subject to unexpected loss development and changing trends.

## CALCULATION OF INDICATED RATE CHANGE

BWR&B calculated our best estimate of the indicated rate change using our best estimates of the actuarial parameters. The methodology used is the same as that used by NCCI, and the use of these alternate assumptions do *not* imply that we consider those used by NCCI as inappropriate or in violation of Actuarial Standards of Practice.

The actuarial assumptions underlying our calculation of the indicated rate change include the following.

- Because of the moderating emergent loss development experience in the last twelve months, indemnity and medical paid and incurred loss development factors were based on a five-year average, with the exception of the 1-2 incurred medical factor, which was based on a five-year average excluding the high and low values. This represents a departure from the prior analysis.
- The tail factors used by NCCI were deemed appropriate and used in our calculations without modification.
- Our selected loss ratio trend factors differed slightly from those used by NCCI and were based on a long-term, 15-year fit.
- The LAE provision of 20.1% of loss used by NCCI was deemed appropriate and used in our calculations without modification.
- Five policy years of experience were considered in the Indicated Change calculation.

Based on the use of these assumptions, we calculate the indicated rate change to be as follows.

NCCI Indicated Rate Change: -12.8%

BWR&B Indicated Rate Change: -8.7%

**Tennessee Department of Commerce & Insurance**  
**Review of NCCI Loss Cost Filing**  
**Effective 3/1/2017**  
**Determination of Indicated Loss Cost Level Change**

Exhibit 1

**Indicated Change Based on Experience, Trend and Benefits**

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(1) Policy Year 2014 Indicated Change Based on Experience, Trend, and Benefits	0.888
(2) Policy Year 2013 Indicated Change Based on Experience, Trend, and Benefits	0.883
(3) Policy Year 2012 Indicated Change Based on Experience, Trend, and Benefits	0.938
(4) Policy Year 2011 Indicated Change Based on Experience, Trend, and Benefits	0.911
(5) Policy Year 2010 Indicated Change Based on Experience, Trend, and Benefits	1.010

Indicated Change Based on Experience, Trend and Benefits

(6) <u>2-Year Average</u>	0.886
(7) <u>3-Year Average</u>	0.903
(8) <u>4-Year Average</u>	0.905
(9) <u>5-Year Average</u>	0.926
(10) <b>SELECTED</b>	0.912

**Application of the Change in Loss Adjustment Expenses**

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(11) Indicated Loss Cost Level Change	0.912
(12) Effect of the Offset due to the Change in the Maximum Minimum Premium	0.998
(13) Effect of the Change in Loss Adjustment Expenses (Exhibit II)	1.003
(14) Indicated Change Modified to Reflect the Change in Loss Adjustment Expenses	0.913
(15) <b>Indicated Rate Change</b>	<b>-8.7%</b>

**Tennessee Department of Commerce & Insurance**  
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**Exhibit 2**  
**Page 1**

***Policy Year 2014 Experience***

**Premium:**

(1) Standard Earned Premium Developed to Ultimate (Exhibit 3)	\$ 599,579,754
(2) Premium On-level Factor (provided by NCCI)	0.693
(3) Premium Available for Benefit Costs = (1) x (2)	\$ 415,508,770

**Indemnity Benefit Cost:**

(4) Limited Indemnity Losses Developed to Ultimate (Exhibit 3)	\$ 134,952,709
(5) Indemnity Loss On-level Factor (provided by NCCI)	0.971
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$ 131,039,080
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.315
(8) Factor to Reflect Indemnity Trend (Exhibit 4)	0.862
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.272
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.275
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (NCCI Appendix C)	1.010
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.278

**Medical Benefit Cost:**

(14) Limited Medical Losses Developed to Ultimate (Exhibit 3)	\$ 267,944,580
(15) Medical Loss On-level Factor (provided by NCCI)	0.965
(16) Adjusted Limited Medical Losses = (14) x (15)	\$ 258,566,520
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.622
(18) Factor to Reflect Medical Trend (Exhibit 4)	0.968
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.602
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(21) Projected Medical Cost Ratio = (19) x (20)	0.610
(22) Factor to Reflect Proposed Changes in Medical Benefits (NCCI Appendix C)	1.001
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.610

**Total Benefit Cost:**

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.888
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**Tennessee Department of Commerce & Insurance**  
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**Effective 3/1/2017**  
**Determination of Indicated Loss Cost Level Change**

Exhibit 2

Page 2

***Policy Year 2013 Experience***

**Premium:**

(1) Standard Earned Premium Developed to Ultimate (Exhibit 3)	\$ 616,235,670
(2) Premium On-level Factor (provided by NCCI)	0.623
(3) Premium Available for Benefit Costs = (1) x (2)	\$ 383,914,822

**Indemnity Benefit Cost:**

(4) Limited Indemnity Losses Developed to Ultimate (Exhibit 3)	\$ 139,249,915
(5) Indemnity Loss On-level Factor (provided by NCCI)	0.855
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$ 119,058,677
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.310
(8) Factor to Reflect Indemnity Trend (Exhibit 4)	0.823
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.255
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.258
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (NCCI Appendix C)	1.010
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.261

**Medical Benefit Cost:**

(14) Limited Medical Losses Developed to Ultimate (Exhibit 3)	\$ 254,791,793
(15) Medical Loss On-level Factor (provided by NCCI)	0.966
(16) Adjusted Limited Medical Losses = (14) x (15)	\$ 246,128,872
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.641
(18) Factor to Reflect Medical Trend (Exhibit 4)	0.958
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.614
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(21) Projected Medical Cost Ratio = (19) x (20)	0.622
(22) Factor to Reflect Proposed Changes in Medical Benefits (NCCI Appendix C)	1.001
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.622

**Total Benefit Cost:**

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.883
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**Tennessee Department of Commerce & Insurance**  
**Review of NCCI Loss Cost Filing**  
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**Determination of Indicated Loss Cost Level Change**

**Exhibit 2**  
**Page 3**

***Policy Year 2012 Experience***

**Premium:**

(1) Standard Earned Premium Developed to Ultimate (Exhibit 3)	\$ 617,920,653
(2) Premium On-level Factor (provided by NCCI)	0.593
(3) Premium Available for Benefit Costs = (1) x (2)	\$ 366,426,947

**Indemnity Benefit Cost:**

(4) Limited Indemnity Losses Developed to Ultimate (Exhibit 3)	\$ 149,546,320
(5) Indemnity Loss On-level Factor (provided by NCCI)	0.850
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$ 127,114,372
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.347
(8) Factor to Reflect Indemnity Trend (Exhibit 4)	0.786
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.273
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.276
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (NCCI Appendix C)	1.003
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.277

**Medical Benefit Cost:**

(14) Limited Medical Losses Developed to Ultimate (Exhibit 3)	\$ 264,484,109
(15) Medical Loss On-level Factor (provided by NCCI)	0.953
(16) Adjusted Limited Medical Losses = (14) x (15)	\$ 252,053,356
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.688
(18) Factor to Reflect Medical Trend (Exhibit 4)	0.949
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.653
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(21) Projected Medical Cost Ratio = (19) x (20)	0.661
(22) Factor to Reflect Proposed Changes in Medical Benefits (NCCI Appendix C)	1.001
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.661

**Total Benefit Cost:**

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.938
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**Tennessee Department of Commerce & Insurance**  
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**Determination of Indicated Loss Cost Level Change**

**Exhibit 2**  
**Page 4**

***Policy Year 2011 Experience***

**Premium:**

(1) Standard Earned Premium Developed to Ultimate (Exhibit 3)	\$ 590,509,029
(2) Premium On-level Factor (provided by NCCI)	0.609
(3) Premium Available for Benefit Costs = (1) x (2)	\$ 359,619,999

**Indemnity Benefit Cost:**

(4) Limited Indemnity Losses Developed to Ultimate (Exhibit 3)	\$ 154,560,582
(5) Indemnity Loss On-level Factor (provided by NCCI)	0.853
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$ 131,840,176
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.367
(8) Factor to Reflect Indemnity Trend (Exhibit 4)	0.751
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.275
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.279
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (NCCI Appendix C)	1.010
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.281

**Medical Benefit Cost:**

(14) Limited Medical Losses Developed to Ultimate (Exhibit 3)	\$ 262,372,304
(15) Medical Loss On-level Factor (provided by NCCI)	0.904
(16) Adjusted Limited Medical Losses = (14) x (15)	\$ 237,184,563
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.660
(18) Factor to Reflect Medical Trend (Exhibit 4)	0.939
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.620
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(21) Projected Medical Cost Ratio = (19) x (20)	0.627
(22) Factor to Reflect Proposed Changes in Medical Benefits (NCCI Appendix C)	1.005
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.630

**Total Benefit Cost:**

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.911
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**Tennessee Department of Commerce & Insurance**  
**Review of NCCI Loss Cost Filing**  
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**Determination of Indicated Loss Cost Level Change**

**Exhibit 2**  
**Page 5**

***Policy Year 2010 Experience***

**Premium:**

(1) Standard Earned Premium Developed to Ultimate (Exhibit 3)	\$ 578,896,122
(2) Premium On-level Factor (provided by NCCI)	0.592
(3) Premium Available for Benefit Costs = (1) x (2)	\$ 342,706,504

**Indemnity Benefit Cost:**

(4) Limited Indemnity Losses Developed to Ultimate (Exhibit 3)	\$ 167,385,416
(5) Indemnity Loss On-level Factor (provided by NCCI)	0.861
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$ 144,118,843
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.421
(8) Factor to Reflect Indemnity Trend (Exhibit 4)	0.717
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.302
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.305
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (NCCI Appendix C)	1.010
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.308

**Medical Benefit Cost:**

(14) Limited Medical Losses Developed to Ultimate (Exhibit 3)	\$ 279,281,862
(15) Medical Loss On-level Factor (provided by NCCI)	0.914
(16) Adjusted Limited Medical Losses = (14) x (15)	\$ 255,263,622
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.745
(18) Factor to Reflect Medical Trend (Exhibit 4)	0.930
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.693
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (NCCI Appendix A-II)	1.012
(21) Projected Medical Cost Ratio = (19) x (20)	0.701
(22) Factor to Reflect Proposed Changes in Medical Benefits (NCCI Appendix C)	1.001
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.702

**Total Benefit Cost:**

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	1.010
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**Tennessee Department of Commerce & Insurance**  
**Review of NCCI Loss Cost Filing**  
**Effective 3/1/2017**

Exhibit 3

Page 1

**Determination of Premium and Losses Developed to an Ultimate Report**

**Section A - Premium and Loss Summary Valued as of 12/31/2015**

**Policy Year 2014**

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(1) Standard Earned Premium	\$ 594,821,185
(2) Factor to Develop Premium to Ultimate	1.008
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$ 599,579,754
(4) Limited Indemnity Paid Losses	\$ 53,210,829
(5) Limited Indemnity Paid Development Factor to Ultimate	2.607
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$ 138,720,631
(7) Limited Indemnity Paid+Case Losses	\$ 100,911,374
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.300
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$ 131,184,786
(10) Policy Year 2014 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$ 134,952,709
(11) Limited Medical Paid Losses	\$ 118,933,038
(12) Limited Medical Paid Development Factor to Ultimate	2.242
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$ 266,647,871
(14) Limited Medical Paid+Case Losses	\$ 189,073,939
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.424
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$ 269,241,289
(17) Policy Year 2014 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$ 267,944,580

**Policy Year 2013**

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(1) Standard Earned Premium	\$ 616,235,670
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$ 616,235,670
(4) Limited Indemnity Paid Losses	\$ 92,312,683
(5) Limited Indemnity Paid Development Factor to Ultimate	1.506
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$ 139,022,901
(7) Limited Indemnity Paid+Case Losses	\$ 123,979,492
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.125
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$ 139,476,929
(10) Policy Year 2013 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$ 139,249,915
(11) Limited Medical Paid Losses	\$ 145,830,551
(12) Limited Medical Paid Development Factor to Ultimate	1.781
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$ 259,724,211
(14) Limited Medical Paid+Case Losses	\$ 182,645,742
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.368
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$ 249,859,375
(17) Policy Year 2013 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$ 254,791,793

**Tennessee Department of Commerce & Insurance**  
**Review of NCCI Loss Cost Filing**  
**Effective 3/1/2017**  
**Determination of Premium and Losses Developed to an Ultimate Report**

Exhibit 3

Page 2

**Section A - Premium and Loss Summary Valued as of 12/31/2015**

**Policy Year 2012**

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(1) Standard Earned Premium	\$ 617,920,653
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$ 617,920,653
(4) Limited Indemnity Paid Losses	\$ 121,497,562
(5) Limited Indemnity Paid Development Factor to Ultimate	1.226
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$ 148,956,011
(7) Limited Indemnity Paid+Case Losses	\$ 141,638,330
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.060
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$ 150,136,630
(10) Policy Year 2012 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$ 149,546,320
(11) Limited Medical Paid Losses	\$ 161,113,772
(12) Limited Medical Paid Development Factor to Ultimate	1.661
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$ 267,609,975
(14) Limited Medical Paid+Case Losses	\$ 197,998,669
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.320
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$ 261,358,243
(17) Policy Year 2012 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$ 264,484,109

**Policy Year 2011**

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(1) Standard Earned Premium	\$ 590,509,029
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$ 590,509,029
(4) Limited Indemnity Paid Losses	\$ 137,019,297
(5) Limited Indemnity Paid Development Factor to Ultimate	1.119
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$ 153,324,593
(7) Limited Indemnity Paid+Case Losses	\$ 150,965,669
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.032
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$ 155,796,570
(10) Policy Year 2011 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$ 154,560,582
(11) Limited Medical Paid Losses	\$ 169,627,660
(12) Limited Medical Paid Development Factor to Ultimate	1.579
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$ 267,842,075
(14) Limited Medical Paid+Case Losses	\$ 203,729,209
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.261
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$ 256,902,533
(17) Policy Year 2011 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$ 262,372,304

**Tennessee Department of Commerce & Insurance**  
**Review of NCCI Loss Cost Filing**  
**Effective 3/1/2017**  
**Determination of Premium and Losses Developed to an Ultimate Report**

**Section A - Premium and Loss Summary Valued as of 12/31/2015**

**Policy Year 2010**

---

(1) Standard Earned Premium	\$ 578,896,122
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$ 578,896,122
(4) Limited Indemnity Paid Losses	\$ 156,317,530
(5) Limited Indemnity Paid Development Factor to Ultimate	1.071
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$ 167,416,075
(7) Limited Indemnity Paid+Case Losses	\$ 164,557,284
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.017
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$ 167,354,758
(10) Policy Year 2010 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$ 167,385,416
(11) Limited Medical Paid Losses	\$ 182,224,262
(12) Limited Medical Paid Development Factor to Ultimate	1.510
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$ 275,158,636
(14) Limited Medical Paid+Case Losses	\$ 234,025,671
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.211
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$ 283,405,088
(17) Policy Year 2010 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$ 279,281,862

Tennessee Department of Commerce & Insurance  
 Review of NCCI Loss Cost Filing  
 Effective 3/1/2017  
 Paid Loss Development Factors - Indemnity

	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-6</u>	<u>6-7</u>	<u>7-8</u>	<u>8-9</u>	<u>9-10</u>	<u>10-11</u>	<u>11-12</u>	<u>12-13</u>	<u>13-14</u>	<u>14-15</u>	<u>15-16</u>	<u>16-17</u>	<u>17-18</u>	<u>18-19</u>	<u>19-Ult</u>
1987																			
1988																			
1989																			
1990																			
1991																			1.000
1992																	1.001	1.001	
1993																1.001	1.000	1.000	
1994															1.002	1.000	1.000	1.000	
1995														1.000	1.001	1.001	1.001	1.001	
1996													1.001	1.001	1.001	1.001	1.001	1.001	
1997												1.001	1.001	1.002	1.001	1.001	1.001	1.001	
1998										1.001	1.001	1.001	1.001	1.000	1.001	1.000	1.000	1.000	
1999										1.002	1.001	1.001	1.002	1.001	1.001				
2000									1.002	0.998	0.999	1.001	1.000	1.001					
2001								1.003	1.003	1.001	1.000	1.001	1.001						
2002							1.007	1.005	1.001	1.002	1.000	1.003							
2003						1.008	1.008	1.006	1.003	1.001	1.001								
2004					1.032	1.015	1.006	1.012	1.005	1.003									
2005				1.037	1.014	1.016	1.011	1.008	1.004										
2006			1.091	1.046	1.019	1.014	1.008	1.004											
2007		1.234	1.100	1.041	1.018	1.014	1.011												
2008	1.744	1.208	1.096	1.051	1.026	1.013													
2009	1.734	1.242	1.093	1.048	1.025														
2010	1.804	1.262	1.081	1.038															
2011	1.738	1.219	1.107																
2012	1.742	1.215																	
2013	1.636																		

<b>3 Year Avg</b>	1.705	1.232	1.094	1.046	1.023	1.014	1.010	1.008	1.004	1.002	1.000	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.009
<i>Cumulative</i>	2.592	1.520	1.234	1.128	1.079	1.055	1.040	1.030	1.022	1.018	1.016	1.016	1.014	1.013	1.012	1.011	1.011	1.009	1.009
<b>5 Year Avg</b>	1.731	1.229	1.095	1.045	1.020	1.014	1.008	1.007	1.003	1.001	1.000	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.009
<i>Cumulative</i>	2.607	1.506	1.226	1.119	1.071	1.049	1.035	1.026	1.019	1.016	1.016	1.015	1.014	1.013	1.012	1.011	1.010	1.009	1.009
<b>6 Year Avg</b>	1.733	1.230	1.095	1.044	1.022	1.013	1.009	1.006	1.003	1.001	1.000	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.009
<i>Cumulative</i>	2.610	1.506	1.225	1.119	1.072	1.049	1.035	1.026	1.020	1.017	1.015	1.015	1.014	1.013	1.012	1.011	1.010	1.009	1.009
<b>Selected</b>	1.731	1.229	1.095	1.045	1.020	1.014	1.008	1.007	1.003	1.001	1.000	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.009
<i>Cumulative</i>	2.607	1.506	1.226	1.119	1.071	1.049	1.035	1.026	1.019	1.016	1.016	1.015	1.014	1.013	1.012	1.011	1.010	1.009	1.009

Tennessee Department of Commerce & Insurance  
 Review of NCCI Loss Cost Filing  
 Effective 3/1/2017  
 Incurred Loss Development Factors - Indemnity

	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-6</u>	<u>6-7</u>	<u>7-8</u>	<u>8-9</u>	<u>9-10</u>	<u>10-11</u>	<u>11-12</u>	<u>12-13</u>	<u>13-14</u>	<u>14-15</u>	<u>15-16</u>	<u>16-17</u>	<u>17-18</u>	<u>18-19</u>	<u>19-Ult</u>
1987																			1.000
1988																	1.000	1.000	
1989																1.000	1.000	0.997	
1990															1.000	1.000	1.000	1.000	
1991														1.001	1.001	1.000	1.002	1.000	
1992													1.001	0.999	0.999	1.000	1.002	0.999	
1993												1.001	0.999	0.999	1.000	1.000	1.000	1.000	
1994										1.001	1.002	1.001	1.002	0.998	0.999	1.000	1.000	1.000	
1995									1.000	1.002	1.001	1.002	0.998	0.999	1.002	1.001	1.003	1.003	
1996								0.996	0.999	1.000	0.999	1.000	1.000	1.000	0.997	1.000	0.999	0.999	
1997							1.001	0.997	0.999	1.002	1.000	1.001	1.001	0.999	0.998	0.999			
1998						0.992	1.001	0.999	1.001	0.998	1.001	1.001	1.001	0.999	1.000				
1999					1.005	1.004	0.999	1.000	0.998	0.999	0.997	0.999	1.001	1.002					
2000				1.012	1.002	0.996	1.000	1.003	1.000	0.999	0.999	1.001	1.000						
2001			1.007	1.010	1.001	0.999	1.001	1.002	0.999	0.999	1.000	0.999							
2002		1.050	1.019	1.009	1.003	1.000	1.003	1.001	0.999	1.000	1.001								
2003	1.172	1.065	1.022	1.005	1.004	1.000	1.002	1.009	1.002	1.000									
2004	1.180	1.061	1.024	1.008	0.999	1.005	1.005	1.005	1.001										
2005	1.187	1.069	1.016	1.017	1.003	1.006	1.001	1.000											
2006	1.171	1.057	1.020	1.018	0.999	1.009	1.005												
2007	1.124	1.047	1.036	1.014	1.004	1.005													
2008	1.164	1.059	1.027	1.013	1.010														
2009	1.202	1.083	1.025	1.012															
2010	1.158	1.049	1.028																
2011	1.152	1.069																	
2012	1.102																		
2013																			

<b>3 Year Avg</b>	1.137	1.067	1.027	1.013	1.004	1.007	1.004	1.005	1.001	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.001	1.003
<i>Cumulative</i>	1.292	1.136	1.064	1.037	1.024	1.019	1.012	1.009	1.004	1.003	1.004	1.004	1.004	1.003	1.003	1.003	1.004	1.004	1.003
<b>5 Year Avg</b>	1.156	1.061	1.027	1.015	1.003	1.005	1.003	1.003	1.000	0.999	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.003
<i>Cumulative</i>	1.300	1.125	1.060	1.032	1.017	1.014	1.009	1.006	1.003	1.003	1.004	1.005	1.005	1.004	1.003	1.003	1.003	1.003	1.003
<b>10 Year Avg</b>	1.161	1.061	1.022	1.012	1.003	1.002	1.002	1.002	0.999	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.003
<i>Cumulative</i>	1.289	1.110	1.046	1.023	1.011	1.008	1.006	1.005	1.003	1.003	1.004	1.004	1.003	1.003	1.003	1.003	1.003	1.003	1.003
<b>Selected</b>	1.156	1.061	1.027	1.015	1.003	1.005	1.003	1.003	1.000	0.999	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.003
<i>Cumulative</i>	1.300	1.125	1.060	1.032	1.017	1.014	1.009	1.006	1.003	1.003	1.004	1.005	1.005	1.004	1.003	1.003	1.003	1.003	1.003

Tennessee Department of Commerce & Insurance  
 Review of NCCI Loss Cost Filing  
 Effective 3/1/2017  
 Paid Loss Development Factors - Medical

	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-6</u>	<u>6-7</u>	<u>7-8</u>	<u>8-9</u>	<u>9-10</u>	<u>10-11</u>	<u>11-12</u>	<u>12-13</u>	<u>13-14</u>	<u>14-15</u>	<u>15-16</u>	<u>16-17</u>	<u>17-18</u>	<u>18-19</u>	<u>19-Ult</u>
1987																			
1988																			
1989																			
1990																			
1991																			1.005
1992																	1.008	1.008	
1993																1.012	1.006	1.004	
1994															1.013	1.006	1.007	1.008	
1995														1.011	1.010	1.009	1.011	1.012	
1996													1.010	1.008	1.008	1.008	1.007	1.018	
1997												1.017	1.014	1.017	1.015	1.015	1.010		
1998										1.015	1.011	1.017	1.013	1.012	1.013				
1999									1.027	1.016	1.013	1.012	1.012	1.009					
2000						1.018	1.017	1.017	1.018	1.020	1.011								
2001							1.014	1.014	1.012	1.014	1.016	1.010							
2002							1.022	1.017	1.014	1.018	1.019	1.021							
2003						1.022	1.019	1.019	1.018	1.020	1.014								
2004					1.035	1.032	1.026	1.026	1.018	1.021									
2005				1.046	1.038	1.035	1.033	1.033	1.023										
2006			1.042	1.048	1.046	1.040	1.032	1.033											
2007		1.104	1.059	1.053	1.042	1.046	1.040												
2008	1.278	1.078	1.053	1.051	1.032	1.044													
2009	1.342	1.066	1.048	1.039	1.037														
2010	1.252	1.085	1.052	1.036															
2011	1.243	1.065	1.047																
2012	1.235	1.070																	
2013	1.221																		

<b>3 Year Avg</b>	1.233	1.073	1.049	1.042	1.037	1.043	1.035	1.031	1.020	1.020	1.016	1.018	1.014	1.012	1.012	1.012	1.009	1.013	1.160
<i>Cumulative</i>	2.238	1.815	1.691	1.612	1.547	1.492	1.430	1.381	1.340	1.314	1.289	1.269	1.246	1.229	1.215	1.200	1.186	1.175	1.160
<b>5 Year Avg</b>	1.259	1.073	1.052	1.045	1.039	1.039	1.030	1.026	1.017	1.018	1.016	1.016	1.015	1.012	1.011	1.010	1.008	1.010	1.160
<i>Cumulative</i>	2.242	1.781	1.661	1.579	1.510	1.453	1.398	1.358	1.324	1.301	1.279	1.258	1.239	1.221	1.206	1.193	1.181	1.172	1.160
<b>6 Year Avg</b>	1.262	1.078	1.050	1.046	1.038	1.037	1.029	1.024	1.018	1.019	1.016	1.016	1.014	1.012	1.011	1.011	1.008	1.009	1.160
<i>Cumulative</i>	2.241	1.776	1.648	1.569	1.501	1.446	1.395	1.356	1.324	1.302	1.277	1.257	1.237	1.221	1.206	1.193	1.180	1.171	1.160
<b>Selected</b>	1.259	1.073	1.052	1.045	1.039	1.039	1.030	1.026	1.017	1.018	1.016	1.016	1.015	1.012	1.011	1.010	1.008	1.010	1.160
<i>Cumulative</i>	2.242	1.781	1.661	1.579	1.510	1.453	1.398	1.358	1.324	1.301	1.279	1.258	1.239	1.221	1.206	1.193	1.181	1.172	1.160

Tennessee Department of Commerce & Insurance  
Review of NCCI Loss Cost Filing  
Effective 3/1/2017  
Incurred Loss Development Factors - Medical

	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-6</u>	<u>6-7</u>	<u>7-8</u>	<u>8-9</u>	<u>9-10</u>	<u>10-11</u>	<u>11-12</u>	<u>12-13</u>	<u>13-14</u>	<u>14-15</u>	<u>15-16</u>	<u>16-17</u>	<u>17-18</u>	<u>18-19</u>	<u>19-Ult</u>
1987																			1.008
1988																	1.002	1.004	
1989																0.998	1.019	1.001	
1990															1.001	1.007	1.010	1.002	
1991														1.016	1.004	1.008	0.997	1.006	
1992													1.010	1.002	1.005	1.010	1.011	1.007	
1993												0.999	0.996	1.001	1.001	1.011	1.001	0.967	
1994											1.007	1.020	1.019	1.003	1.008	1.005	1.007	1.013	
1995										1.013	1.020	1.015	1.013	1.012	0.999	1.018	1.002	1.006	
1996									1.013	1.026	1.023	1.000	1.005	1.014	0.990	1.000	0.995	0.992	
1997								1.017	1.026	1.016	1.006	1.016	1.022	1.006	1.006	1.000	0.990		
1998							1.016	1.009	1.029	1.012	1.002	1.009	1.018	1.009	1.001	1.006			
1999						1.018	1.019	1.034	1.005	1.043	0.999	1.007	1.000	1.007	1.003				
2000					1.025	1.034	1.038	1.020	1.014	1.039	1.005	1.011	1.015	1.000					
2001				1.032	1.032	1.003	1.011	1.003	0.995	1.000	0.994	1.017	1.017						
2002			1.040	1.027	1.064	1.023	1.018	1.014	1.015	0.989	0.995	1.006							
2003		0.998	1.026	1.031	1.013	1.018	1.009	1.021	0.994	1.011	1.023								
2004	1.061	1.025	1.050	1.045	1.033	1.021	1.006	1.015	1.017	1.008									
2005	1.028	1.043	1.069	1.039	1.035	1.033	1.017	1.034	1.022										
2006	1.029	1.045	1.048	1.056	1.055	1.028	1.034	1.000											
2007	1.059	1.037	1.049	1.058	1.038	1.040	1.024												
2008	1.041	1.021	1.045	1.041	1.055	1.029													
2009	1.082	1.014	1.041	1.031	1.013														
2010	1.058	1.076	1.059	1.023															
2011	1.037	1.043	1.037																
2012	1.029	1.028																	
2013	0.955																		

<b>3 Year Avg</b>	1.007	1.049	1.046	1.032	1.035	1.032	1.025	1.016	1.011	1.003	1.004	1.011	1.011	1.005	1.003	1.002	0.996	1.004	1.035
<i>Cumulative</i>	1.380	1.370	1.306	1.249	1.211	1.169	1.133	1.105	1.087	1.076	1.073	1.068	1.056	1.045	1.040	1.036	1.034	1.039	1.035
<b>5 Year Avg</b>	1.032	1.036	1.046	1.042	1.039	1.030	1.018	1.017	1.009	1.009	1.003	1.010	1.014	1.007	1.000	1.006	0.999	0.997	1.035
<i>Cumulative</i>	1.412	1.368	1.320	1.261	1.211	1.165	1.131	1.111	1.092	1.083	1.073	1.070	1.059	1.044	1.037	1.037	1.031	1.032	1.035
<b>10 Year Avg</b>	1.038	1.033	1.046	1.038	1.036	1.025	1.019	1.017	1.013	1.016	1.007	1.010	1.012	1.007	1.002	1.006	1.003	1.001	1.035
<i>Cumulative</i>	1.432	1.379	1.335	1.276	1.229	1.186	1.157	1.136	1.117	1.103	1.086	1.078	1.067	1.055	1.047	1.046	1.039	1.036	1.035
<b>Selected</b>	1.041	1.036	1.046	1.042	1.039	1.030	1.018	1.017	1.009	1.009	1.003	1.010	1.014	1.007	1.000	1.006	0.999	0.997	1.035
<i>Cumulative</i>	1.424	1.368	1.320	1.261	1.211	1.165	1.131	1.111	1.092	1.083	1.073	1.070	1.059	1.044	1.037	1.037	1.031	1.032	1.035

Derivation of Policy Year Limited 19th-to-Ultimate Loss Development Factors - Paid

Policy Year	Indemnity Paid-to-Paid+Case Ratio <u>19th Report</u>	Medical Paid-to-Paid+Case Ratio <u>19th Report</u>
1992	0.995	0.923
1993	0.998	0.963
1994	0.997	0.899
1995	0.984	0.877
1996	0.997	0.899
<b>Average</b>	0.994	0.892
<b>NCCI Selected:</b>	0.994	0.892
<b>BWRB Selected:</b>	0.994	0.892
<b>Limited Incurred 19th-to-Ult. LDF</b>	1.003	1.035
<b>Limited Paid 19th-to-Ult. LDF</b>	1.009	1.160

Determination of Policy Year Development Factors (19th-to-Ultimate Report) - Incurred

**Indemnity**

Policy Year	(1) Losses for Policy Year		(2) Losses for Prior PYs		(4) Adjustment Factor	(5) Calculated Development	(6) Indicated Tail
	19th Report	20th Report	Previous	Current			
1986	138,621,717	139,225,482	898,029,203	898,751,309	0.497	2,056,695	1.015
1987	168,528,560	168,659,604	1,038,268,681	1,039,114,928	0.460	1,970,711	1.012
1988	199,316,668	199,528,480	1,161,239,240	1,162,372,220	0.434	2,822,365	1.014
1989	213,445,957	213,457,838	1,397,647,429	1,397,200,057	0.463	-954,365	0.996
1990	225,878,047	225,912,249	1,555,373,043	1,555,226,004	0.495	-262,846	0.999
1991	216,974,067	217,008,426	1,768,789,305	1,769,290,269	0.591	882,014	1.004
1992	187,255,580	187,154,996	1,986,228,385	1,985,318,508	0.770	-1,282,242	0.993
1993	158,868,560	158,863,379	2,172,422,665	2,173,340,574	0.990	922,000	1.006
1994	144,789,155	144,813,818	2,329,135,898	2,329,320,549	1.146	185,790	1.001
1995	125,356,885	125,212,112	2,465,580,785	2,465,779,493	1.373	-48	1.000
<b>Total</b>	<b>1,779,035,196</b>	<b>1,779,836,384</b>	<b>16,772,714,634</b>	<b>16,775,713,911</b>		<b>6,340,072</b>	<b>1.004</b>
						<b>NCCI Selected:</b>	<b>1.004</b>
						<b>BWRB Selected:</b>	<b>1.004</b>
						<b>Limited Loss Adjustment:</b>	<b>0.743</b>
						<b>Limited Incurred 19th-to-Ult. LDF</b>	<b>1.003</b>

**Medical**

Policy Year	(8) Losses for Policy Year		(9) Losses for Prior PYs		(11) Adjustment Factor	(12) Calculated Development	(13) Indicated Tail
	19th Report	20th Report	Previous	Current			
1986	125,672,256	126,697,060	734,316,648	738,792,067	0.544	9,251,677	1.074
1987	164,467,365	162,461,704	865,678,819	878,116,997	0.459	25,092,766	1.153
1988	182,921,698	183,545,609	997,250,592	995,239,904	0.462	-3,728,228	0.980
1989	225,291,337	226,021,148	1,211,362,184	1,214,244,464	0.424	7,527,641	1.033
1990	218,194,938	220,935,501	1,392,845,639	1,390,129,098	0.511	-2,575,564	0.988
1991	217,678,034	218,635,401	1,600,049,877	1,608,536,398	0.589	15,365,722	1.071
1992	199,036,290	201,623,540	1,827,092,946	1,834,383,363	0.724	12,656,887	1.064
1993	179,589,256	179,545,203	2,034,898,318	2,041,220,272	0.881	7,131,831	1.040
1994	179,469,467	179,674,777	2,217,977,836	2,224,231,071	0.935	6,893,262	1.038
1995	166,317,874	166,771,898	2,394,450,521	2,398,988,620	1.066	4,711,153	1.028
<b>Total</b>	<b>1,858,638,515</b>	<b>1,865,911,841</b>	<b>15,275,923,380</b>	<b>15,323,882,254</b>		<b>82,327,147</b>	<b>1.044</b>
						<b>NCCI Selected:</b>	<b>1.047</b>
						<b>BWRB Selected:</b>	<b>1.047</b>
						<b>Limited Loss Adjustment:</b>	<b>0.743</b>
						<b>Limited Incurred 19th-to-Ult. LDF</b>	<b>1.035</b>

Tennessee Department of Commerce & Insurance  
 Review of NCCI Loss Cost Filing  
 Effective 3/1/2017  
 Policy Year Trend Factors

Section A - Summary of Policy Year Data

(1)	(2)	(3)	(4)	(5)	(6)
Policy Year	Lost-Time Claim Frequency	Indemnity		Medical	
		Avg Cost per Case	Loss Ratio	Avg Cost per Case	Loss Ratio
2000	24.374	23,868	0.582	30,611	0.746
2001	24.937	22,996	0.573	28,589	0.713
2002	24.304	21,920	0.533	30,120	0.732
2003	24.173	22,455	0.543	32,414	0.784
2004	23.192	21,862	0.507	34,568	0.802
2005	22.353	20,904	0.467	34,598	0.773
2006	22.364	22,179	0.496	34,498	0.772
2007	22.002	21,167	0.466	36,868	0.811
2008	20.944	20,515	0.430	35,731	0.748
2009	21.852	19,701	0.431	36,726	0.803
2010	23.389	18,079	0.423	32,424	0.758
2011	21.112	17,436	0.368	31,678	0.669
2012	20.373	17,087	0.348	34,205	0.697
2013	18.917	16,377	0.310	34,262	0.648
2014	18.269	17,041	0.311	34,017	0.621

*Exponential Least-Squares Fit*

	<u>Indemnity</u>	<u>Medical</u>
All-Years	-4.4%	-1.0%
10-Year	-5.0%	-2.4%
7-Year	-6.0%	-3.7%
5-Year	-7.2%	-4.8%

Section B - Summary of Annual Trend Factors

	<u>Indemnity</u>	<u>Medical</u>
(1) Current Approved Annual Loss Ratio Trend Factor	0.960	0.995
(2) Selected Annual Loss Ratio Trend Factor	<b>0.955</b>	<b>0.990</b>
(3) Length of Trend Period from Midpoint of Policy Year to Midpoint of Effective Period:		
		<u>Years</u>
	Policy Year 2013	4.220
	Policy Year 2014	3.220
(4) Trend Factor Applied to Experience Year = (2) ^ (3)	<u>Indemnity</u>	<u>Medical</u>
	Policy Year 2013	0.958
	Policy Year 2014	0.968

Tennessee Department of Commerce & Insurance  
 Review of NCCI Loss Cost Filing  
 Effective 3/1/2017  
 Ratio of LAE to Loss

Exhibit 5

Accident Year	<i>NCCI Developed Ratio at Age (in Years):</i>						
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
1997							16.2%
1998						15.7%	15.5%
1999					15.4%	14.9%	15.2%
2000				15.8%	15.3%	15.6%	15.9%
2001			16.3%	16.1%	16.0%	16.4%	16.5%
2002		16.6%	16.2%	16.6%	17.1%	17.1%	17.1%
2003		18.2%	18.1%	18.1%	17.8%	17.9%	17.5%
2004	17.7%	17.7%	17.8%	17.4%	17.4%	17.0%	17.0%
2005	18.8%	18.7%	18.7%	18.2%	18.3%	17.8%	17.7%
2006	19.4%	19.2%	18.9%	18.6%	18.7%	18.5%	18.4%
2007	20.4%	19.9%	19.6%	19.1%	19.2%	18.6%	18.5%
2008	20.1%	19.4%	19.0%	18.9%	18.4%	18.1%	18.0%
2009	21.2%	19.6%	19.6%	19.4%	19.0%	18.6%	
2010	19.7%	19.6%	19.3%	19.0%	18.5%		
2011	19.9%	19.5%	19.2%	18.8%	18.8%		
2012	20.3%	20.2%	19.8%	19.9%			
2013	20.9%	20.3%	20.4%				
2014	20.4%	21.0%					
2015	20.4%						

Adjusted Ultimate
18.8%
19.6%
19.9%
20.2%
19.6%
<b>BWR&amp;B Selected: 20.1%</b>
<b>Change in LAE Provision: 1.003</b>

Accident Year	<i>Additional Development of Ultimate Ratios</i>					
	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-6</u>	<u>6-7</u>
2000						1.019
2001					1.025	1.006
2002				1.030	1.000	1.000
2003			1.000	0.983	1.006	0.978
2004		1.006	0.978	1.000	0.977	1.000
2005		1.000	0.973	1.005	0.973	0.994
2006	0.990	0.984	0.984	1.005	0.989	0.995
2007	0.975	0.985	0.974	1.005	0.969	0.995
2008	0.965	0.979	0.995	0.974	0.984	0.994
2009	0.925	1.000	0.990	0.979	0.979	
2010	0.995	0.985	0.984	0.974		
2011	0.980	0.985	0.979	1.000		
2012	0.995	0.980	1.005			
2013	0.971	1.005				
2014	1.029					

<b>3 Year Avg</b>	0.999	0.990	0.990	0.984	0.977	0.995	1.000
<i>Cumulative</i>	0.936	0.937	0.947	0.957	0.972	0.995	1.000
<b>5 Year Avg</b>	0.994	0.991	0.991	0.986	0.979	0.996	1.000
<i>Cumulative</i>	0.938	0.943	0.952	0.961	0.974	0.996	1.000
<b>8 Year Avg</b>	0.979	0.988	0.986	0.993	0.985	0.995	1.000
<i>Cumulative</i>	0.928	0.947	0.959	0.973	0.980	0.995	1.000
<b>Selected</b>	0.999	0.990	0.990	0.984	1.000	1.000	1.000
<i>Cumulative</i>	0.963	0.964	0.974	0.984	1.000	1.000	1.000

<b>Prior Yr.</b>	0.985	0.985	0.985	0.985	0.980	0.995	1.000
<i>Cumulative</i>	0.918	0.932	0.946	0.960	0.975	0.995	1.000