

**State:** Missouri **Filing Company:** NCCI Inc  
**TOI/Sub-TOI:** 16.0 Workers Compensation/16.0004 Standard WC  
**Product Name:** Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019  
**Project Name/Number:** /

## Filing at a Glance

**Company:** NCCI Inc  
**Product Name:** Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019  
**State:** Missouri  
**TOI:** 16.0 Workers Compensation  
**Sub-TOI:** 16.0004 Standard WC  
**Filing Type:** Rate  
**Date Submitted:** 08/20/2018  
**SERFF Tr Num:** NCCI-131614716  
**SERFF Status:** Closed-REVIEWED  
**State Tr Num:** 117  
**State Status:** REVIEWED  
**Co Tr Num:** MISSOURI LC 01012019

**Effective Date:** 01/01/2019  
**Requested (New):**  
**Effective Date:** 01/01/2019  
**Requested (Renewal):**

**Author(s):** Lesley O'Brien, Frank Gnolfo, Robert Dalton, Kevin Ott, Whitney Atheras  
**Reviewer(s):** Patrick Lennon (primary), Julie Lederer  
**Disposition Date:** 12/03/2018  
**Disposition Status:** REVIEWED  
**Effective Date (New):** 01/01/2019  
**Effective Date (Renewal):** 01/01/2019

State Filing Description:

**State:** Missouri **Filing Company:** NCCI Inc  
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## General Information

Project Name: Status of Filing in Domicile:  
 Project Number: Domicile Status Comments:  
 Reference Organization: Reference Number:  
 Reference Title: Advisory Org. Circular:  
 Filing Status Changed: 12/03/2018  
 State Status Changed: 12/03/2018 Deemer Date:  
 Created By: Frank Gnolfo Submitted By: Whitney Atheras  
 Corresponding Filing Tracking Number:  
 State TOI: 16.0 Workers Compensation State Sub-TOI: 16.0004 Standard WC

**Filing Description:**  
 Enclosed are the NCCI Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019.

## Company and Contact

### Filing Contact Information

Carla Townsend, State Relations Executive carla\_townsend@ncci.com  
 11430 Gravois Road 314-843-4001 [Phone]  
 Suite 310 314-842-3188 [FAX]  
 St. Louis, MT 63126

### Filing Company Information

NCCI Inc CoCode: State of Domicile: Florida  
 901 Peninsula Corporate Circle Group Code: Company Type:  
 Boca Raton, FL 33487 Group Name: State ID Number: 9999-8500  
 (561) 893-3186 ext. [Phone] FEIN Number: 65-0439698

## Filing Fees

Fee Required? Yes  
 Fee Amount: \$50.00  
 Retaliatory? No  
 Fee Explanation:  
 Per Company: Yes

Company	Amount	Date Processed	Transaction #
NCCI Inc	\$50.00	08/20/2018	145427126

## State Specific

NAIC Number: NA  
 Have you reviewed the General Instructions document? (yes/no)(General Instructions updated 06/16/2017): Yes  
 If this is a rate filing, was rate data added on the rate/rule schedule? (yes/no): Yes  
 Are you paying the \$50 per company per submission filing fee electronically using EFT? The utilization of SERFF and EFT for filings of papers, documents, and reports is now required, per 20 CSR 100-1.900.: Yes

SERFF Tracking #: NCCI-131614716 State Tracking #: 117 Company Tracking #: MISSOURI LC 01012019

State: Missouri Filing Company: NCCI Inc  
TOI/Sub-TOI: 16.0 Workers Compensation/16.0004 Standard WC  
Product Name: Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019  
Project Name/Number: /

## Correspondence Summary

### Dispositions

Status	Created By	Created On	Date Submitted
REVIEWED	Patrick Lennon	12/03/2018	12/03/2018

State: Missouri      Filing Company: NCCI Inc  
 TOI/Sub-TOI: 16.0 Workers Compensation/16.0004 Standard WC  
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### Disposition

Disposition Date: 12/03/2018  
 Effective Date (New): 01/01/2019  
 Effective Date (Renewal): 01/01/2019  
 Status: REVIEWED

Comment:  
 Thank you for your filing submission. At this point in time, I do not have any further questions and am concluding my review of this filing. Please note that the closure of this filing review does not constitute an approval by the Department and does not mean the Department is precluded from initiating future inquiries or from taking further administrative or legal action. Ultimately, the insurance company is responsible for ensuring it is in compliance with Missouri insurance law through its administration of insurance policies and handling of claims.

Company Name:	Overall % Indicated Change:	Overall % Rate Impact:	Written Premium Change for this Program:	Number of Policy Holders Affected for this Program:	Written Premium for this Program:	Maximum % Change (where req'd):	Minimum % Change (where req'd):
NCCI Inc	%	%	%		%	%	%

Schedule	Schedule Item	Schedule Item Status	Public Access
Supporting Document	Actuarial Justification	REVIEWED	Yes
Supporting Document	Electronic Rate Submission	REVIEWED	Yes
Supporting Document	Exhibits A & B (20 CSR 500-6.950)(2)	REVIEWED	Yes
Supporting Document	Filing Memorandum	REVIEWED	Yes
Rate	New Filing	REVIEWED	Yes

State: Missouri Filing Company: NCCI Inc  
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### Rate Information

Rate data applies to filing.

Filing Method: SERFF  
 Rate Change Type: Decrease  
 Overall Percentage of Last Rate Revision: -3.000%  
 Effective Date of Last Rate Revision: 01/01/2018  
 Filing Method of Last Filing: SERFF  
 SERFF Tracking Number of Last Filing: NCCI-131161932

### Company Rate Information

Company Name:	Overall % Indicated Change:	Overall % Rate Impact:	Written Premium Change for this Program:	Number of Policy Holders Affected for this Program:	Written Premium for this Program:	Maximum % Change (where req'd):	Minimum % Change (where req'd):
NCCI Inc	%	%	%	%	%	%	%

SERFF Tracking #: NCCI-131614716

State Tracking #: 117

Company Tracking #: MISSOURI LC 01012019

State: Missouri

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### Rate/Rule Schedule

Item No.	Schedule Item Status	Exhibit Name	Rule # or Page #	Rate Action	Previous State Filing Number	Attachments
1	REVIEWED 12/03/2018	New Filing	MO-2017-06	Replacement	209	MO 1.1.2019 Filing.pdf



# Missouri

Advisory Loss Costs and  
Rating Values Filing

Proposed Effective January 1, 2019



**National Council on  
Compensation Insurance, Inc.**

**Carla Townsend**  
State Relations Executive  
Regulatory Division  
(P) 561-893-3819  
(F) 561-893-5779  
Email: [Carla\\_townsend@ncci.com](mailto:Carla_townsend@ncci.com)

August 20, 2018

The Honorable Chlora Lindley-Myers  
Director  
Missouri Department of Insurance,  
Financial Institutions and Professional Registration  
Harry S Truman Bldg, Room 530  
P.O. Box 690  
Jefferson City, Missouri 65102

**Re: Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019**

Dear Director Lindley-Myers:

In accordance with the applicable statutes and regulations of the state of Missouri, we are filing advisory voluntary loss costs for Missouri to be effective January 1, 2019 for new and renewal policies.

This filing proposes an average overall change of -3.5% in the voluntary loss costs from the January 1, 2018 NCCI Voluntary Loss Costs Including Trend. Enclosed are the NCCI Voluntary Loss Costs Including Trend proposed to be effective January 1, 2019.

Please note the following in connection with this filing:

- As a result of Item B-1397, effective January 1, 2008, a single combined loss cost is still calculated for Class Codes 7710 and 7711 via a payroll-weighted average of the separately indicated loss costs for these two Class Codes.
- As a result of Item B-1435, effective January 1, 2018:
  - Class Codes 1741, 1853, and 1701 are combined to reflect the final year of a two-year transition program, and Class Codes 1741 and 1853 are discontinued.
  - Class Codes 1860, 4282, and 4279 are combined to reflect the final year of a two-year transition program, and Class Codes 1860 and 4282 are discontinued.
  - Class Codes 2791 and 2841 are combined to reflect the final year of a two-year transition program, and Class Code 2791 is discontinued.
  - Class Codes 1655 and 1642 are combined to reflect the second year of a three-year transition program. In the third year of the transition, Class Code 1655 will be discontinued.
  - Class Codes 5067 and 5040 are combined to reflect the second year of a three-year transition program. In the third year of the transition, Class Code 5067 will be discontinued.

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Boca Raton, FL 33487-1362  
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- Class Codes 5505 and 5506 are combined to reflect the second year of a three-year transition program. In the third year of the transition, Class Code 5505 will be discontinued.
- As a result of Item B-1436, effective January 1, 2019:
  - Class Codes 8825 and 8826 are combined to reflect the first year of a two-year transition program. In the second year of the transition, Class Code 8825 will be discontinued.
- As a result of Item R-1414, new parameters are shown on the retrospective rating plan manual pages effective January 1, 2019.
- As a result of Item R-1415, the retrospective rating plan parameters were updated.

I hereby certify that I am familiar with the insurance laws, rules and regulations of the State of Missouri, and to the best of my knowledge, information, and belief, this filing complies in all respects to such laws, rules, and regulations. This filing is made on behalf of the members and subscribers of the National Council on Compensation Insurance, Inc., who are now writing or will write workers compensation insurance in Missouri.

This filing is made exclusively on behalf of the companies that have given valid consideration for the express purpose of fulfilling regulatory rate or pure premium filing requirements and other private use of this information.

In the enclosed appendix is a list of companies, which as of the time this filing is submitted, are eligible to reference this information. The inclusion of a company on this list merely indicates that the company, or the group to which it belongs, is affiliated with NCCI in this state, or has licensed this information as a non-affiliate, and is not intended to indicate whether the company is currently writing business or is even licensed to write business in this state.

Please contact me (561-893-3819) if you have any questions or need any further information.

Respectfully submitted,

A handwritten signature in black ink that reads "Carla Townsend".

Carla Townsend  
State Relations Executive  
Regulatory Division



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## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Actuarial Certification

I, James R. Davis, am a Director and Actuary for the National Council on Compensation Insurance, Inc. I am an Associate of the Casualty Actuarial Society and a member of the American Academy of Actuaries, and I meet the Qualification Standards of the American Academy of Actuaries to provide the actuarial report contained herein.

The information contained in this report has been prepared under my direction in accordance with applicable Actuarial Standards of Practice as promulgated by the Actuarial Standards Board. The Actuarial Standards Board is vested by the U.S.-based actuarial organizations with the responsibility for promulgating Actuarial Standards of Practice for actuaries providing professional services in the United States. Each of these organizations requires its members, through its Code of Professional Conduct, to observe the Actuarial Standards of Practice when practicing in the United States.

A handwritten signature in cursive script that reads "James R. Davis".

James R. Davis, ACAS, MAAA  
Director and Actuary  
Actuarial and Economic Services



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Disclosures

##### **Purpose of the Report**

The purpose of this report is to provide the proposed voluntary loss costs for workers compensation policies in Missouri, proposed to be effective January 1, 2019. The intended users of this report are:

- The Missouri Department of Insurance, Financial Institutions and Professional Registration
- Affiliated carriers, for their reference in determining workers compensation rates

##### **Scope**

The prospective loss costs are intended to cover the indemnity and medical benefits provided under the system, as well as some of the expenses associated with providing these benefits (loss adjustment expenses). They do not, however, contemplate any other costs associated with providing workers compensation insurance (such as commissions, taxes, etc.).

Each insurance company offering workers compensation insurance in Missouri that uses NCCI loss costs may file a loss cost multiplier to be applied to the advisory prospective loss costs in order to compute the final workers compensation rates they intend to charge. This multiplier is intended to cover the other costs associated with providing workers compensation insurance that are not already part of the advisory prospective loss costs.

##### **Data Sources and Dates**

The overall average loss cost level change is based on a review of Financial Call Data, which is an aggregation of workers compensation data annually reported to NCCI. In this filing, Financial Call Data submissions received after June 18, 2018 were not considered for inclusion in the analysis.

Loss cost level changes at the classification code level are based on Unit Statistical Data, which is the audited exposure, premium and loss information reported to NCCI on a policy level. In this filing, Unit Statistical Data submissions received after July 3, 2018 were not considered for inclusion in the analysis.

In some areas, NCCI's analysis also relies on other data sources, which are reviewed for reasonableness and are referenced in the filing where applicable.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Disclosures

This filing was prepared as of July 20, 2018. Therefore, events that occurred after this date that may have a material impact on workers compensation costs in this jurisdiction have not been considered in the analysis.

NCCI maintains several data reporting initiatives and programs to assist carriers to report data and to ensure that the data that is reported to NCCI is complete, accurate, and reported in a timely fashion. Occasionally, a carrier's data submission is not available for use in an NCCI filing either because the data was not reported prior to the filing, had quality issues, or NCCI determined that the data that was reported should not be included in the filing based on NCCI's actuarial judgment.

All carriers writing at least one-tenth of one percent of the Missouri workers compensation written premium volume and whose data is not included in the experience period are listed below:

- Policy Year 2015 – Guarantee Insurance Company (0.8% of state premium)
- Policy Year 2016 – Guarantee Insurance Company (0.8% of state premium)

Other exclusions are made for the purposes of analysis, but do not have a material impact on the proposed changes in this filing.

#### Risks and Uncertainty

This filing includes assumptions and projections concerning the future. As with any prospective analysis, there exists estimation uncertainty in these assumptions and projections. Areas of this analysis subject to estimation uncertainty that could have a material impact on the final results include the following:

- Projection of future loss development
- Selection of loss ratio trends
- Potential impact of changes to laws and/or regulations

In addition, any future changes to workers compensation law or regulations that apply retroactively to policies or benefit claims on policies in the proposed effective period may have a significant impact on the adequacy of the loss costs proposed in this filing.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

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- Overview of Methodology
- Summary of Selections
- Selections Underlying the Proposed Changes
- Additional Proposed Changes

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- Proposed Values for Inclusion in the Experience Rating Plan Manual
- Proposed Values for Inclusion in the Retrospective Rating Plan Manual

##### **Part 3 Supporting Exhibits**

- Exhibit I: Determination of the Indicated Loss Cost Level Change
- Exhibit II: Workers Compensation Loss Adjustment Expenses
- Appendix A: Factors Underlying the Proposed Loss Cost Level Change
- Appendix B: Calculations Underlying the Loss Cost Change by Classification
- Appendix C: Memoranda for Laws and Assessments

##### **Part 4 Additional Information**

- Definitions
- NCCI Affiliate List
- Key Contacts



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### **Part 1 Filing Overview**

- Executive Summary
- Overview of Methodology
- Summary of Selections
- Selections Underlying the Proposed Changes
- Additional Proposed Changes



# MISSOURI

## Advisory Loss Costs and Rating Values Filing – January 1, 2019

### Executive Summary

Based on its review of the most recently available data, NCCI has proposed an overall average workers compensation voluntary market loss cost level change of -3.5% to become effective January 1, 2019.

<u>Key Components</u>	<u>Percentage Change</u>
Impact of change in Experience and Development	- 3.1%
Impact of change in Trend	- 0.7%
Impact of change in Benefits	+ 0.4%
<u>Impact of change in Loss-based Expenses</u>	<u>- 0.1%</u>
<b>Proposed Change in Overall Voluntary Loss Cost Level</b>	<b>- 3.5%</b>

#### Key observations:

- The filing is based on premium and loss experience for policy years 2015 and 2016 evaluated as of December 31, 2017, which is moderately favorable.
- Missouri’s lost-time claim frequency has declined since 2010.
- After adjusting to a common wage level, indemnity average cost per case figures have remained fairly consistent in recent years, while there is a slight upward trend in the medical average cost per case figures.

#### Proposed Changes in Voluntary Loss Cost Level by Industry Group:

<u>Industry Group</u>	<u>Average Change</u>	<u>Maximum Increase</u>	<u>Maximum Decrease</u>
Manufacturing	- 2.4%	+ 18.0%	- 22.0%
Contracting	- 6.3%	+ 14.0%	- 26.0%
Office and Clerical	- 3.7%	+ 16.0%	- 24.0%
Goods and Services	- 4.2%	+ 16.0%	- 24.0%
Miscellaneous	- 0.2%	+ 20.0%	- 20.0%

#### Additional Notable Changes Proposed in the Filing:

- Revised class credibility parameters
- Updates to retrospective rating values





## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Overview of Methodology

##### Aggregate Ratemaking

NCCI's approach to determining the proposed overall average loss cost level change utilizes widely accepted ratemaking methodologies. The approach employed in this filing includes the following steps:

- The reported historical premium totals are projected to an ultimate basis and adjusted to the current pure premium level
- The excess loss portion of individual large claims are removed from reported aggregate losses, based on a Missouri specific large loss threshold
- The reported historical limited indemnity and medical loss totals are projected to an ultimate basis and adjusted to the current benefit level
- Ratios of losses to pure premium are projected to the cost levels expected in the loss cost effective period
- Ultimate, trended, limited losses are adjusted to an unlimited basis with an excess ratio
- Proposed benefit level and/or expense changes are applied to the projected cost ratios

The indicated average loss cost level change is calculated for the years in the filing's experience period. If the final projected cost ratios are greater (less) than 1.000, then an increase (decrease) in the average loss cost level is indicated.

##### Class Ratemaking

Once the proposed overall average voluntary loss cost level change has been determined, NCCI separately determines loss costs per \$100 of payroll for each workers compensation job classification (class); the loss costs and year-over-year changes vary by class. Three sets of pure premiums are combined as part of each class code's loss cost calculation based on the volume of available data for that job classification. The three sets of pure premiums are:

- State-specific payroll and loss experience ("indicated")
- Current pure premium adjusted to the proposed level ("present on rate level")
- Countrywide experience adjusted to state conditions ("national")

Note: The methodology and assumptions used in this filing may not be applicable to or relevant for another purpose, including but not limited to NCCI filings in other jurisdictions.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Summary of Selections

The following is a summary of selections underlying the voluntary loss costs effective January 1, 2019, along with the selections underlying the January 1, 2018 loss cost filing.

<b>Voluntary Loss Costs</b>	<b>Effective January 1, 2018</b>	<b>Effective January 1, 2019</b>
Experience Period	Policy Years 2014 and 2015	Policy Years 2015 and 2016
Premium Development	3-year average	3-year average
Basis of Loss Experience	Average of Paid and Paid+Case losses	Average of Paid and Paid+Case losses
Paid Loss Development	3-year average	3-year average
Paid+Case Loss Development	5-year average	5-year average
Tail Factors	Selected	Selected
Indemnity Annual Loss Ratio Trend Factor	0.980	0.975
Medical Annual Loss Ratio Trend Factor	0.985	0.985
Loss Adjustment Expense Provision	18.9%	18.8%
Base Threshold for Limiting Losses	\$9,794,993	\$9,530,610
Large Loss Excess Ratio	0.6%	0.7%
Classification Swing Limits (applied by Industry Group)	+/-20%	+/-20%



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### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Selections Underlying the Proposed Changes

##### Experience and Development

NCCI analyzed the emerging experience of Missouri workers compensation policies in recent years. The primary focus of our analysis was on premiums and losses from policy years 2015 and 2016 evaluated as of December 31, 2017. The most recently available full policy year is 2016 since the last policy had an effective date of December 31, 2016 and did not expire until December 31, 2017. During this year's analysis, after reviewing various possible experience periods, the use of the two most recently available full policy years of data was selected as most appropriate in terms of providing balance between stability and responsiveness.

Different aggregations of loss experience were analyzed in preparation of this filing. These were (i) paid losses (benefit amounts already paid by insurers on reported claims) and (ii) the sum of paid losses plus case reserves (paid losses and the amounts set aside to cover future payments on those claims). In this filing, NCCI utilized loss development factors based on each of these two loss aggregations. This is consistent with NCCI filings made in the past several years in Missouri. Loss development factors are needed since paid losses and case reserve estimates on a given claim change over time until the claim is finally closed. The loss development factors are based on how paid losses and case reserve estimates changed over time for claims from older years. The specific development link ratio selections underlying this filing are shown below:

- A three-year average of historical premium development factors.
- A three-year average of historical paid loss development factors through a 19th report.
- A five-year average of historical paid plus case loss development factors through a 19th report.
- Loss development tail factors from a 19th report to ultimate were selected by NCCI based on historical averages of the ten most recent available factors.

##### Trend

This filing relies primarily on the experience from policy years 2015 and 2016. However, the proposed loss costs are intended for use with policies with effective dates starting on January 1, 2019. It is necessary to use trend factors that forecast how much the future Missouri workers compensation experience will differ from the past. These trend factors measure anticipated changes in the amount of indemnity and medical benefits as compared with anticipated changes in the amount of workers' wages. For example, if benefit costs are expected to grow faster than wages, then a trend factor greater than zero is indicated. Conversely, if wages are expected to grow faster than benefit costs, then a trend factor less than zero is indicated. While historical changes in claim frequency and average cost per case were also reviewed, NCCI applies loss ratio trend factors in the determination of the proposed overall average loss cost level change.

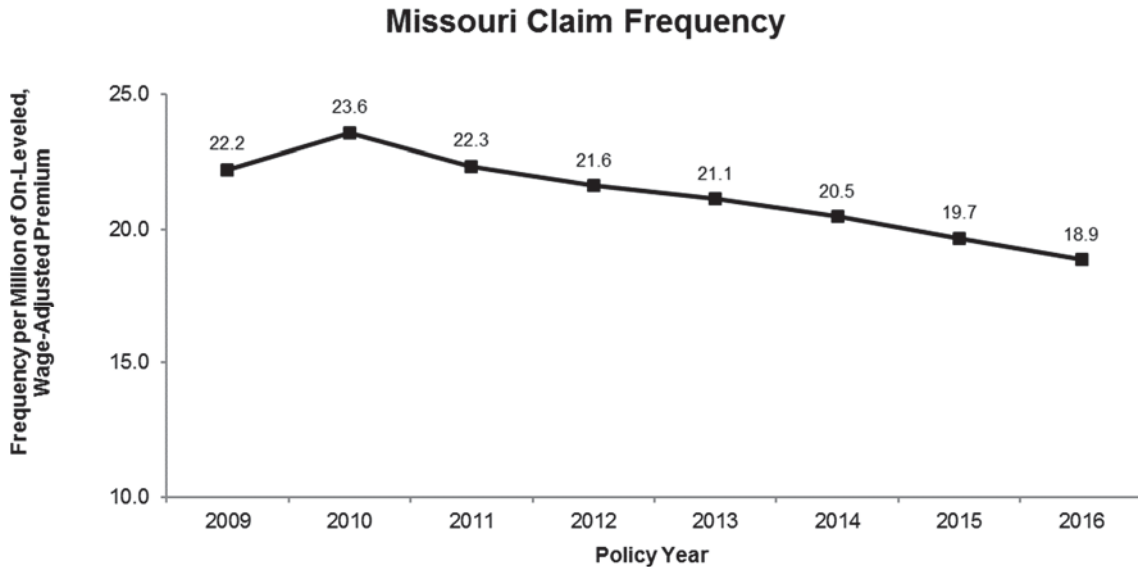


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## Advisory Loss Costs and Rating Values Filing – January 1, 2019

### Selections Underlying the Proposed Changes

The following few charts show a measure of the number of workplace injuries (claim frequency) and the average cost of each of these injuries (claim severity).



Missouri’s lost-time claim frequency has declined since 2010, as shown immediately above. The data in this chart reflects premiums at today’s loss cost and wage levels.

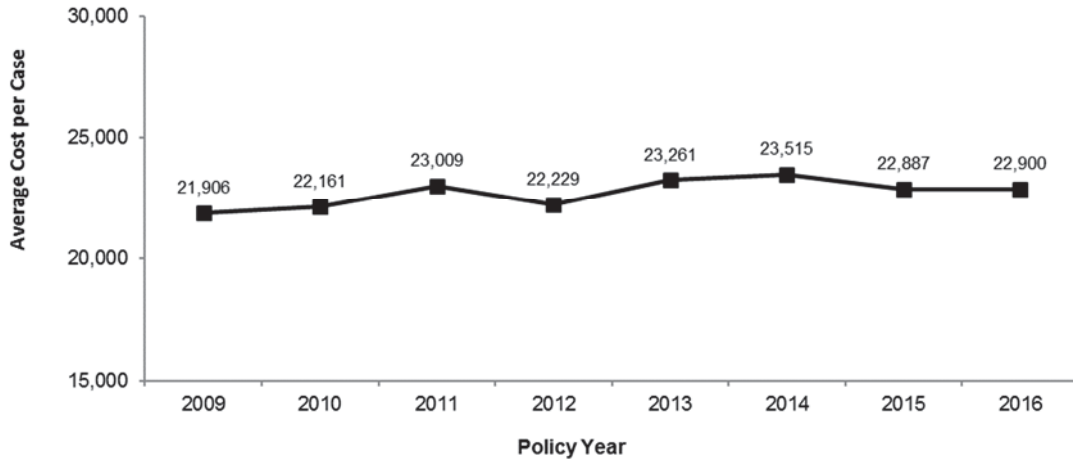


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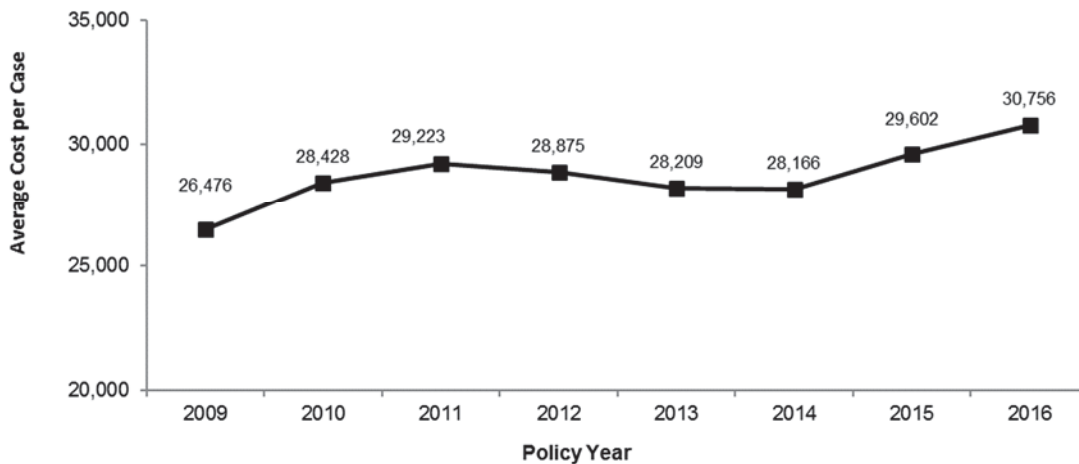
## Advisory Loss Costs and Rating Values Filing – January 1, 2019

### Selections Underlying the Proposed Changes

#### Missouri Indemnity Cost Per Case Adjusted to a Common Wage Level



#### Missouri Medical Cost Per Case Adjusted to a Common Wage Level



As these two charts illustrate, Missouri's average indemnity cost per case has remained fairly consistent over time, while there is a slight upward trend in the average medical cost per case figures.



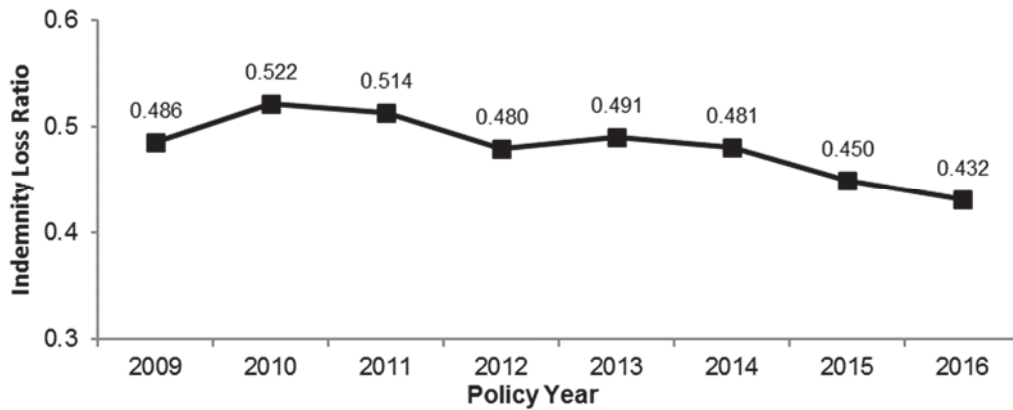
## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

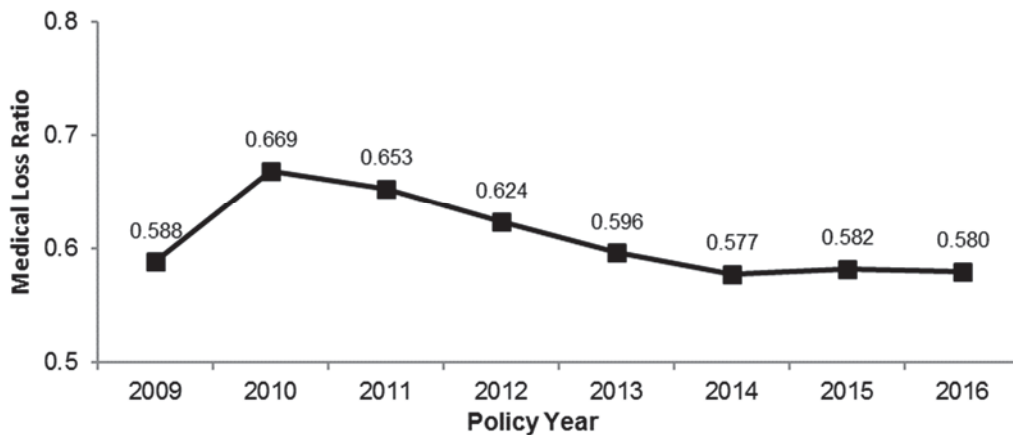
#### Selections Underlying the Proposed Changes

Loss ratios result after combining observed changes in Missouri's average claim frequency with corresponding changes in Missouri's average cost per case.

#### Missouri Indemnity Loss Ratio History



#### Missouri Medical Loss Ratio History



Based on our analysis this year, we are proposing a decrease in the annual indemnity loss ratio trend from  $-2.0\%$  to  $-2.5\%$  and no change in the annual medical loss ratio trend of  $-1.5\%$ .



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Selections Underlying the Proposed Changes

##### **Benefit Changes**

Workers injured in Missouri receive wage replacement (indemnity) benefits at a rate of two-thirds of their pre-injury weekly wage. These benefits are subject to a weekly minimum and maximum. Each July 1, the minimum and maximum weekly benefits are updated based on Missouri's most recent state average weekly wage. The latest increase in Missouri's state average weekly wage is estimated to increase indemnity costs by 0.9% and overall system costs by 0.4%. Please see Appendix C-I for additional detail.

##### **Loss-Based Expenses**

The proposed loss costs include a provision for loss adjustment expenses (LAE). These are expenses associated with the handling of workers compensation claims. LAE is included in the loss costs by using a ratio of loss adjustment expense dollars to loss dollars (called the LAE provision). In this filing, NCCI is proposing to decrease the current voluntary LAE provision from 18.9% to 18.8% of losses. Please see Exhibit II for additional detail.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Additional Proposed Changes

##### Classification Ratemaking – Revised Credibility Parameters

This filing proposes an update to the parameters of the credibility formulas used in the calculation of derived by formula pure premiums (see Appendix B-I), which are used in the calculation of loss costs. The proposed changes to the credibility formulas are expected to significantly increase the stability of classification loss costs—particularly for those classifications with low volume of observed experience—while also seeking to improve the level of predictive accuracy.

To achieve enhanced year-to-year stability, NCCI is proposing to revise the credibility parameters according to the following tables:

##### Indicated (State) Pure Premium Credibility Formula

	<u>Previous Filing</u>	<u>Proposed Filing</u>
<b>Basis for credibility</b>	Expected losses	Expected losses
<b>Exponent</b>	0.40	0.50
<b>Full credibility standard:</b>		
- Indemnity	850 x average indemnity severity for lost-time claims	1,700 x average indemnity severity for lost-time claims
- Medical	400 x average medical severity for lost-time claims	800 x average medical severity for lost-time claims

##### National Pure Premium Credibility Formula

	<u>Previous Filing</u>	<u>Proposed Filing</u>
<b>Basis for credibility</b>	Actual lost-time claims	Actual lost-time claims
<b>Exponent</b>	0.40	0.50
<b>Full credibility standard:</b>		
- Indemnity	1,150 lost-time claims	2,300 lost-time claims
- Medical	1,000 lost-time claims	2,000 lost-time claims
<b>Limitation of National Pure Premium Credibility</b>	0.5 x (1 – state credibility)	0.5 x (1 – state credibility)

Additionally, state special classifications that exist in a minimal number of states will no longer include a national component in the ratemaking process.

##### Present On Rate Level Pure Premium Credibility Formula

There is no change to the credibility formula for the present on rate level pure premium, which will continue to receive the residual credibility (100% minus the sum of the state and national credibilities).





## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Additional Proposed Changes

##### Background

As explained in Appendix B-I of this filing, the classification loss costs are derived using a three-way credibility weighting of the indicated, present on rate level, and national pure premiums. The formulas used to produce the credibility weights for each classification were derived in the early 1990s using a method based on limited fluctuation credibility theory. At its core, limited fluctuation credibility theory seeks to limit the extent to which random fluctuations in classification experience can influence final loss costs.

When the Likely/Not-Likely class ratemaking methodology was first implemented, NCCI incorporated several major revisions to its classification ratemaking methodology designed to improve the predictive accuracy and year-to-year stability of classification loss costs. Among these revisions were updates to the parameters of the credibility formulas which had previously remained unchanged since the early 1990s. When developing the revised credibility parameters, consideration was given to the following:

- An update to the limited fluctuation approach to credibility with the most recently available data indicated that reductions to classification credibilities may be appropriate.
- While newly-implemented updates to NCCI's classification ratemaking methodology (e.g., incorporating likely and not-likely loss development groupings and including an expected excess provision after limiting large claims to \$500,000) were expected to result in significantly enhanced accuracy and stability, they suggested increases to classification credibilities may be appropriate.

At that time, to balance these concerns, NCCI revised the credibility parameters without introducing significant changes to the actual classification credibility percentages used. It was NCCI's intent to further recalibrate the credibility parameters when a sufficient volume of pure premium data based on the revised classification methodology became available to achieve increased year-to-year stability of loss costs.

NCCI has recently concluded a multi-year analysis of its class ratemaking methodologies, which focused on the stability of small classes. When conducting this research, NCCI re-estimated historical classification derived by formula pure premiums using alternatives to the current methodology. This research resulted in NCCI investigating updates to the parameters of the credibility formulas used in the calculation of derived by formula pure premiums.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Additional Proposed Changes

##### Methodology

During the multi-year analysis of its class ratemaking methodologies, NCCI refreshed the limited fluctuation approach to credibility using the latest pure premium data from all jurisdictions for which the full history of likely/not-likely filings was available.

The first task was to estimate the exponent of the credibility formula indicated by the most recent pure premium data. To accomplish this task, sample coefficients of variation were derived and a linear model was fit. The exponent of the credibility formula indicated by the most recent pure premium data is the (negative of the) fitted slope of the linear model.

The second task was to estimate the full credibility standard. Limited fluctuation credibility theory suggests that as the size of a class increases, the random fluctuation of the class pure premium decreases. However, some minimal level of random fluctuation is likely to persist for even the largest classes. Based on the linear model, the full credibility standard was determined after recognizing this minimum level of random fluctuation along with the targeted level of pure premium fluctuation in the losses with which credibility is to be calibrated, and the probability that this level of fluctuation will be achieved.

In addition to relying on limited fluctuation credibility theory to calibrate the parameters of the credibility formulas, several performance testing metrics were utilized—which focused on the stability or accuracy of the alternative classification pure premiums. These metrics were used to distinguish between the various alternatives and to guide the selection of updated parameters to the credibility formulas.

Ultimately, selections were made for both the exponent of the credibility formula and the full credibility standard. These selections required judgment and considered both the linear model and the performance test results. The final credibility parameters being proposed accomplished the goal of stabilizing the small classes and were shown to achieve excellent performance results based on the tests performed.

##### Impact

These class ratemaking methodology changes will impact individual class loss costs, but will not impact the state's overall average loss cost level indication—since the individual classification code changes must balance to the overall average statewide change. These changes are expected to result in increased class equity and stability. Any specific class code impacts will be subject to NCCI's current class ratemaking procedures (swing limits, credibility-weighted average of indicated, national, and present-on-rate level, etc.).



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Additional Proposed Changes

##### Updates to Retrospective Rating

###### Changes to Retrospective Rating Plan Manual Pages

Due to the replacement of Table M within Item R-1414 effective January 1, 2019, State Hazard Group Differentials and the Table of Expected Loss Ranges are no longer needed to calculate retrospective rating premium. These values have been removed from the Retrospective Rating Plan Manual pages.

If a carrier has elected to calculate net aggregate loss factors using the new Table of Aggregate Loss Factors, the expected number of claims for the policy must be determined. To aid in deriving the expected number of claims, the average cost per case values that underlie the ELPPFs and ELAEPFs are now included on the Retrospective Rating Plan Manual pages.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Part 2 Proposed Values

- Proposed Voluntary Loss Costs and Rating Values
- Proposed Values for Inclusion in the Experience Rating Plan Manual
- Proposed Values for Inclusion in the Retrospective Rating Plan Manual



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Proposed Voluntary Loss Costs and Rating Values

The following pages include proposed voluntary loss costs and rating values:

- Voluntary loss costs, expected loss rates, and d-ratios by class code, along with associated footnotes
  
- Advisory miscellaneous values, such as:
  - Advisory loss elimination ratios
  - Maximum weekly payroll applicable for select class codes
  - Premium determination for Executive Officers, Members of Limited Liability Companies, Partner and Sole Proprietors
  - Terrorism advisory loss cost
  - United States Longshore and Harbor Workers' Compensation Coverage Percentage

**NCCI INCLUDING TREND ADVISORY LOSS COSTS - NOT RATES**

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Effective January 1, 2019

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
0005X	2.98	2.27	0.39	2016	2.93	2.29	0.39	2709	16.64	11.77	0.32
0008	2.60	1.93	0.35	2021	1.86	1.38	0.35	2710	13.52	9.18	0.26
0016	5.75	4.06	0.32	2039	2.49	1.94	0.39	2714	4.74	3.70	0.40
0034	2.25	1.72	0.39	2041	2.46	1.92	0.39	2731	3.49	2.46	0.32
0035	1.88	1.48	0.40	2065	1.89	1.44	0.39	2735	3.72	2.92	0.40
0036	7.39	5.66	0.39	2070	4.03	3.07	0.39	2747	-	2.52	0.49
0037	3.25	2.41	0.35	2081X	4.87	3.73	0.39	2759	6.19	4.85	0.40
0042	5.34	3.61	0.35	2089	3.33	2.55	0.39	2790	1.62	1.27	0.40
0050	4.46	3.12	0.39	2095	2.87	2.19	0.39	2791	-	2.79	0.40
0059D	0.12	0.04	0.31	2105	3.23	2.54	0.40	2797	4.35	3.32	0.39
0065D	0.04	0.01	0.32	2110	1.89	1.48	0.39	2799	5.05	3.42	0.35
0066D	0.04	0.01	0.31	2111	2.15	1.68	0.39	2802	4.92	3.64	0.35
0067D	0.04	0.01	0.31	2112	3.64	2.85	0.40	2835	2.47	2.00	0.49
0079	4.24	3.00	0.32	2114	3.08	2.42	0.40	2836	2.08	1.68	0.49
0083	4.55	3.48	0.39	2121	1.28	0.97	0.39	2841	3.55	2.79	0.40
0106	6.78	4.57	0.26	2130	1.72	1.31	0.39	2881	3.12	2.52	0.49
0113	5.04	3.87	0.39	2131	2.21	1.68	0.39	2883	2.96	2.26	0.39
0170	2.05	1.57	0.39	2143	2.05	1.60	0.39	2913	-	2.26	0.39
0251	3.52	2.69	0.39	2157	6.25	4.74	0.39	2915	3.16	2.33	0.35
0400	-	1.43	0.35	2172	1.53	1.12	0.34	2916	4.03	2.72	0.26
0401	10.31	6.99	0.26	2174	2.75	2.15	0.40	2923	1.91	1.50	0.39
0771N	0.44	-	-	2211	10.16	7.14	0.31	2942	-	1.04	0.49
0908P	121.00	92.21	0.39	2220	1.90	1.45	0.39	2960	5.54	4.23	0.39
0913P	381.00	289.91	0.39	2286	1.70	1.33	0.40	3004	1.93	1.36	0.31
0917	3.67	2.87	0.40	2288	3.68	2.88	0.40	3018	5.08	3.56	0.31
1005*	4.68	2.49	0.23	2300	-	1.80	0.39	3022	3.54	2.77	0.39
1016X*	11.22	5.74	0.23	2302	1.72	1.31	0.39	3027	2.55	1.79	0.31
1164D	4.59	2.83	0.23	2305	2.44	1.80	0.35	3028	3.79	2.89	0.39
1165D	3.40	2.28	0.26	2352	-	1.45	0.39	3030	4.25	2.99	0.31
1320	1.46	0.98	0.26	2361	1.84	1.41	0.39	3040	5.18	3.65	0.31
1322	6.25	3.85	0.26	2362	1.65	1.26	0.39	3041	4.44	3.39	0.39
1430	5.15	3.63	0.31	2380	2.10	1.60	0.39	3042	5.01	3.69	0.35
1438	11.66	7.85	0.26	2386	-	1.80	0.39	3064	3.16	2.41	0.39
1452	2.95	2.07	0.31	2388	1.50	1.18	0.40	3069	-	2.18	0.39
1463	9.29	6.27	0.26	2402	2.36	1.66	0.31	3076	2.86	2.18	0.39
1472	2.55	1.72	0.26	2413	2.45	1.87	0.39	3081DX	3.85	2.69	0.31
1624D	3.33	2.24	0.26	2416	1.86	1.42	0.39	3082D	4.60	3.23	0.32
1642	2.47	1.74	0.31	2417	1.29	0.99	0.39	3085DX	4.37	3.06	0.31
1654	3.77	2.64	0.31	2501	2.35	1.80	0.39	3110	4.71	3.60	0.39
1655X	2.32	1.63	0.31	2503	1.43	1.12	0.39	3111	2.32	1.77	0.39
1699	2.80	1.96	0.31	2534	-	1.80	0.39	3113	1.85	1.41	0.39
1701	3.10	2.18	0.31	2570	3.87	3.02	0.39	3114	3.06	2.32	0.39
1710D	3.06	2.13	0.31	2585	3.14	2.46	0.40	3118	2.14	1.67	0.39
1741	-	2.18	0.31	2586	2.22	1.70	0.39	3119	1.48	1.19	0.48
1747	1.69	1.18	0.31	2587	1.74	1.36	0.39	3122	1.96	1.54	0.40
1748	5.48	3.88	0.32	2589	1.91	1.46	0.39	3126	1.27	0.97	0.39
1803D	7.08	4.67	0.26	2600	3.80	2.96	0.39	3131	1.84	1.41	0.39
1852	-	1.30	0.24	2623	6.61	4.88	0.35	3132	3.68	2.82	0.39
1853	-	2.18	0.31	2651	2.13	1.67	0.40	3145	2.31	1.77	0.39
1860	-	1.65	0.39	2660	2.70	2.11	0.40	3146	2.19	1.67	0.39
1924	3.84	3.00	0.39	2670	1.69	1.37	0.49	3169	2.08	1.58	0.39
1925	3.23	2.39	0.35	2683	1.81	1.43	0.40	3175	-	1.58	0.39
2002	2.80	2.19	0.40	2688	2.71	2.12	0.39	3179	2.04	1.59	0.39
2003	3.63	2.76	0.39	2701	10.12	7.09	0.31	3180	2.78	2.18	0.40
2014	4.50	3.17	0.31	2702	17.87	11.13	0.23	3188	2.31	1.81	0.40

\* Refer to the Footnotes Page for additional information on this class code.

**NCCI INCLUDING TREND ADVISORY LOSS COSTS - NOT RATES**

**MISSOURI**

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Effective January 1, 2019

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
3220	2.22	1.69	0.39	4000	4.89	3.30	0.26	4597	-	1.63	0.40
3223	-	2.18	0.40	4018DX	4.87	3.38	0.31	4611	0.99	0.78	0.40
3224	2.83	2.21	0.39	4021	6.46	4.54	0.31	4635	3.01	1.87	0.23
3227	3.00	2.34	0.39	4034	6.77	4.76	0.31	4653	1.28	1.00	0.39
3240	2.32	1.82	0.40	4036	2.62	1.85	0.31	4665	8.73	6.17	0.32
3241	3.24	2.47	0.39	4038	4.26	3.40	0.47	4670	6.50	4.59	0.32
3255	2.21	1.79	0.49	4053	-	1.93	0.39	4683	3.73	2.83	0.39
3257	2.50	1.91	0.39	4061	-	1.93	0.39	4686	2.61	1.85	0.32
3270	3.67	2.80	0.39	4062	2.52	1.93	0.39	4692	0.81	0.63	0.39
3300	3.92	3.00	0.39	4101	2.35	1.74	0.35	4693	0.75	0.57	0.39
3303	1.98	1.55	0.40	4109	0.56	0.44	0.39	4703	1.96	1.49	0.39
3307	3.58	2.74	0.39	4110	1.28	0.97	0.39	4716	-	2.83	0.39
3315	3.22	2.51	0.39	4111	1.75	1.37	0.40	4717	1.99	1.61	0.49
3334	1.86	1.42	0.39	4113	-	1.37	0.40	4720	1.78	1.36	0.39
3336	2.78	1.96	0.31	4114	3.29	2.51	0.39	4740	0.89	0.63	0.31
3365	3.47	2.23	0.31	4130	3.17	2.42	0.39	4741	2.14	1.63	0.39
3372	3.41	2.52	0.35	4131	3.98	3.12	0.40	4751	1.70	1.20	0.32
3373	4.62	3.53	0.39	4133	1.85	1.45	0.40	4771N	2.51	1.57	0.24
3383	1.48	1.16	0.40	4149	0.86	0.69	0.48	4777	4.05	2.52	0.23
3385	0.81	0.63	0.39	4206	2.35	1.79	0.39	4825	0.72	0.51	0.31
3400	4.09	3.02	0.35	4207	1.81	1.27	0.31	4828	1.96	1.45	0.35
3507	2.41	1.84	0.39	4239	1.79	1.26	0.31	4829	1.06	0.71	0.26
3515	2.65	2.03	0.39	4240	3.49	2.74	0.40	4902	2.60	2.04	0.40
3548	1.44	1.10	0.39	4243	2.06	1.57	0.39	4923	0.93	0.71	0.39
3559	2.32	1.78	0.39	4244	2.36	1.80	0.39	4940	-	2.18	0.39
3574	2.09	1.63	0.39	4250	1.68	1.28	0.39	5020	4.51	2.90	0.31
3581	1.16	0.91	0.40	4251	3.36	2.56	0.39	5022	5.46	3.35	0.26
3612	2.01	1.49	0.35	4263	3.59	2.75	0.39	5037	11.20	6.36	0.23
3620X	3.68	2.59	0.31	4273	2.32	1.77	0.39	5040	11.95	6.82	0.24
3629	1.62	1.26	0.39	4279	2.16	1.65	0.39	5057	3.69	2.10	0.23
3632X	2.86	2.11	0.35	4282	-	1.65	0.39	5059	25.77	14.78	0.24
3634	1.65	1.29	0.39	4283	1.42	1.08	0.39	5067X	11.95	6.82	0.24
3635	2.13	1.62	0.39	4299	2.13	1.66	0.40	5069	-	14.78	0.24
3638	1.79	1.40	0.40	4304	6.45	4.78	0.35	5102	5.49	3.39	0.26
3642	1.28	0.98	0.39	4307	1.70	1.38	0.49	5146	4.56	2.94	0.31
3643	2.18	1.66	0.39	4351	0.78	0.60	0.39	5160	2.16	1.34	0.26
3647	2.49	1.84	0.35	4352	1.62	1.26	0.40	5183	2.75	1.77	0.31
3648	1.43	1.12	0.40	4360	0.94	0.74	0.39	5188	2.50	1.60	0.31
3681	0.77	0.60	0.39	4361	0.76	0.59	0.39	5190	2.50	1.60	0.31
3685	1.22	0.95	0.40	4410	2.95	2.25	0.39	5191	0.65	0.49	0.39
3719	1.17	0.67	0.23	4420	4.09	2.75	0.26	5192	2.13	1.62	0.39
3724	3.27	2.01	0.26	4431	1.27	1.03	0.49	5213X	6.06	3.73	0.26
3726	3.32	1.90	0.23	4432	1.28	1.04	0.49	5215	4.89	3.31	0.35
3803	1.73	1.32	0.39	4439	-	1.37	0.39	5221X	3.79	2.43	0.31
3807	2.00	1.56	0.39	4452	2.73	2.09	0.39	5222	6.85	4.21	0.26
3808	3.55	2.62	0.35	4459	2.29	1.75	0.39	5223	5.78	3.71	0.31
3821	4.67	3.45	0.35	4470	2.10	1.60	0.39	5348	3.88	2.49	0.31
3822X	3.62	2.68	0.35	4484	2.35	1.79	0.39	5402	3.31	2.37	0.39
3824X	4.59	3.39	0.35	4493	5.62	4.33	0.40	5403	5.12	3.16	0.26
3826	1.02	0.78	0.39	4511	0.39	0.29	0.35	5437	3.91	2.51	0.31
3827	2.41	1.79	0.35	4557X	2.09	1.63	0.40	5443	2.62	1.83	0.39
3830	0.71	0.52	0.35	4558	1.79	1.37	0.39	5445	4.42	2.72	0.26
3851	3.40	2.65	0.39	4568	4.41	3.11	0.31	5462	5.37	3.46	0.31
3865	1.85	1.51	0.49	4581	1.33	0.90	0.26	5472	5.09	2.90	0.23
3881	3.77	2.88	0.39	4583	3.95	2.66	0.26	5473	7.13	4.07	0.23

\* Refer to the Footnotes Page for additional information on this class code.

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Effective January 1, 2019

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
5474	5.06	3.11	0.26	6884	5.41	3.34	0.23	7540	2.72	1.70	0.24
5478	5.57	3.57	0.31	7016M	1.99	1.24	0.23	7580	2.17	1.53	0.31
5479	6.44	4.36	0.35	7024M	2.21	1.37	0.23	7590	2.70	1.99	0.35
5480	5.17	3.17	0.26	7038M	5.36	3.37	0.24	7600	3.11	2.18	0.31
5491	1.50	0.92	0.26	7046M	9.59	5.95	0.23	7605	1.70	1.10	0.31
5505X	4.07	2.62	0.31	7047M	2.75	1.65	0.23	7610	0.37	0.28	0.35
5506	4.56	2.61	0.24	7050M	7.40	4.53	0.24	7705	3.83	2.83	0.35
5507	3.21	2.16	0.35	7090M	5.95	3.75	0.24	7710	4.06	2.74	0.26
5508D	3.22	2.16	0.35	7098M	10.66	6.62	0.23	7711	4.06	2.74	0.26
5515	-	2.16	0.35	7099M	13.25	7.99	0.23	7720	2.47	1.74	0.31
5535	5.43	3.50	0.31	7133	2.22	1.50	0.26	7855	3.09	1.99	0.31
5537	3.53	2.27	0.31	7151M	2.70	1.82	0.26	8001	1.74	1.37	0.40
5551	13.75	7.85	0.24	7152M	3.73	2.44	0.26	8002	1.58	1.21	0.39
5606	1.15	0.71	0.26	7153M	3.00	2.02	0.26	8006X	1.61	1.23	0.39
5610X	4.73	3.29	0.39	7207	-	3.53	0.26	8008	0.86	0.68	0.40
5645	8.92	5.52	0.26	7219X	6.54	4.40	0.26	8010	1.56	1.23	0.40
5703	9.47	6.11	0.31	7222	5.60	3.92	0.31	8013	0.32	0.24	0.39
5705	24.22	15.73	0.32	7225	6.15	4.31	0.31	8015	0.78	0.59	0.39
5951	0.34	0.26	0.40	7228	-	4.40	0.26	8017X	1.38	1.08	0.40
6003	4.17	2.68	0.31	7229	-	4.40	0.26	8018X	2.12	1.66	0.40
6005	4.86	3.13	0.31	7230	6.20	4.58	0.35	8021	2.83	2.17	0.39
6045	2.96	1.89	0.31	7231	7.46	5.49	0.35	8031	2.03	1.55	0.39
6204	9.45	5.84	0.26	7232	6.66	4.47	0.26	8032	1.74	1.37	0.40
6206	2.09	1.19	0.23	7250	-	4.40	0.26	8033	1.52	1.16	0.39
6213	1.28	0.79	0.26	7309F	10.95	5.64	0.20	8034X	2.09	1.59	0.39
6214	1.68	0.96	0.23	7313F	3.28	1.69	0.20	8037	1.75	1.37	0.40
6216	4.20	2.39	0.23	7317F	8.38	4.30	0.20	8039	1.07	0.84	0.40
6217	3.84	2.38	0.26	7327F	19.03	9.87	0.20	8044	2.30	1.70	0.35
6229	4.03	2.49	0.26	7333M	1.94	1.20	0.23	8045	0.50	0.39	0.39
6233	1.79	1.10	0.26	7335M	2.15	1.33	0.23	8046	2.13	1.63	0.39
6235	5.49	3.13	0.23	7337M	2.67	1.61	0.23	8047	0.97	0.76	0.40
6236	5.47	3.51	0.31	7350F	11.43	6.20	0.24	8058	2.23	1.71	0.39
6237	1.26	0.80	0.31	7360	3.73	2.62	0.31	8061X	1.66	1.27	0.39
6251D	3.42	2.09	0.26	7370	4.50	3.44	0.39	8072	0.52	0.41	0.40
6252D	3.08	1.75	0.23	7380	4.27	3.15	0.35	8102	2.03	1.59	0.40
6260	-	2.09	0.26	7382	4.32	3.29	0.39	8103	1.93	1.43	0.35
6306	5.42	3.34	0.26	7390	5.19	3.95	0.39	8105	-	1.66	0.40
6319	3.63	2.25	0.26	7394M	3.36	2.08	0.23	8106	3.87	2.72	0.31
6325	3.06	1.89	0.26	7395M	3.73	2.31	0.23	8107	2.44	1.72	0.31
6400	4.49	3.03	0.35	7398M	4.64	2.79	0.23	8111	1.57	1.20	0.39
6503	1.98	1.55	0.39	7402	0.11	0.09	0.39	8116	1.98	1.51	0.39
6504	2.31	1.81	0.40	7403	3.93	2.76	0.31	8203	5.89	4.48	0.39
6702M*	3.44	2.42	0.31	7405N	1.26	0.89	0.31	8204	3.20	2.26	0.32
6703M*	4.75	3.24	0.31	7420	7.18	4.42	0.23	8209	3.69	2.82	0.39
6704M*	3.82	2.69	0.31	7421	0.51	0.35	0.26	8215	3.56	2.51	0.32
6824F	7.93	4.33	0.24	7422	2.12	1.32	0.23	8227	2.93	1.67	0.24
6825FX	2.95	1.53	0.20	7425	2.51	1.54	0.23	8232	4.90	3.45	0.31
6826F	4.34	2.41	0.30	7431N	0.94	0.58	0.23	8233	2.05	1.43	0.31
6834	3.40	2.51	0.35	7445N	0.68	-	-	8235	3.54	2.70	0.39
6835X	2.65	1.64	0.23	7453N	0.51	-	-	8263	4.58	3.40	0.35
6836	3.19	2.25	0.31	7502	3.06	2.15	0.31	8264	4.63	3.27	0.32
6845a	a	a	a	7515	1.03	0.64	0.23	8265	4.68	3.16	0.26
6872F	10.59	5.47	0.20	7520	3.02	2.30	0.39	8279	5.21	3.53	0.26
6874F	15.37	7.91	0.20	7538	5.51	3.16	0.24	8288	6.94	4.92	0.32
6882	3.60	2.24	0.24	7539	2.05	1.38	0.26	8291	3.01	2.22	0.35

\* Refer to the Footnotes Page for additional information on this class code.



**NCCI INCLUDING TREND ADVISORY LOSS COSTS - NOT RATES**

**MISSOURI**

Advisory loss costs exclude all expense provisions except loss adjustment expense.

Effective January 1, 2019

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
8292	3.32	2.53	0.39	9012	0.85	0.62	0.35				
8293	7.75	5.44	0.31	9014	2.27	1.74	0.39				
8304	3.57	2.51	0.31	9015	2.68	2.04	0.39				
8350X	5.36	3.60	0.26	9016	2.74	2.11	0.40				
8353X	3.31	2.32	0.31	9019	1.53	1.08	0.31				
8370X	3.43	2.41	0.31	9033	1.66	1.26	0.39				
8381X	2.31	1.71	0.35	9040	3.25	2.56	0.40				
8385	1.71	1.21	0.31	9044	0.88	0.69	0.40				
8387X	2.79	2.06	0.35	9052	1.70	1.33	0.40				
8391X	1.97	1.45	0.35	9058	1.41	1.15	0.49				
8392	2.17	1.66	0.39	9060	1.11	0.87	0.40				
8393X	1.22	0.93	0.39	9061	1.45	1.17	0.49				
8500	4.83	3.40	0.31	9062	1.28	1.03	0.48				
8601	0.23	0.17	0.35	9063	0.72	0.57	0.40				
8602	0.82	0.61	0.35	9077F	2.43	1.41	0.38				
8603	0.06	0.04	0.39	9082	1.15	0.93	0.49				
8606	1.78	1.20	0.26	9083	0.92	0.75	0.49				
8709F	4.36	2.25	0.20	9084	1.20	0.92	0.39				
8719	1.91	1.19	0.24	9088a	a	a	a				
8720X	1.19	0.84	0.31	9089	1.04	0.82	0.40				
8721	0.25	0.17	0.31	9093	1.26	0.99	0.40				
8723X	0.14	0.10	0.39	9101	3.36	2.64	0.40				
8725	1.87	1.32	0.31	9102	2.71	2.07	0.39				
8726F	1.88	1.05	0.30	9110X	2.82	2.16	0.39				
8728X	0.34	0.24	0.31	9154	1.40	1.07	0.39				
8734M	0.34	0.24	0.31	9156	2.04	1.51	0.35				
8737M	0.30	0.21	0.31	9170	9.68	6.07	0.24				
8738M	0.42	0.28	0.31	9178	10.78	8.81	0.50				
8742X	0.25	0.17	0.31	9179	16.95	13.34	0.40				
8745	4.14	3.06	0.35	9180	3.95	2.79	0.32				
8748	0.52	0.38	0.35	9182	1.63	1.25	0.39				
8755	0.37	0.26	0.31	9186	16.85	11.46	0.26				
8799	0.41	0.31	0.39	9220	3.62	2.68	0.35				
8800	1.30	1.05	0.49	9402	3.81	2.68	0.31				
8803	0.06	0.04	0.31	9403	6.58	4.43	0.26				
8805M	0.16	0.12	0.39	9410	2.75	2.11	0.39				
8810	0.12	0.09	0.39	9501	2.83	2.09	0.35				
8814M	0.15	0.11	0.39	9505	3.99	2.95	0.35				
8815M	0.20	0.15	0.39	9516	3.07	2.15	0.31				
8820	0.14	0.10	0.35	9519	3.30	2.31	0.31				
8824	2.32	1.82	0.40	9521	3.53	2.48	0.31				
8825	1.62	1.24	0.39	9522	3.08	2.34	0.39				
8826	1.62	1.24	0.39	9534	4.17	2.57	0.26				
8829	1.82	1.39	0.39	9554	8.04	4.96	0.26				
8831	1.15	0.88	0.39	9586	0.50	0.40	0.48				
8832	0.25	0.19	0.39	9600	2.83	2.21	0.39				
8833X	1.00	0.77	0.39	9620	1.02	0.76	0.35				
8835	1.90	1.45	0.39								
8855	0.15	0.11	0.39								
8856	0.26	0.20	0.39								
8861X	1.16	0.89	0.39								
8868	0.37	0.29	0.40								
8869	0.89	0.70	0.40								
8871	0.07	0.05	0.39								
8901	0.18	0.13	0.35								

\* Refer to the Footnotes Page for additional information on this class code.

Effective January 1, 2019

FOOTNOTES

- a Advisory loss cost for each individual risk must be obtained from NCCI Customer Service or the Rating Organization having jurisdiction.
- D Advisory loss cost for classification already includes the specific disease loading shown in the table below. See **Basic Manual** Rule 3-A-7.

Disease			Disease			Disease		
Code No.	Loading	Symbol	Code No.	Loading	Symbol	Code No.	Loading	Symbol
0059D	0.12	S	1624D	0.01	S	4018DX	0.05	S
0065D	0.04	S	1710D	0.02	S	5508D	0.01	S
0066D	0.04	S	1803D	0.16	S	6251D	0.01	S
0067D	0.04	S	3081DX	0.02	S	6252D	0.01	S
1164D	0.04	S	3082D	0.03	S			
1165D	0.02	S	3085DX	0.03	S,L			

S=Silica, L=Lead

- F Advisory loss cost provides for coverage under the United States Longshore and Harbor Workers Compensation Act and its extensions. Loss cost contains a provision for the USL&HW Assessment.
- M Risks are subject to Admiralty Law or Federal Employers Liability Act (FELA). However, the published loss cost is for risks that voluntarily purchase standard workers compensation and employers liability coverage. A provision for the USL&HW Assessment is included for those classifications under Program II USL Act.
- N This code is part of a ratable / non-ratable group shown below. The statistical non-ratable code and corresponding advisory loss cost are applied in addition to the basic classification when determining premium.

Class Code	Non-Ratable Element Code
4771	0771
7405	7445
7431	7453

- P Classification is computed on a per capita basis.
- X Refer to special classification phraseology in these pages which is applicable in this state.

**\* Class Codes with Specific Footnotes**

- 1005 Advisory loss cost includes a non-ratable disease element of \$0.65. (For coverage written separately for federal benefits only, \$0.64. For coverage written separately for state benefits only, \$0.01.)
- 1016 Advisory loss cost includes a non-ratable disease element of \$1.96. (For coverage written separately for federal benefits only, \$1.92. For coverage written separately for state benefits only, \$0.04.)
- 6702 Loss cost and rating values only appropriate for laying or relaying of tracks or maintenance of way - no work on elevated railroads. Otherwise, assign appropriate construction or erection code loss cost and elr each x 1.215.
- 6703 Loss cost and rating values only appropriate for laying or relaying of tracks or maintenance of way - no work on elevated railroads. Otherwise, assign appropriate construction or erection class loss cost x 1.678 and elr x 1.629.
- 6704 Loss cost and rating values only appropriate for laying or relaying of tracks or maintenance of way - no work on elevated railroads. Otherwise, assign appropriate construction or erection class loss cost and elr each x 1.35.

Effective January 1, 2019

**ADVISORY MISCELLANEOUS VALUES**

**Advisory Loss Elimination Ratios** - The following percentages are applicable by deductible amount and hazard group for total losses on a per occurrence basis. They do not include a safety factor.

Deductible Amount	Total Losses						
	HAZARD GROUP						
	A	B	C	D	E	F	G
\$100	1.2%	0.9%	0.7%	0.5%	0.4%	0.3%	0.2%
\$200	2.3%	1.7%	1.4%	1.0%	0.7%	0.5%	0.5%
\$300	3.3%	2.5%	2.0%	1.4%	1.1%	0.8%	0.7%
\$400	4.3%	3.2%	2.6%	1.9%	1.4%	1.0%	0.9%
\$500	5.1%	3.9%	3.2%	2.3%	1.7%	1.2%	1.1%
\$1,000	8.6%	6.7%	5.5%	4.0%	3.1%	2.2%	2.0%
\$1,500	11.3%	8.9%	7.4%	5.4%	4.3%	3.1%	2.8%
\$2,000	13.5%	10.7%	9.0%	6.7%	5.3%	3.9%	3.5%
\$2,500	15.4%	12.3%	10.3%	7.8%	6.2%	4.7%	4.2%
\$5,000	22.5%	18.4%	15.8%	12.4%	10.2%	8.0%	7.0%
\$10,000	32.0%	26.8%	23.7%	19.4%	16.3%	13.3%	11.5%
\$15,000	38.9%	33.1%	29.7%	24.9%	21.2%	17.7%	15.3%
\$20,000	44.4%	38.2%	34.7%	29.6%	25.5%	21.5%	18.6%

**Basis of premium** applicable in accordance with *Basic Manual* footnote instructions for Code 7370 --"Taxicab Co.":

Employee operated vehicle.....	\$70,400
Leased or rented vehicle.....	\$47,000

**Maximum Weekly Payroll** applicable in accordance with the *Basic Manual* footnote instructions for Code 9178 -- "Athletic Sports or Park: Non-Contact Sports," and Code 9179 -- "Athletic Sports or Park: Contact Sports" .....

\$900

**Premium Determination for Executive Officers, Members of Limited Liability Companies, Partners and Sole Proprietors** in accordance with *Basic Manual* Rule 2-E (Annual Payroll) .....

\$42,300

**Terrorism - (Advisory Loss Cost)** .....

0.005

**United States Longshore and Harbor Workers' Compensation Coverage Percentage** applicable only in connection with *Basic Manual* Rule 3-A-4.....

47%

(Multiply a Non-F classification loss cost by a factor of 1.47 to adjust for differences in benefits and loss-based expenses. This factor is the product of the adjustment for differences in benefits (1.39) and the adjustment for differences in loss-based expenses (1.055).)

**Experience Rating Eligibility**

A risk qualifies for experience rating on an intrastate basis when it meets the premium eligibility requirements for the state in which it operates. The eligibility amount varies by rating effective date. The *Experience Rating Plan Manual* should be referenced for the latest approved eligibility amounts by state and by effective date.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

### Proposed Values for Inclusion in the Experience Rating Plan Manual

The following pages include proposed values for the Experience Rating Plan Manual:

- Table of Weighting Values
- Table of Ballast Values
- Experience rating premium eligibility amounts

Effective January 1, 2019  
**TABLE OF WEIGHTING VALUES**  
**APPLICABLE TO ALL POLICIES**  
*Experience Rating Program - ERA*

Expected Losses			Weighting Values	Expected Losses			Weighting Values
0	--	2,806	0.04	1,582,393	--	1,669,676	0.44
2,807	--	11,343	0.05	1,669,677	--	1,762,014	0.45
11,344	--	20,064	0.06	1,762,015	--	1,859,858	0.46
20,065	--	28,972	0.07	1,859,859	--	1,963,717	0.47
28,973	--	38,076	0.08	1,963,718	--	2,074,165	0.48
38,077	--	63,686	0.09	2,074,166	--	2,191,849	0.49
63,687	--	94,799	0.10	2,191,850	--	2,317,507	0.50
94,800	--	122,473	0.11	2,317,508	--	2,451,977	0.51
122,474	--	149,420	0.12	2,451,978	--	2,596,222	0.52
149,421	--	176,370	0.13	2,596,223	--	2,751,348	0.53
176,371	--	203,651	0.14	2,751,349	--	2,918,635	0.54
203,652	--	231,450	0.15	2,918,636	--	3,099,575	0.55
231,451	--	259,890	0.16	3,099,576	--	3,295,908	0.56
259,891	--	289,067	0.17	3,295,909	--	3,509,689	0.57
289,068	--	319,060	0.18	3,509,690	--	3,743,352	0.58
319,061	--	349,938	0.19	3,743,353	--	3,999,807	0.59
349,939	--	381,770	0.20	3,999,808	--	4,282,560	0.60
381,771	--	414,620	0.21	4,282,561	--	4,595,876	0.61
414,621	--	448,555	0.22	4,595,877	--	4,944,996	0.62
448,556	--	483,642	0.23	4,944,997	--	5,336,429	0.63
483,643	--	519,951	0.24	5,336,430	--	5,778,364	0.64
519,952	--	557,556	0.25	5,778,365	--	6,281,252	0.65
557,557	--	596,535	0.26	6,281,253	--	6,858,637	0.66
596,536	--	636,971	0.27	6,858,638	--	7,528,398	0.67
636,972	--	678,952	0.28	7,528,399	--	8,314,634	0.68
678,953	--	722,574	0.29	8,314,635	--	9,250,625	0.69
722,575	--	767,939	0.30	9,250,626	--	10,383,660	0.70
767,940	--	815,156	0.31	10,383,661	--	11,783,286	0.71
815,157	--	864,345	0.32	11,783,287	--	13,556,139	0.72
864,346	--	915,635	0.33	13,556,140	--	15,874,478	0.73
915,636	--	969,166	0.34	15,874,479	--	19,035,842	0.74
969,167	--	1,025,090	0.35	19,035,843	--	23,602,247	0.75
1,025,091	--	1,083,574	0.36	23,602,248	--	30,778,014	0.76
1,083,575	--	1,144,799	0.37	30,778,015	--	43,694,379	0.77
1,144,800	--	1,208,965	0.38	43,694,380	--	73,832,540	0.78
1,208,966	--	1,276,290	0.39	73,832,541	--	224,523,273	0.79
1,276,291	--	1,347,014	0.40	224,523,274	AND OVER		0.80
1,347,015	--	1,421,405	0.41				
1,421,406	--	1,499,756	0.42				
1,499,757	--	1,582,392	0.43				

(a) G . . . . .	13.40
(b) State Per Claim Accident Limitation . . . . .	\$335,500
(c) State Multiple Claim Accident Limitation . . . . .	\$671,000
(d) USL&HW Per Claim Accident Limitation . . . . .	\$845,500
(e) USL&HW Multiple Claim Accident Limitation . . . . .	\$1,691,000
(f) Employers Liability Accident Limitation . . . . .	\$55,000
(g) Primary/Excess Loss Split Point . . . . .	\$17,000
(h) USL&HW Act -- Expected Loss Factor -- Non-F Classes . . . . .	1.40
<i>(Multiply a Non-F classification ELR by the USL&amp;HW Act - Expected Loss Factor of 1.40.)</i>	

Effective January 1, 2019  
**TABLE OF BALLAST VALUES**  
**APPLICABLE TO ALL POLICIES**  
*Experience Rating Plan - ERA*

Expected Losses	Ballast Values	Expected Losses	Ballast Values	Expected Losses	Ballast Values
0 -- 72,076	33,500	2,312,854 -- 2,379,815	268,000	4,657,174 -- 4,724,163	502,500
72,077 -- 124,050	40,200	2,379,816 -- 2,446,779	274,700	4,724,164 -- 4,791,154	509,200
124,051 -- 183,768	46,900	2,446,780 -- 2,513,745	281,400	4,791,155 -- 4,858,145	515,900
183,769 -- 246,767	53,600	2,513,746 -- 2,580,713	288,100	4,858,146 -- 4,925,136	522,600
246,768 -- 311,298	60,300	2,580,714 -- 2,647,682	294,800	4,925,137 -- 4,992,128	529,300
311,299 -- 376,640	67,000	2,647,683 -- 2,714,653	301,500	4,992,129 -- 5,059,119	536,000
376,641 -- 442,454	73,700	2,714,654 -- 2,781,625	308,200	5,059,120 -- 5,126,111	542,700
442,455 -- 508,566	80,400	2,781,626 -- 2,848,599	314,900	5,126,112 -- 5,193,103	549,400
508,567 -- 574,878	87,100	2,848,600 -- 2,915,574	321,600	5,193,104 -- 5,260,096	556,100
574,879 -- 641,329	93,800	2,915,575 -- 2,982,550	328,300	5,260,097 -- 5,327,088	562,800
641,330 -- 707,880	100,500	2,982,551 -- 3,049,527	335,000	5,327,089 -- 5,394,081	569,500
707,881 -- 774,508	107,200	3,049,528 -- 3,116,505	341,700	5,394,082 -- 5,461,074	576,200
774,509 -- 841,194	113,900	3,116,506 -- 3,183,484	348,400	5,461,075 -- 5,528,067	582,900
841,195 -- 907,925	120,600	3,183,485 -- 3,250,463	355,100	5,528,068 -- 5,595,060	589,600
907,926 -- 974,693	127,300	3,250,464 -- 3,317,444	361,800	5,595,061 -- 5,662,054	596,300
974,694 -- 1,041,490	134,000	3,317,445 -- 3,384,425	368,500	5,662,055 -- 5,729,047	603,000
1,041,491 -- 1,108,311	140,700	3,384,426 -- 3,451,407	375,200	5,729,048 -- 5,796,041	609,700
1,108,312 -- 1,175,152	147,400	3,451,408 -- 3,518,390	381,900	5,796,042 -- 5,863,035	616,400
1,175,153 -- 1,242,011	154,100	3,518,391 -- 3,585,374	388,600	5,863,036 -- 5,930,029	623,100
1,242,012 -- 1,308,883	160,800	3,585,375 -- 3,652,358	395,300	5,930,030 -- 5,997,023	629,800
1,308,884 -- 1,375,768	167,500	3,652,359 -- 3,719,342	402,000	5,997,024 -- 6,064,017	636,500
1,375,769 -- 1,442,664	174,200	3,719,343 -- 3,786,327	408,700	6,064,018 -- 6,131,011	643,200
1,442,665 -- 1,509,568	180,900	3,786,328 -- 3,853,313	415,400	6,131,012 -- 6,198,006	649,900
1,509,569 -- 1,576,481	187,600	3,853,314 -- 3,920,299	422,100	6,198,007 -- 6,265,000	656,600
1,576,482 -- 1,643,401	194,300	3,920,300 -- 3,987,286	428,800	6,265,001 -- 6,331,995	663,300
1,643,402 -- 1,710,327	201,000	3,987,287 -- 4,054,273	435,500	6,331,996 -- 6,398,990	670,000
1,710,328 -- 1,777,258	207,700	4,054,274 -- 4,121,260	442,200		
1,777,259 -- 1,844,195	214,400	4,121,261 -- 4,188,248	448,900		
1,844,196 -- 1,911,136	221,100	4,188,249 -- 4,255,236	455,600		
1,911,137 -- 1,978,081	227,800	4,255,237 -- 4,322,225	462,300		
1,978,082 -- 2,045,029	234,500	4,322,226 -- 4,389,214	469,000		
2,045,030 -- 2,111,981	241,200	4,389,215 -- 4,456,203	475,700		
2,111,982 -- 2,178,935	247,900	4,456,204 -- 4,523,193	482,400		
2,178,936 -- 2,245,893	254,600	4,523,194 -- 4,590,183	489,100		
2,245,894 -- 2,312,853	261,300	4,590,184 -- 4,657,173	495,800		

For Expected Losses greater than \$6,398,500, the Ballast Value can be calculated using the following formula (rounded to the nearest 1):

$$\text{Ballast} = (0.10)(\text{Expected Losses}) + 2500(\text{Expected Losses})(13.40) / (\text{Expected Losses} + (700)(13.40))$$

G = 13.40

# NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

## MISSOURI—UPDATE TO EXPERIENCE RATING PREMIUM ELIGIBILITY AMOUNTS

### EXPERIENCE RATING PLAN MANUAL—2003 EDITION RULE 2—EXPERIENCE RATING ELEMENTS AND FORMULA A. PREMIUM ELIGIBILITY

#### 2. State Subject Premium Eligibility Amounts

A risk qualifies for experience rating when its subject premium, developed in its experience period, meets or exceeds the minimum eligibility amount shown in the State Table of Subject Premium Eligibility Amounts in Rule 2-A-2-c. *Refer to Rule 2-E-1 to determine a risk's experience period.*

- a. A risk qualifies for experience rating if its data within the most recent 24 months of the experience period develops a subject premium of at least the amount shown in Column A.
- b. A risk may not qualify according to Rule 2-A-2-a. If it has more than the amount of experience referenced in Rule 2-A-2-a, then to qualify for experience rating the risk must develop an average annual subject premium of at least the amount shown in Column B. *Refer to Rule 2-A-3 to determine average annual subject premium.*
- c. A risk's rating effective date determines the applicable Column A and Column B subject premium eligibility amounts required to qualify for experience rating. *Refer to Rule 2-B for rating effective date determination.*

**State Table of Subject Premium Eligibility Amounts**

State	Rating Effective Date	Column A (\$)	Column B (\$)
MO	<u>7/1/19 and after</u>	<u>7,500</u>	<u>3,750</u>
	<u>7/1/18 - 6/30/19</u>	7,500	3,750
	<u>7/1/17 - 6/30/18</u>	7,000	3,500

NOTE: This exhibit revises the Missouri experience rating subject premium eligibility amounts shown in the State Table of Subject Premium Eligibility Amounts in NCCI's *Experience Rating Plan Manual* national Rule 2-A-2. The content shown in this table is not a complete replacement of the existing State Table of Subject Premium Eligibility Amounts. The premium eligibility amounts are applicable to all policies.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

### Proposed Values for Inclusion in the Retrospective Rating Plan Manual

The following pages include values for inclusion in the Retrospective Rating Plan Manual:

- Average Cost per Case
- Average Cost per Case including ALAE
- Excess Loss Pure Premium Factors
- Excess Loss and Allocated Expense Pure Premium Factors



**RETROSPECTIVE RATING PLAN MANUAL  
STATE SPECIAL RATING VALUES**

**MISSOURI**

*Effective January 1, 2019*

**1. Average Cost per Case**

A	B	C	D	E	F	G
8,157	10,950	13,513	19,484	26,209	38,114	41,221

**Average Cost per Case including ALAE**

A	B	C	D	E	F	G
9,143	12,261	15,111	21,762	29,231	42,467	45,792

**2.**

**Excess Loss Pure Premium Factors**  
(Applicable to New and Renewal Policies)

Per Accident Limitation	Hazard Groups						
	A	B	C	D	E	F	G
\$10,000	0.572	0.616	0.642	0.678	0.704	0.729	0.744
\$15,000	0.514	0.563	0.591	0.631	0.662	0.692	0.712
\$20,000	0.467	0.519	0.549	0.592	0.626	0.660	0.684
\$25,000	0.429	0.483	0.513	0.558	0.595	0.631	0.658
\$30,000	0.397	0.452	0.482	0.528	0.567	0.605	0.635
\$35,000	0.370	0.425	0.456	0.502	0.542	0.582	0.615
\$40,000	0.346	0.401	0.432	0.478	0.520	0.561	0.595
\$50,000	0.307	0.361	0.392	0.438	0.481	0.523	0.561
\$75,000	0.241	0.291	0.320	0.364	0.408	0.451	0.495
\$100,000	0.199	0.245	0.272	0.313	0.357	0.398	0.445
\$125,000	0.170	0.212	0.238	0.276	0.319	0.359	0.407
\$150,000	0.149	0.188	0.213	0.248	0.289	0.327	0.376
\$175,000	0.132	0.169	0.193	0.226	0.266	0.302	0.351
\$200,000	0.119	0.153	0.177	0.208	0.246	0.281	0.330
\$225,000	0.108	0.141	0.163	0.193	0.230	0.263	0.312
\$250,000	0.099	0.130	0.152	0.180	0.216	0.248	0.296
\$275,000	0.092	0.121	0.142	0.169	0.204	0.234	0.283
\$300,000	0.085	0.113	0.134	0.159	0.193	0.222	0.271
\$325,000	0.079	0.106	0.126	0.151	0.184	0.212	0.260
\$350,000	0.074	0.100	0.119	0.143	0.175	0.203	0.250
\$375,000	0.070	0.095	0.114	0.136	0.168	0.194	0.241
\$400,000	0.066	0.090	0.108	0.130	0.161	0.186	0.233
\$425,000	0.062	0.086	0.104	0.125	0.155	0.179	0.225
\$450,000	0.059	0.082	0.099	0.120	0.149	0.173	0.218
\$475,000	0.056	0.078	0.095	0.115	0.144	0.167	0.212
\$500,000	0.054	0.075	0.092	0.111	0.139	0.162	0.206
\$600,000	0.045	0.064	0.079	0.097	0.123	0.143	0.186
\$700,000	0.039	0.056	0.070	0.086	0.110	0.129	0.170
\$800,000	0.034	0.050	0.063	0.077	0.100	0.118	0.157
\$900,000	0.030	0.045	0.057	0.070	0.092	0.108	0.146
\$1,000,000	0.027	0.041	0.052	0.064	0.085	0.100	0.137
\$2,000,000	0.013	0.021	0.028	0.035	0.050	0.059	0.086
\$3,000,000	0.008	0.014	0.019	0.024	0.035	0.042	0.064
\$4,000,000	0.005	0.010	0.014	0.018	0.027	0.032	0.051
\$5,000,000	0.004	0.008	0.011	0.014	0.021	0.026	0.042
\$6,000,000	0.003	0.006	0.009	0.011	0.017	0.022	0.035
\$7,000,000	0.003	0.005	0.007	0.009	0.015	0.018	0.030
\$8,000,000	0.002	0.004	0.006	0.008	0.012	0.016	0.026
\$9,000,000	0.002	0.003	0.005	0.007	0.011	0.013	0.023
\$10,000,000	0.002	0.003	0.004	0.006	0.009	0.012	0.020

Effective January 1, 2019

**Excess Loss and Allocated  
Expense Pure Premium Factors**  
(Applicable to New and Renewal Policies)

Per Accident Limitation	Hazard Groups						
	A	B	C	D	E	F	G
\$10,000	0.653	0.700	0.727	0.765	0.793	0.820	0.834
\$15,000	0.589	0.642	0.673	0.716	0.749	0.781	0.801
\$20,000	0.539	0.595	0.627	0.674	0.710	0.746	0.771
\$25,000	0.497	0.555	0.588	0.637	0.677	0.716	0.744
\$30,000	0.461	0.521	0.554	0.604	0.646	0.688	0.719
\$35,000	0.431	0.491	0.524	0.575	0.619	0.662	0.696
\$40,000	0.404	0.464	0.498	0.549	0.595	0.639	0.675
\$50,000	0.361	0.420	0.453	0.504	0.551	0.598	0.638
\$75,000	0.286	0.341	0.373	0.421	0.470	0.517	0.564
\$100,000	0.238	0.289	0.319	0.364	0.412	0.459	0.509
\$125,000	0.205	0.252	0.281	0.323	0.370	0.414	0.466
\$150,000	0.180	0.224	0.251	0.291	0.336	0.379	0.432
\$175,000	0.161	0.202	0.228	0.266	0.309	0.350	0.403
\$200,000	0.146	0.184	0.210	0.245	0.287	0.326	0.380
\$225,000	0.133	0.170	0.194	0.228	0.269	0.306	0.359
\$250,000	0.123	0.157	0.181	0.213	0.253	0.288	0.342
\$275,000	0.113	0.147	0.170	0.200	0.239	0.273	0.326
\$300,000	0.106	0.138	0.160	0.189	0.227	0.260	0.312
\$325,000	0.099	0.130	0.151	0.179	0.216	0.248	0.300
\$350,000	0.093	0.122	0.144	0.170	0.206	0.237	0.289
\$375,000	0.087	0.116	0.137	0.162	0.198	0.228	0.279
\$400,000	0.083	0.110	0.130	0.155	0.190	0.219	0.269
\$425,000	0.078	0.105	0.125	0.149	0.183	0.211	0.261
\$450,000	0.074	0.100	0.120	0.143	0.176	0.203	0.253
\$475,000	0.071	0.096	0.115	0.138	0.170	0.197	0.246
\$500,000	0.068	0.092	0.111	0.133	0.164	0.190	0.239
\$600,000	0.057	0.079	0.096	0.116	0.146	0.169	0.216
\$700,000	0.049	0.069	0.085	0.103	0.131	0.152	0.198
\$800,000	0.043	0.062	0.076	0.093	0.119	0.139	0.183
\$900,000	0.038	0.056	0.069	0.084	0.109	0.128	0.170
\$1,000,000	0.035	0.051	0.063	0.077	0.101	0.118	0.159
\$2,000,000	0.016	0.026	0.034	0.042	0.059	0.069	0.100
\$3,000,000	0.010	0.017	0.023	0.029	0.041	0.049	0.074
\$4,000,000	0.007	0.012	0.017	0.021	0.031	0.038	0.058
\$5,000,000	0.005	0.009	0.013	0.017	0.025	0.030	0.048
\$6,000,000	0.004	0.007	0.010	0.013	0.020	0.025	0.040
\$7,000,000	0.003	0.006	0.008	0.011	0.017	0.021	0.034
\$8,000,000	0.003	0.005	0.007	0.009	0.014	0.018	0.029
\$9,000,000	0.002	0.004	0.006	0.008	0.012	0.015	0.026
\$10,000,000	0.002	0.003	0.005	0.007	0.011	0.013	0.023



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### **Part 3 Supporting Exhibits**

- Exhibit I: Determination of the Indicated Loss Cost Level Change
- Exhibit II: Workers Compensation Loss Adjustment Expense
- Appendix A: Factors Underlying the Proposed Loss Cost Level Change
- Appendix B: Calculations Underlying the Loss Cost Change by Classification
- Appendix C: Memoranda for Laws and Assessments



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Exhibit I – Determination of Indicated Loss Cost Level Change

NCCI uses the following general methodology to determine the indicated change based on experience, trend, and benefits for each of the policy years in the experience period:

1. Standard earned premium at Designated Statistical Reporting (DSR) level is developed to ultimate and on-leveled to the current loss cost level
2. Reported indemnity and medical losses are limited by a large loss threshold, developed to ultimate using limited development factors, and on-leveled to a common benefit level to yield adjusted limited losses
3. Limited indemnity and medical cost ratios excluding trend and benefits are calculated as adjusted losses (step 2) divided by premium available for benefit costs (step 1)
4. Trend factors are applied to the indemnity and medical cost ratios to reflect expected differences between the historical experience years and the effective period of the proposed filing
5. An excess provision is applied to adjust the limited cost ratios to an unlimited basis
6. A factor is applied to reflect the impact of proposed indemnity and medical benefit changes
7. The projected unlimited indemnity and medical cost ratios including benefit changes are added to yield the indicated change based on experience, trend, and benefits

The indicated change based on experience, trend, and benefits for this filing is calculated as the average of the indicated changes for each of the individual policy years in the experience period. Lastly, the impact of the change in loss-based expenses is applied. The detailed calculations can be found on the following pages.



## MISSOURI

### EXHIBIT I

#### Determination of Indicated Loss Cost Level Change

##### Section A - Policy Year 2016 Experience

###### Premium:

(1) Standard Earned Premium Developed to Ultimate (Appendix A-II)	\$652,354,332
(2) Premium On-level Factor (Appendix A-I)	0.761
(3) Pure Premium Available for Benefit Costs = (1) x (2)	\$496,441,647

###### Indemnity Benefit Cost:

(4) Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	\$213,092,877
(5) Indemnity Loss On-level Factor (Appendix A-I)	1.006
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$214,371,434
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.432
(8) Factor to Reflect Indemnity Trend (Appendix A-III)	0.927
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.400
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.007
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.403
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.009
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.407

###### Medical Benefit Cost:

(14) Limited Medical Losses Developed to Ultimate (Appendix A-II)	\$287,908,558
(15) Medical Loss On-level Factor (Appendix A-I)	1.000
(16) Adjusted Limited Medical Losses = (14) x (15)	\$287,908,558
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.580
(18) Factor to Reflect Medical Trend (Appendix A-III)	0.956
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.554
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.007
(21) Projected Medical Cost Ratio = (19) x (20)	0.558
(22) Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.000
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.558

###### Total Benefit Cost:

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.965
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## MISSOURI

### EXHIBIT I

#### Determination of Indicated Loss Cost Level Change

##### Section B - Policy Year 2015 Experience

##### Premium:

(1) Standard Earned Premium Developed to Ultimate (Appendix A-II)	\$641,843,366
(2) Premium On-level Factor (Appendix A-I)	0.741
(3) Pure Premium Available for Benefit Costs = (1) x (2)	\$475,605,934

##### Indemnity Benefit Cost:

(4) Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	\$210,041,186
(5) Indemnity Loss On-level Factor (Appendix A-I)	1.019
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$214,031,969
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.450
(8) Factor to Reflect Indemnity Trend (Appendix A-III)	0.904
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.407
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.007
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.410
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.009
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.414

##### Medical Benefit Cost:

(14) Limited Medical Losses Developed to Ultimate (Appendix A-II)	\$276,756,755
(15) Medical Loss On-level Factor (Appendix A-I)	1.000
(16) Adjusted Limited Medical Losses = (14) x (15)	\$276,756,755
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.582
(18) Factor to Reflect Medical Trend (Appendix A-III)	0.941
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.548
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.007
(21) Projected Medical Cost Ratio = (19) x (20)	0.552
(22) Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.000
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.552

##### Total Benefit Cost:

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.966
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**MISSOURI**

**EXHIBIT I**

**Determination of Indicated Loss Cost Level Change**

**Section C - Indicated Change Based on Experience, Trend, and Benefits**

(1) Policy Year 2016 Indicated Change Based on Experience, Trend, and Benefits	0.965
(2) Policy Year 2015 Indicated Change Based on Experience, Trend, and Benefits	0.966
(3) Indicated Change Based on Experience, Trend, and Benefits = $[(1)+(2)] / 2$	0.966

**Section D - Application of the Change in Loss-based Expenses**

(1) Indicated Loss Cost Level Change	0.966
(2) Effect of the Change in Loss-based Expenses (Exhibit II)	0.999
(3) Indicated Change Modified to Reflect the Change in Loss-based Expenses = (1) x (2)	0.965

**Section E - Distribution of Overall Loss Cost Level Change to Industry Groups**

Industry Group Differentials (Appendix A-IV):

Manufacturing	1.011
Contracting	0.971
Office & Clerical	0.998
Goods & Services	0.993
Miscellaneous	1.034

Applying these industry group differentials to the final overall loss cost level change produces the changes in loss cost level proposed for each group as shown:

Industry Group	(1) Final Overall Loss Cost Level Change	(2) Industry Group Differential	(3) = (1) x (2) Final Loss Cost Level Change by Industry Group	
Manufacturing	0.965	1.011	0.976	(-2.4%)
Contracting	0.965	0.971	0.937	(-6.3%)
Office & Clerical	0.965	0.998	0.963	(-3.7%)
Goods & Services	0.965	0.993	0.958	(-4.2%)
Miscellaneous	0.965	1.034	0.998	(-0.2%)
Overall	0.965	1.000	0.965	(-3.5%)



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Exhibit II – Workers Compensation Loss Adjustment Expenses

The proposed loss costs include a provision for loss adjustment expenses (LAE).

LAE is included in the loss costs by using a ratio of loss adjustment expense dollars to loss dollars (called the LAE provision). These expenses are directly associated with the handling of workers compensation claims. The LAE provision is comprised of two components: Defense and Cost Containment Expenses (DCCE) and Adjusting and Other Expenses (AOE).

NCCI uses the following general methodology to determine the proposed LAE provision based on data for private carriers.

1. Using data obtained from the NCCI Call for Loss Adjustment Expense, accident year developed LAE ratios are calculated on a countrywide basis, including separate DCCE and AOE ratio components.
2. A state-to-countrywide DCCE relativity is selected based on NAIC Annual Statement data.
3. The state-specific DCCE ratio is calculated by multiplying the countrywide-selected DCCE ratio by the state-to-countrywide DCCE relativity.
4. Given the nature of AOE, it cannot be allocated to a specific claim, and hence cannot be accurately attributed to specific states. Therefore, the state-specific AOE ratio reflects the latest selected countrywide provision.

Accident year developed DCCE and AOE ratios are calculated separately for the state fund. The proposed statewide LAE ratio reflects a weighted average of the selected DCCE and AOE ratios for private carriers and the state fund.





**MISSOURI**

**EXHIBIT II**

**Workers Compensation Loss Adjustment Expense Provision**

NCCI has computed the loss adjustment expense allowance on an accident year basis using data obtained from the NCCI Call for Loss Adjustment Expense. For this filing, NCCI proposes a 18.8% loss adjustment expense allowance as a percentage of incurred losses.

	----- Countrywide - Private Carriers -----		
Accident Year	Accident Year Developed LAE Ratio	Accident Year Developed DCCE Ratio	Accident Year Developed AOE Ratio
2013	20.3%	13.1%	7.2%
2014	20.3%	13.4%	6.9%
2015	20.0%	13.1%	6.9%
2016	20.5%	13.2%	7.3%
2017	21.0%	13.2%	7.8%
Selected Countrywide Private Carrier LAE	20.8%	13.2%	7.6%
Proposed Missouri (Statewide) LAE	<b>18.8%</b>	<b>10.7%</b>	<b>8.1%</b>
Current Missouri (Statewide) LAE	<b>18.9%</b>		
Change in Missouri (Statewide) LAE ( = 1.188 / 1.189) - 1.000	<b>-0.1%</b>		



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Appendix A – Factors Underlying the Proposed Loss Cost Level Change

##### Appendix A-I Determination of Policy Year On-level Factors

NCCI uses premium and loss on-level factors to adjust historical policy year experience to current loss cost and benefit levels, respectively.

Premium on-level factors are adjustment factors that reflect the cumulative impact of all premium level changes that have occurred during and after the individual year being on-leveled. To calculate a weighted average, NCCI utilizes a monthly premium distribution for Missouri based on an analysis of policies reported in the Unit Statistical Data. Additional adjustments applied as part of the premium on-level factor calculation include:

- Adjustment for Expense Removal: This factor is applied to remove expenses from the reported voluntary DSR level premium totals.
- Experience Rating Off-Balance Adjustment Factor: This factor reflects the relative difference between the average experience rating modification for the historical year being on-leveled and the average experience rating modification targeted in the filing.

Loss on-level factors are adjustment factors that reflect the cumulative impact of all benefit level changes that have occurred during and after the individual year of data being on-leveled.

Note: For NCCI ratemaking purposes, recent benefit level changes that (i) do not impact the experience period of the filing and (ii) have not yet been reflected in previous filings are included in Exhibit I, rather than in the loss on-level calculation.

Additionally, for the purpose of reflecting the current loss benefit level, the impact of the decision in the case entitled *Richard Gattenby v. Treasurer of the State of Missouri – Custodian of the Second Injury Fund* has been combined with the impact of SB 1, and this combined impact is effective January 1, 2014. However, since this filing relies on losses from policy years 2015 and 2016, no adjustment for this benefit level change is needed in Appendix A-I.



**MISSOURI**  
**APPENDIX A-I**

**Determination of Policy Year On-level Factors**

**Section A - Factor Adjusting 2016 Policy Year Premium to Present Level**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Loss Cost Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)	Adj. For Expense Removal	Off-balance Adjustment Factor*	Premium Adjustment Factor (5)x(6)x(7)
Date								
NR 01/01/16	Base	1.000	1.000	1.000	0.896	0.841	1.009	0.761
NR 01/01/17	0.963	0.963						
NR 08/01/17	0.960	0.924						
NR 01/01/18	0.970	0.896						
				1.000				

**Section B - Factor Adjusting 2016 Policy Year Indemnity Losses to Present Benefit Level**

	(1)	(2)	(3)	(4)	(5)
	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
Date					
07/01/15	Base	1.000	0.178	0.178	1.006
07/01/16	1.013	1.013	0.736	0.746	
07/01/17	1.005	1.018	0.086	0.088	
				1.012	

**Section C - Factor Adjusting 2016 Policy Year Medical Losses to Present Benefit Level**

	(1)	(2)	(3)	(4)	(5)
	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
Date					
07/01/15	Base	1.000	0.178	0.178	1.000
07/01/16	1.000	1.000	0.736	0.736	
07/01/17	1.000	1.000	0.086	0.086	
				1.000	

NR New and renewal business.

\* 1.009 = 0.958 / 0.949 = (Targeted Off-balance) / (Off-balance for Policy Year 2016)



**MISSOURI**  
**APPENDIX A-I**

**Determination of Policy Year On-level Factors**

**Section D - Factor Adjusting 2015 Policy Year Premium to Present Level**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Loss Cost Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)	Adj. For Expense Removal	Off-balance Adjustment Factor*	Premium Adjustment Factor (5)x(6)x(7)
Date								
NR 01/01/15	Base	1.000	1.000	1.000	0.875	0.841	1.007	0.741
NR 01/01/16	0.976	0.976						
NR 01/01/17	0.963	0.940						
NR 08/01/17	0.960	0.902						
NR 01/01/18	0.970	0.875						
				1.000				

**Section E - Factor Adjusting 2015 Policy Year Indemnity Losses to Present Benefit Level**

	(1)	(2)	(3)	(4)	(5)
	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
Date					
07/01/14	Base	1.000	0.178	0.178	1.019
07/01/15	1.013	1.013	0.736	0.746	
07/01/16	1.013	1.026	0.086	0.088	
07/01/17	1.005	1.031			
				1.012	

**Section F - Factor Adjusting 2015 Policy Year Medical Losses to Present Benefit Level**

	(1)	(2)	(3)	(4)	(5)
	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
Date					
07/01/14	Base	1.000	0.178	0.178	1.000
07/01/15	1.000	1.000	0.736	0.736	
07/01/16	1.000	1.000	0.086	0.086	
07/01/17	1.000	1.000			
				1.000	

NR New and renewal business.

\* 1.007 = 0.958 / 0.951 = (Targeted Off-balance) / (Off-balance for Policy Year 2015)



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Appendix A – Factors Underlying the Proposed Loss Cost Level Change

##### Appendix A-II Determination of Premium and Losses Developed to an Ultimate Report

Development factors are used to project premium and limited losses to an ultimate report. In general, the ultimate development factors are based on a chain-ladder approach that utilizes average link ratios for several maturities and the application of a tail factor, as shown in Appendix A-II Sections A through J.

##### Limited Large Loss Methodology

In order to limit volatility on the loss cost indications due to the impact of extraordinary large losses, a limited large loss methodology is used in Missouri. A base threshold for the large loss limitation is determined by the volume of premium in the state as well as the number of years used in the experience period. The base threshold proposed in this filing is \$9,530,610, based on the volume of premium in policy years 2014 and 2015 underlying the previous filing that utilizes data valued as of 12/31/2016. The base threshold is detrended by policy year to reflect the inflationary impact on claim costs due to wage inflation. The wage index used as a basis for these calculations is the Missouri average weekly wages from the Quarterly Census of Employment and Wages (QCEW). Detrended thresholds are used in the experience period, trend period, and loss development period. Indemnity and medical losses are limited at the detrended large loss threshold corresponding to their policy year, as shown in Appendix A-II Section L.

Limited indemnity and medical losses used to calculate the ultimate losses are shown in Appendix A-II Section A. After developing limited indemnity and medical losses to an ultimate report, a statewide excess ratio at the base threshold is used to adjust the limited losses to an unlimited basis. The proposed excess ratio in this filing is 0.7%, as shown in Appendix A-II Section K.

##### Development Factors

For premium development, link ratios are used from 1st report through 5th report. It is assumed that no further development occurs after the 5th report.

For indemnity and medical loss development, link ratios calculated from limited losses are used from 1<sup>st</sup> report through the 19<sup>th</sup> report.

For indemnity and medical loss development past the 19<sup>th</sup> report, a “tail” factor is used to reflect all future expected emergence. The calculation of indemnity and medical paid + case 19<sup>th</sup>-to-ultimate tail factors utilize all available experience for the years prior to the tail attachment point. Tail factors are calculated for the most recent ten available policy years, each relying on losses in older policy years as well as a factor to adjust for the differences in the volume of losses



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Appendix A – Factors Underlying the Proposed Loss Cost Level Change

between the policy years. Tail factors are calculated separately for indemnity and medical losses by comparing the changes in the volume of policy year losses that occur on policy years reported after a nineteenth report to the volume of policy year losses at the nineteenth report, along with the application of a growth adjustment factor.

Since unlimited losses are used for the tail factor, they are adjusted to a limited basis as shown in Appendix A-II Section H.



## MISSOURI

### APPENDIX A-II

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

##### Section A - Premium and Loss Summary Valued as of 12/31/2017

###### Policy Year 2016

(1) Standard Earned Premium	\$648,463,551
(2) Factor to Develop Premium to Ultimate	1.006
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$652,354,332
(4) Limited Indemnity Paid Losses	\$59,436,337
(5) Limited Indemnity Paid Development Factor to Ultimate	3.731
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$221,756,973
(7) Limited Indemnity Paid+Case Losses	\$147,708,657
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.384
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$204,428,781
(10) Policy Year 2016 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$213,092,877
(11) Limited Medical Paid Losses	\$182,675,542
(12) Limited Medical Paid Development Factor to Ultimate	1.573
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$287,348,628
(14) Limited Medical Paid+Case Losses	\$270,862,429
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.065
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$288,468,487
(17) Policy Year 2016 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$287,908,558

###### Policy Year 2015

(1) Standard Earned Premium	\$641,843,366
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$641,843,366
(4) Limited Indemnity Paid Losses	\$103,292,779
(5) Limited Indemnity Paid Development Factor to Ultimate	2.065
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$213,299,589
(7) Limited Indemnity Paid+Case Losses	\$167,843,168
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.232
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$206,782,783
(10) Policy Year 2015 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$210,041,186
(11) Limited Medical Paid Losses	\$216,300,147
(12) Limited Medical Paid Development Factor to Ultimate	1.277
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$276,215,288
(14) Limited Medical Paid+Case Losses	\$267,404,263
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.037
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$277,298,221
(17) Policy Year 2015 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$276,756,755



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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section B - Premium Development Factors

<u>Policy Year</u>	<u>1st/2nd</u>	<u>Policy Year</u>	<u>2nd/3rd</u>	<u>Policy Year</u>	<u>3rd/4th</u>	<u>Policy Year</u>	<u>4th/5th</u>
2013	1.003	2012	0.999	2011	1.000	2010	1.000
2014	1.008	2013	1.000	2012	1.000	2011	1.000
2015	1.008	2014	1.000	2013	1.000	2012	1.000
Average	1.006	Average	1.000	Average	1.000	Average	1.000

Summary of Premium Development Factors

<u>1st/5th</u>	<u>2nd/5th</u>	<u>3rd/5th</u>	<u>4th/5th</u>
1.006	1.000	1.000	1.000





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

**Section C - Limited Indemnity Paid Loss Development Factors**

<u>Policy Year</u>	<u>1st/2nd</u>	<u>Policy Year</u>	<u>2nd/3rd</u>	<u>Policy Year</u>	<u>3rd/4th</u>	<u>Policy Year</u>	<u>4th/5th</u>
2013	1.747	2012	1.308	2011	1.161	2010	1.092
2014	1.869	2013	1.327	2012	1.155	2011	1.092
2015	1.805	2014	1.268	2013	1.182	2012	1.087
Average	1.807	Average	1.301	Average	1.166	Average	1.090
<u>Policy Year</u>	<u>5th/6th</u>	<u>Policy Year</u>	<u>6th/7th</u>	<u>Policy Year</u>	<u>7th/8th</u>	<u>Policy Year</u>	<u>8th/9th</u>
2009	1.059	2008	1.041	2007	1.018	2006	1.016
2010	1.051	2009	1.026	2008	1.019	2007	1.016
2011	1.060	2010	1.033	2009	1.023	2008	1.020
Average	1.057	Average	1.033	Average	1.020	Average	1.017
<u>Policy Year</u>	<u>9th/10th</u>	<u>Policy Year</u>	<u>10th/11th</u>	<u>Policy Year</u>	<u>11th/12th</u>	<u>Policy Year</u>	<u>12th/13th</u>
2005	1.014	2004	1.014	2003	1.006	2002	1.007
2006	1.009	2005	1.010	2004	1.007	2003	1.005
2007	1.021	2006	1.008	2005	1.008	2004	1.006
Average	1.015	Average	1.011	Average	1.007	Average	1.006
<u>Policy Year</u>	<u>13th/14th</u>	<u>Policy Year</u>	<u>14th/15th</u>	<u>Policy Year</u>	<u>15th/16th</u>	<u>Policy Year</u>	<u>16th/17th</u>
2001	1.012	2000	1.006	1999	1.001	1998	1.005
2002	1.003	2001	1.003	2000	1.004	1999	1.007
2003	1.007	2002	1.004	2001	1.006	2000	1.003
Average	1.007	Average	1.004	Average	1.004	Average	1.005
<u>Policy Year</u>	<u>17th/18th</u>	<u>Policy Year</u>	<u>18th/19th</u>				
1997	1.002	1996	1.002				
1998	1.004	1997	1.004				
1999	1.002	1998	1.007				
Average	1.003	Average	1.004				



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**APPENDIX A-II**

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

**Section D - Limited Medical Paid Loss Development Factors**

<u>Policy Year</u>	<u>1st/2nd</u>	<u>Policy Year</u>	<u>2nd/3rd</u>	<u>Policy Year</u>	<u>3rd/4th</u>	<u>Policy Year</u>	<u>4th/5th</u>
2013	1.219	2012	1.065	2011	1.036	2010	1.016
2014	1.241	2013	1.064	2012	1.030	2011	1.020
2015	1.236	2014	1.061	2013	1.027	2012	1.019
Average	1.232	Average	1.063	Average	1.031	Average	1.018
<u>Policy Year</u>	<u>5th/6th</u>	<u>Policy Year</u>	<u>6th/7th</u>	<u>Policy Year</u>	<u>7th/8th</u>	<u>Policy Year</u>	<u>8th/9th</u>
2009	1.013	2008	1.019	2007	1.009	2006	1.007
2010	1.012	2009	1.010	2008	1.012	2007	1.004
2011	1.018	2010	1.010	2009	1.006	2008	1.004
Average	1.014	Average	1.013	Average	1.009	Average	1.005
<u>Policy Year</u>	<u>9th/10th</u>	<u>Policy Year</u>	<u>10th/11th</u>	<u>Policy Year</u>	<u>11th/12th</u>	<u>Policy Year</u>	<u>12th/13th</u>
2005	1.006	2004	1.009	2003	1.005	2002	1.005
2006	1.004	2005	1.005	2004	1.004	2003	1.004
2007	1.004	2006	1.003	2005	1.004	2004	1.004
Average	1.005	Average	1.006	Average	1.004	Average	1.004
<u>Policy Year</u>	<u>13th/14th</u>	<u>Policy Year</u>	<u>14th/15th</u>	<u>Policy Year</u>	<u>15th/16th</u>	<u>Policy Year</u>	<u>16th/17th</u>
2001	1.002	2000	1.018	1999	1.002	1998	1.001
2002	1.007	2001	1.004	2000	1.001	1999	1.008
2003	1.002	2002	1.004	2001	1.005	2000	1.002
Average	1.004	Average	1.009	Average	1.003	Average	1.004
<u>Policy Year</u>	<u>17th/18th</u>	<u>Policy Year</u>	<u>18th/19th</u>				
1997	1.005	1996	1.001				
1998	1.001	1997	1.011				
1999	1.001	1998	1.002				
Average	1.002	Average	1.005				



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Determination of Premium and Losses Developed to an Ultimate Report

Section E - Limited Indemnity Paid + Case Loss Development Factors

Policy Year	<u>1st/2nd</u>	Policy Year	<u>2nd/3rd</u>	Policy Year	<u>3rd/4th</u>	Policy Year	<u>4th/5th</u>
2011	1.095	2010	1.060	2009	1.028	2008	1.028
2012	1.136	2011	1.051	2010	1.042	2009	1.041
2013	1.129	2012	1.078	2011	1.072	2010	1.029
2014	1.135	2013	1.089	2012	1.038	2011	1.033
2015	1.122	2014	1.054	2013	1.074	2012	1.019
Average	1.123	Average	1.066	Average	1.051	Average	1.030

Policy Year	<u>5th/6th</u>	Policy Year	<u>6th/7th</u>	Policy Year	<u>7th/8th</u>	Policy Year	<u>8th/9th</u>
2007	1.021	2006	1.004	2005	1.005	2004	1.001
2008	1.028	2007	1.001	2006	1.009	2005	1.000
2009	1.005	2008	1.013	2007	1.007	2006	1.002
2010	1.015	2009	1.002	2008	1.009	2007	1.014
2011	1.017	2010	1.014	2009	1.014	2008	1.008
Average	1.017	Average	1.007	Average	1.009	Average	1.005

Policy Year	<u>9th/10th</u>	Policy Year	<u>10th/11th</u>	Policy Year	<u>11th/12th</u>	Policy Year	<u>12th/13th</u>
2003	1.007	2002	1.002	2001	1.004	2000	1.004
2004	1.008	2003	1.000	2002	0.995	2001	1.001
2005	1.006	2004	1.003	2003	1.000	2002	0.999
2006	1.002	2005	0.998	2004	1.000	2003	1.008
2007	1.012	2006	1.001	2005	1.004	2004	1.011
Average	1.007	Average	1.001	Average	1.001	Average	1.005

Policy Year	<u>13th/14th</u>	Policy Year	<u>14th/15th</u>	Policy Year	<u>15th/16th</u>	Policy Year	<u>16th/17th</u>
1999	1.003	1998	1.006	1997	0.998	1996	1.002
2000	1.001	1999	0.999	1998	0.999	1997	0.998
2001	1.002	2000	1.001	1999	1.001	1998	1.003
2002	1.003	2001	0.999	2000	1.000	1999	1.001
2003	0.998	2002	0.999	2001	1.002	2000	1.000
Average	1.001	Average	1.001	Average	1.000	Average	1.001

Policy Year	<u>17th/18th</u>	Policy Year	<u>18th/19th</u>
1995	1.000	1994	1.001
1996	1.001	1995	1.001
1997	1.004	1996	1.002
1998	1.003	1997	1.003
1999	1.001	1998	1.000
Average	1.002	Average	1.001



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Determination of Premium and Losses Developed to an Ultimate Report

Section F - Limited Medical Paid + Case Loss Development Factors

Policy Year	<u>1st/2nd</u>	Policy Year	<u>2nd/3rd</u>	Policy Year	<u>3rd/4th</u>	Policy Year	<u>4th/5th</u>
2011	1.022	2010	1.003	2009	0.999	2008	0.983
2012	1.031	2011	0.997	2010	0.993	2009	1.002
2013	1.013	2012	1.005	2011	0.972	2010	0.993
2014	1.034	2013	0.993	2012	1.004	2011	0.993
2015	1.034	2014	0.993	2013	1.000	2012	0.998
Average	1.027	Average	0.998	Average	0.994	Average	0.994
Policy Year	<u>5th/6th</u>	Policy Year	<u>6th/7th</u>	Policy Year	<u>7th/8th</u>	Policy Year	<u>8th/9th</u>
2007	0.997	2006	0.985	2005	1.004	2004	1.033
2008	1.010	2007	0.998	2006	1.006	2005	1.001
2009	0.999	2008	1.007	2007	1.003	2006	0.998
2010	1.010	2009	1.007	2008	0.997	2007	1.004
2011	1.024	2010	1.001	2009	1.007	2008	1.007
Average	1.008	Average	1.000	Average	1.003	Average	1.009
Policy Year	<u>9th/10th</u>	Policy Year	<u>10th/11th</u>	Policy Year	<u>11th/12th</u>	Policy Year	<u>12th/13th</u>
2003	0.995	2002	1.002	2001	1.007	2000	1.005
2004	1.005	2003	1.004	2002	0.999	2001	1.002
2005	1.023	2004	0.997	2003	0.993	2002	1.005
2006	1.001	2005	0.997	2004	1.001	2003	1.004
2007	1.002	2006	1.006	2005	1.010	2004	1.005
Average	1.005	Average	1.001	Average	1.002	Average	1.004
Policy Year	<u>13th/14th</u>	Policy Year	<u>14th/15th</u>	Policy Year	<u>15th/16th</u>	Policy Year	<u>16th/17th</u>
1999	1.005	1998	0.989	1997	0.990	1996	1.009
2000	1.003	1999	1.002	1998	1.008	1997	0.999
2001	0.999	2000	0.991	1999	1.000	1998	1.004
2002	1.003	2001	1.003	2000	0.997	1999	1.004
2003	0.999	2002	1.003	2001	0.993	2000	1.000
Average	1.002	Average	0.998	Average	0.998	Average	1.003
Policy Year	<u>17th/18th</u>	Policy Year	<u>18th/19th</u>				
1995	0.999	1994	1.005				
1996	1.001	1995	1.001				
1997	1.012	1996	1.002				
1998	1.000	1997	0.990				
1999	0.999	1998	1.000				
Average	1.002	Average	1.000				



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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section G - Determination of Policy Year Loss Development Factors (19th-to-Ultimate Report)

Indemnity Paid+Case Data for Matching Companies

(1) Policy Year	(2) <u>Losses for Policy Year</u> 19th Report	(3) <u>Losses for Policy Year</u> 20th Report	(4) <u>Losses for All Prior Policy Years</u> Previous	(5) <u>Losses for All Prior Policy Years</u> Current	(6) Factor to Adjust Losses for Prior Policy Years	(7) Indicated 19th-to-Ult Development for Policy Year
1988	198,474,709	198,715,575	1,391,269,271	1,391,761,184	0.519	1.006
1989	218,972,637	219,010,945	1,574,118,975	1,573,978,893	0.509	0.999
1990	227,070,139	227,101,992	1,740,222,671	1,741,179,800	0.551	1.008
1991	225,355,332	225,327,519	1,968,281,792	1,970,265,933	0.630	1.014
1992	200,549,303	200,679,586	2,195,087,537	2,198,064,275	0.787	1.020
1993	183,188,006	183,535,361	2,399,277,237	2,401,159,473	0.934	1.013
1994	164,000,954	164,145,266	2,575,187,385	2,577,398,341	1.096	1.013
1995	141,339,770	141,572,206	2,737,106,287	2,738,828,735	1.309	1.011
1996	147,883,829	148,802,798	2,879,571,795	2,881,494,797	1.257	1.017
1997	154,253,043	154,733,711	3,030,297,595	3,029,599,295	1.201	0.999
Selected Indemnity 19th-to-Ultimate Loss Development Factor						1.011

Medical Paid+Case Data for Matching Companies

(8) Policy Year	(9) <u>Losses for Policy Year</u> 19th Report	(10) <u>Losses for Policy Year</u> 20th Report	(11) <u>Losses for All Prior Policy Years</u> Previous	(12) <u>Losses for All Prior Policy Years</u> Current	(13) Factor to Adjust Losses for Prior Policy Years	(14) Indicated 19th-to-Ult Development for Policy Year
1988	152,223,902	152,633,519	930,808,865	933,287,965	0.480	1.037
1989	167,635,672	167,926,896	1,074,596,290	1,079,600,293	0.479	1.064
1990	182,510,617	182,123,647	1,210,755,402	1,209,584,537	0.502	0.985
1991	191,573,815	192,847,310	1,391,708,184	1,391,806,331	0.551	1.008
1992	165,486,131	165,432,240	1,584,603,674	1,590,881,650	0.723	1.052
1993	169,737,364	170,485,300	1,756,367,002	1,757,043,235	0.775	1.010
1994	151,020,897	149,363,054	1,920,214,880	1,921,166,657	0.936	0.996
1995	134,262,976	134,653,905	2,066,085,458	2,070,691,043	1.110	1.034
1996	128,412,573	128,363,117	2,204,592,287	2,205,855,600	1.195	1.008
1997	152,762,373	153,435,849	2,334,218,717	2,334,591,591	1.022	1.007
Selected Medical 19th-to-Ultimate Loss Development Factor						1.020

(7) = 1 + [ (3)-(2) + ((5)-(4)) / (6) ] / (2)

(14) = 1 + [ (10)-(9) + ((12)-(11)) / (13) ] / (9)

Columns (4) and (11) are valued as of the date at which the given policy year is at a 19th report.

Columns (5) and (12) are valued as of the date at which the given policy year is at a 20th report.



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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

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

Policy Year	Indemnity Paid-to-Paid + Case Ratio 19th Report	Medical Paid-to-Paid + Case Ratio 19th Report
1994	0.977	0.957
1995	0.977	0.966
1996	0.972	0.953
1997	0.975	0.982
1998	0.973	0.975
Average	0.975	0.967

	Indemnity	Medical
(1) Paid+Case 19th-to-Ultimate Loss Development Factor (Section G)	1.011	1.020
(2) Factor to Adjust 19th-to-Ultimate Development Factor to a Limited Basis	0.808	0.808
(3) Limited Paid+Case 19th-to-Ultimate Loss Development Factor = [(1)-1]x(2)+1	1.009	1.016
(4) Limited Paid-to-Paid+Case Ratio (Section H)	0.975	0.967
(5) Limited Paid 19th-to-Ultimate Loss Development Factor = (3) / (4)	1.035	1.051

Section I - Summary of Limited Paid Loss Development Factors

Report	(1) Indemnity Paid Loss Development		Section H	(3) Medical Paid Loss Development		Section H
	to Next Report	to Ultimate		to Next Report	to Ultimate	
1st	1.807	3.731		1.232	1.573	
2nd	1.301	2.065		1.063	1.277	
3rd	1.166	1.587		1.031	1.201	
4th	1.090	1.361		1.018	1.165	
5th	1.057	1.249		1.014	1.144	
6th	1.033	1.182		1.013	1.128	
7th	1.020	1.144		1.009	1.114	
8th	1.017	1.122		1.005	1.104	
9th	1.015	1.103		1.005	1.099	
10th	1.011	1.087		1.006	1.094	
11th	1.007	1.075		1.004	1.087	
12th	1.006	1.068		1.004	1.083	
13th	1.007	1.062		1.004	1.079	
14th	1.004	1.055		1.009	1.075	
15th	1.004	1.051		1.003	1.065	
16th	1.005	1.047		1.004	1.062	
17th	1.003	1.042		1.002	1.058	
18th	1.004	1.039		1.005	1.056	
19th		1.035	Section H		1.051	Section H

(2) = Cumulative upward product of column (1).  
 (4) = Cumulative upward product of column (3).



MISSOURI

APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section J - Summary of Limited Paid+Case Loss Development Factors

Report	(1) <u>Indemnity Paid+Case Loss Development</u>		Section H	(3) <u>Medical Paid+Case Loss Development</u>		Section H
	<u>to Next Report</u>	<u>to Ultimate</u>		<u>to Next Report</u>	<u>to Ultimate</u>	
1st	1.123	1.384		1.027	1.065	
2nd	1.066	1.232		0.998	1.037	
3rd	1.051	1.156		0.994	1.039	
4th	1.030	1.100		0.994	1.045	
5th	1.017	1.068		1.008	1.051	
6th	1.007	1.050		1.000	1.043	
7th	1.009	1.043		1.003	1.043	
8th	1.005	1.034		1.009	1.040	
9th	1.007	1.029		1.005	1.031	
10th	1.001	1.022		1.001	1.026	
11th	1.001	1.021		1.002	1.025	
12th	1.005	1.020		1.004	1.023	
13th	1.001	1.015		1.002	1.019	
14th	1.001	1.014		0.998	1.017	
15th	1.000	1.013		0.998	1.019	
16th	1.001	1.013		1.003	1.021	
17th	1.002	1.012		1.002	1.018	
18th	1.001	1.010		1.000	1.016	
19th		1.009	Section H		1.016	Section H

(2) = Cumulative upward product of column (1).

(4) = Cumulative upward product of column (3).



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**APPENDIX A-II**

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

**Section K - Factor to Adjust Limited Losses to an Unlimited Basis**

(1) Threshold at the Midpoint of the Loss Cost Effective Period*	9,530,610
(2) Statewide Excess Ratio for (1)	0.007
(3) Market Share for Carriers Missing from Large Loss and Catastrophe Call	0.000
(4) Factor to Adjust Limited Losses to an Unlimited Basis = $1.0 / \{1.0 - [(2) \times (1.0 - (3))]\}$	1.007

**Section L - Policy Year Large Loss Limits**

Experience Year	Policy Year Detrended Limit
2016	8,442,577
2015	8,330,466
2014	8,154,736
2013	7,920,404
2012	7,792,607
2011	7,618,952
2010	7,427,580
2009	7,294,576
2008	7,301,035
2007	7,144,484
2006	6,850,491
2005	6,613,056
2004	6,401,797
2003	6,200,800
2002	6,049,907
2001	5,934,705
2000	5,777,601
1999	5,540,044
1998	5,311,681
1997	5,097,209
1996	4,872,286
1995	4,679,681
1994	4,492,528

\* November 27, 2019 is the midpoint of the effective period for which the revised loss costs are being proposed.





## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Appendix A – Factors Underlying the Proposed Loss Cost Level Change

##### Appendix A-III Trend Factors

NCCI separately analyzes a measure of the number of workplace injuries (claim frequency) and the average indemnity and medical costs of each of these injuries (claim severity). Premium, lost-time claim counts, and losses used in these frequency and severity calculations are developed to ultimate and adjusted for changes in the level of workers' wages over time using the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages for Missouri. Note that medical-only claim counts are excluded from the claim frequency and severity calculations, but the losses associated with medical-only claims are included.

While claim frequency and average costs per case are reviewed separately, NCCI selects annual indemnity and medical loss ratio trend factors based on an analysis of historical indemnity and medical loss ratios, along with other pertinent considerations, including, but not limited to, changes in system benefits and administration, economic environment, credibility of state data, and prior trend approach and selection.

The lost-time claim frequency, average costs per case, and loss ratios for Policy Years 2009 through 2016 are shown in Appendix A-III, along with the impact of the trend selection for each policy year in the experience period. The trend lengths displayed in Section B(3) are calculated by comparing the average accident date for the effective period of the proposed loss costs to each of the policy years in the experience period. The average accident dates are based on a Missouri distribution of policy writings by month and assume a uniform probability of loss over the coverage period.



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APPENDIX A-III

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^
2009	22.198	21,906	0.486	26,476	0.588
2010	23.553	22,161	0.522	28,428	0.669
2011	22.338	23,009	0.514	29,223	0.653
2012	21.618	22,229	0.480	28,875	0.624
2013	21.125	23,261	0.491	28,209	0.596
2014	20.462	23,515	0.481	28,166	0.577
2015	19.667	22,887	0.450	29,602	0.582
2016	18.856	22,900	0.432	30,756	0.580

\* Figures have been adjusted to the common wage level.

^ Based on an average of paid and paid+case losses.

Section B - Summary of Annual Trend Factors

	<u>Indemnity</u>	<u>Medical</u>
(1) Current Annual Loss Ratio Trend Factor	0.980	0.985
(2) Selected Annual Loss Ratio Trend Factor	<b>0.975</b>	<b>0.985</b>
(3) Length of Trend Period from Midpoint of Policy Year to Midpoint of Effective Period:		
		<u>Years</u>
	Policy Year 2015	3.998
	Policy Year 2016	2.998
(4) Trend Factor Applied to Experience Year = (2) ^ (3)	<u>Indemnity</u>	<u>Medical</u>
	Policy Year 2015	0.941
	Policy Year 2016	0.956



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APPENDIX A-IV

Derivation of Industry Group Differentials

Industry group differentials are used to more equitably distribute the overall loss cost level change based on the individual experience of each industry group. The payroll, losses and claim counts used in the calculations below are from NCCI's Workers Compensation Statistical Plan (WCSP) data.

I. Expected Losses

The current expected losses (columns (1) and (2)) are the payroll extended by the pure premiums underlying the latest loss costs. The proposed expected losses (3) are the current expected losses adjusted to the proposed level. These adjustments include the proposed experience, trend, benefit and, if applicable, loss-based expense changes as well as any miscellaneous premium adjustments.

Industry Group	(1) Latest Year Current Expected Losses Prior to Adjustment for Change in Off-Balance	(2) Five Year Current Expected Losses Prior to Adjustment for Change in Off-Balance	(3) Five Year Proposed Expected Losses Prior to Adjustment for Change in Off-Balance	(4) Current Ratio of Manual to Standard Premium	(5) Proposed Ratio of Manual to Standard Premium
Manufacturing	180,897,361	851,799,468	821,703,104	1.222	1.243
Contracting	190,760,005	823,384,426	794,142,795	1.107	1.115
Office & Clerical	107,757,209	499,451,347	481,966,509	1.117	1.128
Goods & Services	287,650,696	1,317,147,851	1,271,020,013	1.048	1.063
Miscellaneous	175,582,819	817,746,661	788,667,412	1.067	1.071
Statewide	942,648,090	4,309,529,753	4,157,499,833		

Industry Group	(6) Latest Year Current Expected Losses Adjusted for Change in Off-Balance (1)x(4)/(5)	(7) Five Year Current Expected Losses Adjusted for Change in Off-Balance (2)x(4)/(5)	(8) Five Year Proposed Expected Losses Adjusted for Change in Off-Balance (3)x(4)/(5)	(9) Current/ Proposed (7)/(8)	(10) Adjustment to Proposed for Current Relativity (9)IG/(9)SW
Manufacturing	177,841,171	837,408,648	807,820,750	1.037	1.000
Contracting	189,391,323	817,476,735	788,444,910	1.037	1.000
Office & Clerical	106,706,385	494,580,811	477,266,481	1.036	0.999
Goods & Services	283,591,655	1,298,561,569	1,253,084,641	1.036	0.999
Miscellaneous	174,927,048	814,692,518	785,721,876	1.037	1.000
Statewide	932,457,582	4,262,720,281	4,112,338,658	1.037	



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APPENDIX A-IV

II. Industry Group Differentials

To calculate the converted indicated balanced losses (11) the reported losses are limited to \$500,000 for a single claim occurrence and \$1,500,000 for each multiple claim occurrence. After the application of limited development, trend and benefit factors, the limited losses are brought to an unlimited level through the application of the expected excess provision. The proposed experience change, applicable loss-based expenses and any miscellaneous premium adjustments are applied to calculate the indicated losses. These indicated losses are then balanced to the expected losses using the factors shown in Appendix B-I, Section A-3.

Industry Group	(11) Converted Indicated Balanced Losses	(12) Indicated/ Expected Ratio (11)/[(8)x(10)]	(13) Indicated Differential (12)IG/(12)SW	(14) Lost-Time Claim Counts
Manufacturing	819,149,742	1.014	1.011	17,931
Contracting	766,511,049	0.972	0.969	10,283
Office & Clerical	477,370,854	1.001	0.998	9,963
Goods & Services	1,246,725,791	0.996	0.993	30,303
Miscellaneous	814,571,730	1.037	1.034	13,895
Statewide	4,124,329,166	1.003		

Industry Group	(15) Full Credibility Standard for Lost-Time Claim Counts	(16) Credibility Minimum of 1.000 and ((14)/(15))^0.5	(17) Credibility Weighted Indicated/Expected Ratio [(16)IGx(12)IG] + [1-(16)IG]x(12)SW*	(18) Final Industry Group Differential (17)IG/(17)SW
Manufacturing	12,000	1.00	1.014	1.011
Contracting	12,000	0.93	0.974	0.971
Office & Clerical	12,000	0.91	1.001	0.998
Goods & Services	12,000	1.00	0.996	0.993
Miscellaneous	12,000	1.00	1.037	1.034
Statewide			1.003	1.000

\*Statewide ratio (column 17) =  $\sum_{IG} [(6) \times (17)] \div \sum_{IG} (6)$



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### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Appendix B – Calculations Underlying the Loss Cost Change by Classification

NCCI separately determines voluntary loss costs for each workers compensation classification. The proposed change from the current loss cost will vary depending on the classification. The following are the general steps utilized to determine the individual classification loss costs:

1. Calculate industry group differentials, which are used to more equitably distribute the proposed overall average loss cost level change based on the individual experience of each industry group
2. For each classification, determine the indicated pure premiums based on the most recently-available five policy periods of Missouri payroll and loss experience
3. Indicated pure premiums are credibility-weighted with present on rate level pure premiums and national pure premiums to generate derived by formula pure premiums
4. Final adjustments include the application of a test correction factor, the ratio of manual-to-standard premium, and swing limits.



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**APPENDIX B-I**

**Distribution of Loss Cost Level Change to Occupational Classification**

After determining the required changes in the overall loss cost level for the state and by industry group, the next step in the ratemaking procedure is to distribute these changes among the various occupational classifications. In order to do this, the pure premiums by classification must be adjusted, by policy period, industry group, or on an overall basis, to incorporate the changes proposed in the filing. There are three sets of pure premiums for each classification: indicated, present on rate level, and national pure premiums.

**Section A – Calculation of Indicated Pure Premiums**

The indicated pure premiums are calculated from the payroll and loss data reported, by class code and policy period, in the Workers Compensation Statistical Plan (WCSP) for the latest available five policy periods. Various adjustments are made to these pure premiums to put them at the level proposed in this filing (Sections A-1 to A-3).

**Section A-1 – Calculation of Primary Conversion Factors**

**1. Limited Loss Development Factors**

The following factors are applied to develop the losses from first through fifth report to an ultimate basis.

Policy Period	Indemnity		Medical	
	Likely-to-Develop	Not-Likely-to-Develop	Likely-to-Develop	Not-Likely-to-Develop
7/11-6/12	1.121	1.020	1.087	1.007
7/12-6/13	1.184	1.030	1.091	1.006
7/13-6/14	1.274	1.051	1.101	1.004
7/14-6/15	1.454	1.110	1.131	1.005
7/15-6/16	1.833	1.228	1.221	1.014

**2. Factors to Adjust to the Proposed Trend Level**

The proposed trend factors are applied to adjust the losses to the proposed level.

Policy Period	Indemnity	Medical
7/11-6/12	0.828	0.894
7/12-6/13	0.850	0.907
7/13-6/14	0.871	0.921
7/14-6/15	0.894	0.935
7/15-6/16	0.917	0.949

**3. Factors to Adjust to the July 1, 2018 Benefit Level**

The following factors are applied to adjust the losses to the proposed benefit level.

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
7/11-6/12	1.038	1.038	1.089	1.038	1.000
7/12-6/13	1.031	1.031	1.073	1.031	1.000
7/13-6/14	1.021	1.021	1.055	1.021	1.000
7/14-6/15	1.016	1.016	1.043	1.016	1.000
7/15-6/16	1.009	1.009	1.026	1.009	1.000



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**APPENDIX B-I**

**4. Primary Conversion Factors: Indicated Pure Premiums**

The factors above, contained within Section A-1, are combined multiplicatively, resulting in the following factors for the Likely-to-Develop (L) and Not-Likely-to-Develop (NL) groupings.

Policy Period	Fatal (L)	Fatal (NL)	P.T.*	P.P. (L)	P.P. (NL)	T.T. (L)	T.T. (NL)	Medical (L)	Medical (NL)
7/11-6/12	0.963	0.877	0.963	1.011	0.920	0.963	0.877	0.972	0.900
7/12-6/13	1.038	0.903	1.038	1.080	0.939	1.038	0.903	0.990	0.912
7/13-6/14	1.133	0.935	1.133	1.171	0.966	1.133	0.935	1.014	0.925
7/14-6/15	1.321	1.008	1.321	1.356	1.035	1.321	1.008	1.057	0.940
7/15-6/16	1.696	1.136	1.696	1.725	1.155	1.696	1.136	1.159	0.962

\* Permanent total losses are always assigned to the Likely-to-Develop grouping.

**Section A-2 – Expected Excess Provision and Redistribution**

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of excess loss factors by hazard group. These factors are shown below.

Hazard Group	A	B	C	D	E	F	G
(1) Excess Ratios	0.058	0.083	0.102	0.125	0.159	0.185	0.238
(2) Excess Factors 1/(1-(1))	1.062	1.091	1.114	1.143	1.189	1.227	1.312

As the excess loss factors are on a combined (indemnity and medical) basis, a portion (40%) of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses. Since a portion of the expected excess losses are redistributed in an additive manner, the expected excess factors shown above cannot be combined multiplicatively with either the primary or secondary loss conversion factors.



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**APPENDIX B-I**

**Section A-3 – Calculation of Secondary Conversion Factors**

**1. Factors to Adjust for Proposed Industry Group Differentials**

The following factors are applied to adjust the indicated industry group differentials for the effects of credibility weighting the industry group differentials and weighting the differentials by the latest year expected losses.

	Manufacturing	Contracting	Office and Clerical	Goods and Services	Miscellaneous
(1) Indicated Differentials*	1.011	0.969	0.998	0.993	1.034
(2) Final Differentials**	1.011	0.971	0.998	0.993	1.034
(3) Adjustment (2)/(1)	1.000	1.002	1.000	1.000	1.000

\*See Appendix A-IV, column (13).

\*\*See Appendix A-IV, column (18).

**2. Factors to Balance Indicated to Expected Losses**

The expected losses are calculated as the pure premium underlying the current loss costs, adjusted to the proposed level and adjusted for the Experience Rating Plan off-balance. The indicated losses are balanced to the expected losses by applying the following factors.

Policy Period	(1) Adjustment of Indicated Losses to Pure Premium at Proposed Level	(2) Current Ratio of Manual to Standard Premium	(3) Proposed Ratio of Manual to Standard Premium	(4) Off-balance Adjustment (2)/(3)	(5) Balancing Indicated to Expected Losses (1)x(4)
7/11-6/12	1.015	1.105	1.082	1.021	1.036
7/12-6/13	0.972	1.106	1.105	1.001	0.973
7/13-6/14	0.956	1.105	1.121	0.986	0.943
7/14-6/15	0.948	1.105	1.131	0.977	0.926
7/15-6/16	0.966	1.105	1.129	0.979	0.946

**3. Adjustment for Experience Change**

A factor of 0.969 is applied to adjust for the experience change in the proposed loss cost level.

**4. Factor to Reflect the Proposed Loss-Based Expense Provisions**

A factor of 1.188 is applied to include the proposed loss-based expense provisions.

**5. Secondary Conversion Factors: Indicated Pure Premiums**

The factors above, contained within section A-3, are combined multiplicatively, resulting in the following factors:

Policy Period	Manufacturing	Contracting	Office and Clerical	Goods and Services	Miscellaneous
7/11-6/12	1.193	1.195	1.193	1.193	1.193
7/12-6/13	1.120	1.122	1.120	1.120	1.120
7/13-6/14	1.086	1.088	1.086	1.086	1.086
7/14-6/15	1.066	1.068	1.066	1.066	1.066
7/15-6/16	1.089	1.091	1.089	1.089	1.089





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**APPENDIX B-I**

**Section B – Calculation of Present on Rate Level Pure Premiums**

The present on rate level pure premiums are the pure premiums underlying the current loss costs, adjusted to the proposed level. The data sources for the above-captioned pure premiums are the partial pure premiums underlying the current loss costs.

**1. Adjustment for Experience Change**

A factor of 0.969 is applied to adjust for the experience change in the proposed loss cost level.

**2. Factors to Adjust to the Proposed Trend Level**

The pure premiums underlying the current loss costs contain the current trend. The change in trend factors, 0.983 and 1.000, for indemnity and medical, respectively, are applied to adjust to the proposed trend level.

**3. Factors to Adjust to the July 1, 2018 Benefit Level**

The pure premiums underlying the current loss costs are at the current July 1, 2017 level. The following factors are applied to adjust to the proposed benefit level.

Effective Date	Indemnity	Medical
July 1, 2018	1.009	1.000

**4. Factors to Include the Proposed Loss-Based Expense Provisions**

The pure premiums underlying the current loss costs include the current loss-based expense provisions and must be adjusted to the proposed level.

	(a) Current		(b) Proposed	
	Indemnity	Medical	Indemnity	Medical
(1) Loss Adjustment Expense	1.189	1.189	1.188	1.188
(2) Overall Change (1b)/(1a)			0.999	0.999

**5. Adjustment to Obtain Expected Losses**

The pure premiums underlying the current loss costs reflect the current Experience Rating Plan off-balance. The change in off-balance must be applied.

Industry Group	(1) Current Ratio of Manual to Standard Premium	(2) Proposed Ratio of Manual to Standard Premium	(3) Off-balance Adjustment (1)/(2)
Manufacturing	1.222	1.243	0.983
Contracting	1.107	1.115	0.993
Office & Clerical	1.117	1.128	0.990
Goods & Services	1.048	1.063	0.986
Miscellaneous	1.067	1.071	0.996



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**6. Factors to Adjust for Proposed Industry Group Differentials**

The pure premiums underlying the current loss costs are adjusted by the proposed industry group differentials.

Industry Group	(1) Final Differential*	(2) Adjustment to Proposed for Current Relativities**	(3) Adjusted Differential (1)x(2)
Manufacturing	1.011	1.000	1.011
Contracting	0.971	1.000	0.971
Office & Clerical	0.998	0.999	0.997
Goods & Services	0.993	0.999	0.992
Miscellaneous	1.034	1.000	1.034

\*See Appendix A-IV, column (18).

\*\*See Appendix A-IV, column (10).

**7. Combined Conversion Factors**

The factors above, contained within Section B, are combined multiplicatively, resulting in the following factors.

Industry Group	Indemnity	Medical
Manufacturing	0.954	0.962
Contracting	0.926	0.933
Office & Clerical	0.948	0.955
Goods & Services	0.939	0.947
Miscellaneous	0.989	0.997



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### APPENDIX B-I

#### Section C – Calculation of National Pure Premiums

Finally, there are the national pure premiums, which reflect the countrywide experience for each classification adjusted to state conditions. These pure premiums reflect the countrywide experience for each classification as indicated by the latest available individual classification experience for all states for which the National Council on Compensation Insurance compiles workers compensation data.

Countrywide data is adjusted to Missouri conditions in four steps. First, statewide indicated pure premiums are determined for Missouri. Second, using Missouri payrolls as weights, corresponding statewide-average pure premiums are computed for each remaining state. Third, the ratios of Missouri statewide pure premiums to those for other states are used as adjustment factors to convert losses for other states to a basis that is consistent with the Missouri indicated pure premiums. The quotient of the countrywide total of such adjusted losses divided by the total countrywide payroll for the classification is the initial pure premium indicated by national relativity. Finally, national pure premiums are balanced to the level of the state indicated pure premiums to ensure unbiased derived by formula pure premiums. Indemnity and medical pure premiums are computed separately.

#### Section D – Calculation of Derived by Formula Pure Premiums

The indicated, present on rate level and national pure premiums are credibility weighted, and the resulting derived by formula pure premiums are used to determine the final class loss costs.

As for the preceding pure premiums, separate computations are performed for each partial pure premium: indemnity and medical. Each partial formula pure premium is derived by the weighting of the indicated, present on rate level and national partial pure premiums. The weight assigned to the policy year indicated pure premium varies in one-percent intervals from zero percent to one hundred percent, depending upon the volume of expected losses (i.e. the product of the underlying pure premiums and the payroll in hundreds). To achieve full state credibility, a classification must have expected losses of at least: \$34,968,694 for indemnity and \$23,920,200 for medical.

The partial credibilities formula is:

$$z = [ (\text{expected losses}) / (\text{full credibility standard}) ]^{0.5}$$

For the national pure premiums, credibility is determined from the number of lost-time claims. Full credibility standards are: 2,300 lost-time claims for indemnity and 2,000 lost-time claims for medical.

Partial credibilities are assigned using a credibility formula similar to that used for indicated pure premiums but based on the number of national cases. In no case is the national credibility permitted to exceed 50% of the complement of the state credibility.

National Credibility equals the smaller of:

$$[ (\text{national cases}) / (\text{full credibility standard}) ]^{0.5} \text{ and } [ (1 - \text{state credibility}) / 2 ]$$

The residual credibility (100% minus the sum of the state and national credibilities) is assigned to the present on rate level pure premium.

For example, if the state credibility is 40%, the national pure premium is assigned a maximum credibility of 30%  $((100 - 40) / 2)$ . The remainder is assigned to the present on rate level pure premium.

The total pure premium shown on the attached Appendix B-III is obtained by adding the indemnity and medical partial pure premiums obtained above and rounding the sum to two decimal places.



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**APPENDIX B-II**

**Adjustments to Obtain Loss Costs**

The following items are combined with the derived by formula pure premium to obtain the proposed loss cost:

**1. Test Correction Factor**

The payrolls are now extended by the loss costs presently in effect and by the indicated loss costs to determine if the required change in manual premium level as calculated in Exhibit I has been achieved. Since at first this calculation may not yield the required results, an iterative process is initiated which continuously tests the proposed loss costs including tentative test correction factors until the required change in manual premium level is obtained. The test correction factor is applied to the derived by formula pure premiums.

The factors referred to above are set out as follows:

	Test Correction Factor
Manufacturing	0.9994
Contracting	1.0033
Office & Clerical	0.9886
Goods & Services	0.9875
Miscellaneous	0.9967

**2. Ratios of Manual to Standard Premiums**

The ratios of manual to standard premiums by industry group have also been excluded from the classification experience, and it is necessary to apply these factors to the derived by formula pure premiums.

	Ratio of Manual to Standard Premiums
Manufacturing	1.243
Contracting	1.115
Office & Clerical	1.128
Goods & Services	1.063
Miscellaneous	1.071

**3. Disease Loadings**

The proposed manual loss costs shown in this filing include specific disease loadings for those classifications where they apply. The proposed specific disease loadings are shown on the footnotes page.



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APPENDIX B-II

4. Swing Limits

As a further step, a test is made to make certain that the proposed loss costs fall within the following departures from the present loss costs:

Table with 2 columns: Industry Group and Swing Limit Range. Rows include Manufacturing, Contracting, Office & Clerical, Goods & Services, and Miscellaneous.

These limits have been calculated in accordance with the following formula:

Max. Deviation = Effect of the final change in loss cost level by industry group plus or minus 20% rounded to the nearest 1%.

The product of the swing limits and the present loss cost sets bounds for the proposed loss cost. If the calculated loss cost falls outside of the bounds, the closest bound is chosen as the proposed loss cost.

An illustrative example showing the calculation of a proposed manual class loss cost is attached as Appendix B-III. This example demonstrates the manner in which the partial pure premiums are combined to produce a total pure premium, and shows the steps in the calculation at which the rounding takes place.

List of Classifications Limited by the Upper Swing

List of Classifications Limited by the Lower Swing

- 1005 2797 4581 7711 8031 8602 8603 8856 3851
9019

5. Missouri Contracting Classification Premium Adjustment Program (CCPAP)

For classifications eligible for the CCPAP, the last step in producing the final proposed loss costs is to apply a factor of 1.092 to offset the credits payable under the CCPAP.

A list of the eligible class codes can be found under the Basic Manual Miscellaneous Rules.



**MISSOURI**

**APPENDIX B-III**

**Derivation of Proposed Loss Cost - Code 8810**

As previously explained in Appendix B-I, the indicated pure premiums are developed by adjusting the limited losses by a set of conversion factors. The converted losses are then summarized into indemnity and medical and then divided by payroll (in hundreds). The derivation of the indicated pure premium for the above-captioned classification follows:

**LIMITED LOSSES (Workers Compensation Statistical Plan)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
07/01/11 - 06/30/12	0	655,000	509,913	2,301,517	4,709,070	761,645	1,275,313	3,216,416	10,224,338
07/01/12 - 06/30/13	0	5,000	171,849	1,746,768	4,235,729	391,921	1,214,947	2,563,901	11,054,990
07/01/13 - 06/30/14	0	0	38,012	1,911,392	3,876,970	846,995	1,371,515	4,549,089	10,706,454
07/01/14 - 06/30/15	0	9,466	0	1,653,187	3,812,278	890,346	1,891,401	3,436,445	10,440,814
07/01/15 - 06/30/16	0	15,000	0	979,647	2,943,523	514,098	1,444,973	2,478,423	9,963,271

**PRIMARY CONVERSION FACTORS (Appendix B-I, Section A-1)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
07/01/11 - 06/30/12	0.963	0.877	0.963	1.011	0.920	0.963	0.877	0.972	0.900
07/01/12 - 06/30/13	1.038	0.903	1.038	1.080	0.939	1.038	0.903	0.990	0.912
07/01/13 - 06/30/14	1.133	0.935	1.133	1.171	0.966	1.133	0.935	1.014	0.925
07/01/14 - 06/30/15	1.321	1.008	1.321	1.356	1.035	1.321	1.008	1.057	0.940
07/01/15 - 06/30/16	1.696	1.136	1.696	1.725	1.155	1.696	1.136	1.159	0.962

**EXPECTED EXCESS PROVISION AND REDISTRIBUTION (Appendix B-I, Section A-2)**

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of a hazard group-specific excess loss factor. The factor is shown below:

	<b>HAZARD GROUP: C</b>
Excess Factor	1.114

As the excess loss factor is on a combined (indemnity and medical) basis, the following portion of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses:

Redistribution %	40%
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MISSOURI

APPENDIX B-III

Derivation of Proposed Loss Cost - Code 8810

EXPECTED UNLIMITED LOSSES (Limited Losses x Primary Conversion Factors, then adjusted for the Excess Provision and Redistribution)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
07/01/11 - 06/30/12	0	613,584	524,512	2,485,411	4,627,600	783,451	1,194,674	3,642,818	10,520,861
07/01/12 - 06/30/13	0	4,823	190,536	2,015,078	4,248,412	434,539	1,171,866	2,938,872	11,458,099
07/01/13 - 06/30/14	0	0	46,003	2,390,779	4,000,391	1,025,046	1,369,762	5,283,972	11,256,785
07/01/14 - 06/30/15	0	10,192	0	2,394,499	4,214,614	1,256,303	2,036,465	4,200,191	11,195,463
07/01/15 - 06/30/16	0	18,202	0	1,805,060	3,631,468	931,332	1,753,359	3,315,160	10,903,169

SECONDARY CONVERSION FACTORS (Appendix B-I, Section A-3)

Policy Period	INDUSTRY GROUP: Office and Clerical
07/01/11 - 06/30/12	1.193
07/01/12 - 06/30/13	1.120
07/01/13 - 06/30/14	1.086
07/01/14 - 06/30/15	1.066
07/01/15 - 06/30/16	1.089

PAYROLL, FINAL CONVERTED LOSSES (Expected Unlimited Losses x Secondary Conversion Factors)

Policy Period	Payroll	Indemnity Likely	Indemnity Not-Likely	Medical Likely	Medical Not-Likely	Total Indemnity	Total Medical	Total
07/01/11 - 06/30/12	23,036,432,962	4,525,495	7,677,979	4,345,882	12,551,387	12,203,474	16,897,269	29,100,743
07/01/12 - 06/30/13	21,856,308,508	2,956,971	6,076,113	3,291,537	12,833,071	9,033,084	16,124,608	25,157,692
07/01/13 - 06/30/14	22,627,282,516	3,759,545	5,831,986	5,738,394	12,224,869	9,591,531	17,963,263	27,554,794
07/01/14 - 06/30/15	23,249,736,546	3,891,755	6,674,515	4,477,404	11,934,364	10,566,270	16,411,768	26,978,038
07/01/15 - 06/30/16	24,708,918,333	2,979,931	5,883,899	3,610,209	11,873,551	8,863,830	15,483,760	24,347,590
Total	115,478,678,865	18,113,697	32,144,492	21,463,426	61,417,242	50,258,189	82,880,668	133,138,857
<b>INDICATED PURE PREMIUM</b>						<b>0.044</b>	<b>0.072</b>	<b>0.12</b>

The present on rate level pure premiums are developed by adjusting the pure premiums underlying the current loss cost by the conversion factors calculated in Appendix B-I. The derivation of the present on rate level pure premiums for the above-captioned classification follows:

	Indemnity	Medical	Total
Pure Premiums Underlying Current Loss Cost	0.044	0.076	0.12
Conversion Factors (App. B-I, Section B)	0.948	0.955	xxx
<b>PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)</b>	<b>0.042</b>	<b>0.073</b>	<b>0.12</b>



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APPENDIX B-III

Derivation of Proposed Loss Cost - Code 8810  
 Industry Group - Office and Clerical, Hazard Group - C

The loss cost for the above-captioned classification is derived as follows:

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
1. Indicated Pure Premium	0.044	0.072	0.12
2. Pure Premium Indicated by National Relativity	0.042	0.070	0.11
3. Pure Premium Present on Rate Level	0.042	0.073	0.12
4. State Credibilities	100%	100%	xxx
5. National Credibilities	0%	0%	xxx
6. Residual Credibilities = 100% - (4) - (5)	0%	0%	xxx
7. Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	0.044	0.072	0.12
8. Test Correction Factor	0.9886	0.9886	xxx
9. Underlying Pure Premiums = (7) x (8) *	0.039	0.071	0.11
10. Ratio of Manual to Standard Premium			1.128
11. Loss Cost = (9) x (10)			0.12
12. Loss Cost Within Swing Limits			0.12
Current Loss Cost x Swing Limits			
a) Lower bound = 0.13 x 0.760 = 0.10			
b) Upper bound = 0.13 x 1.160 = 0.15			
13. Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	0.039	0.071	0.11
14. Disease, Catastrophe and/or Miscellaneous Loadings			0.00
15. Final Loaded Loss Cost			0.12

\* Indemnity pure premium is adjusted for the rounded total pure premium:  
 Indemnity Pure Premium = Total Pure Premium - Medical Pure Premium





**MISSOURI**

**APPENDIX B-IV**

**I. Determination and Distribution of Premium Level Change to “F” Classifications**

The Workers Compensation Statistical Plan (WCSP) data is used to determine the overall “F” classifications (F-class) premium level change as well as the individual change by the various classifications. There are three sets of pure premiums for each classification: indicated, present on rate level, and national pure premiums. All sets of pure premiums are adjusted to the common proposed level that is explained further in this exhibit. These three sets of pure premiums are credibility weighted and the results, the derived by formula pure premiums, are adjusted for additional proposed components (Section II) to determine the indicated loss costs. The payrolls are extended by the loss costs presently in effect and by the indicated loss costs. The loss costs are limited to the swing limits based on 20% above and 20% below the current loss costs. This results in the indicated loss cost level change of +1.6%.

**Section A – Calculation of F-Class Indicated Pure Premiums**

The payroll and loss data reported are from the WCSP data by class code for the latest available five policy periods.

**Section A-1 – Calculation of Primary Conversion Factors**

**1. Factors to Adjust to the Proposed Benefit Levels**

The state losses are adjusted to the July 1, 2018 state law level. The federal losses are adjusted to the October 1, 2017 federal law level.

**STATE ACT**

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/11 - 12/11	1.040	1.040	1.094	1.040	1.000
1/12 - 12/12	1.035	1.035	1.083	1.035	1.000
1/13 - 12/13	1.027	1.027	1.064	1.027	1.000
1/14 - 12/14	1.019	1.019	1.051	1.019	1.000
1/15 - 12/15	1.013	1.013	1.034	1.013	1.000

**FEDERAL ACT**

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/11 - 12/11	1.028	1.023	1.010	1.023	1.000
1/12 - 12/12	1.022	1.019	1.008	1.019	1.000
1/13 - 12/13	1.018	1.015	1.006	1.015	1.000
1/14 - 12/14	1.015	1.012	1.005	1.012	1.000
1/15 - 12/15	1.011	1.008	1.003	1.008	1.000

**2. Factors to Adjust to the Proposed Trend Level**

The following factors are applied to trend the losses in each policy year to the proposed rating year. The selected annual trends utilized were 0.975 and 0.985 for indemnity and medical, respectively.

Policy Period	Indemnity	Medical
1/11 - 12/11	0.817	0.886
1/12 - 12/12	0.838	0.900
1/13 - 12/13	0.859	0.913
1/14 - 12/14	0.881	0.927
1/15 - 12/15	0.904	0.941



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APPENDIX B-IV

Section A-1 Calculation of Primary Conversion Factors (continued)

3. Limited Loss Development Factors

The following factors are applied to develop the losses from first through fifth report to an ultimate basis utilizing countrywide data.

Policy Period	Indemnity		Medical	
	Likely-to-Develop	Not-Likely-to-Develop	Likely-to-Develop	Not-Likely-to-Develop
1/11 - 12/11	1.093	1.030	1.196	1.036
1/12 - 12/12	1.124	1.052	1.220	1.041
1/13 - 12/13	1.245	1.116	1.253	1.067
1/14 - 12/14	1.412	1.212	1.337	1.089
1/15 - 12/15	2.198	1.728	1.571	1.145

4. Primary Conversion Factors = (1) x (2) x (3)

The factors above contained within Section A-1, are combined multiplicatively, resulting in the following factors for the Likely-to-Develop (L) and Not-Likely-to-Develop (NL) groupings.

STATE ACT

Policy Period	Fatal (L)	Fatal (NL)	P.T.*	P.P. (L)	P.P. (NL)	T.T. (L)	T.T. (NL)	Medical (L)	Medical (NL)
1/11 - 12/11	0.929	0.875	0.929	0.977	0.921	0.929	0.875	1.060	0.918
1/12 - 12/12	0.975	0.912	0.975	1.020	0.955	0.975	0.912	1.098	0.937
1/13 - 12/13	1.098	0.985	1.098	1.138	1.020	1.098	0.985	1.144	0.974
1/14 - 12/14	1.268	1.088	1.268	1.307	1.122	1.268	1.088	1.239	1.010
1/15 - 12/15	2.013	1.582	2.013	2.055	1.615	2.013	1.582	1.478	1.077

FEDERAL ACT

Policy Period	Fatal (L)	Fatal (NL)	P.T.*	P.P. (L)	P.P. (NL)	T.T. (L)	T.T. (NL)	Medical (L)	Medical (NL)
1/11 - 12/11	0.918	0.865	0.914	0.902	0.850	0.914	0.861	1.060	0.918
1/12 - 12/12	0.963	0.901	0.960	0.949	0.889	0.960	0.898	1.098	0.937
1/13 - 12/13	1.089	0.976	1.085	1.076	0.964	1.085	0.973	1.144	0.974
1/14 - 12/14	1.263	1.084	1.259	1.250	1.073	1.259	1.081	1.239	1.010
1/15 - 12/15	2.009	1.579	2.003	1.993	1.567	2.003	1.575	1.478	1.077

\* Permanent Total losses are always assigned to the Likely-to-Develop grouping.



**MISSOURI**

**APPENDIX B-IV**

**Section A-2 – Expected Excess Provision and Redistribution**

To reduce distortions in individual class loss cost indications, individual claim amounts are subject to a maximum limit of \$500,000. Multiple claim accidents are limited to three times the individual claim loss limitation. After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of excess loss factors by hazard group. These factors are shown below.

Hazard Group	A	B	C	D	E	F	G
(1) Excess Ratios	0.058	0.083	0.102	0.125	0.159	0.185	0.238
(2) Excess Factors 1/(1-(1))	1.062	1.091	1.114	1.143	1.189	1.227	1.312

As the excess loss factors are on a combined (indemnity and medical) basis, a portion (40%) of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses. Since a portion of the expected excess losses are redistributed in an additive manner, the expected excess factors shown above cannot be combined multiplicatively with either the primary or secondary loss conversion factors.

**Section A-3 – Calculation of Secondary Conversion Factors**

The following factors are applied to include the proposed loss-based expenses. The state losses are adjusted to reflect the proposed loss-based expenses. The federal losses are adjusted to reflect the proposed USL&HW Special Fund Assessment and loss adjustment expense. The combined\*\* factors are based on a combined indemnity and medical loss-weighted average of the above loss-based expenses by policy period.

Policy Period	State Act	Federal Act
1/11 - 12/11	1.188	1.256
1/12 - 12/12	1.188	1.254
1/13 - 12/13	1.188	1.205
1/14 - 12/14	1.188	1.254
1/15 - 12/15	1.188	1.262

\*\* See Section B.3 for the indemnity and medical breakdown of the proposed loss-based expenses.



**MISSOURI**  
**APPENDIX B-IV**

**Section B – Present on Rate Level**

**1. Benefits**

The current underlying pure premiums are at the current July 1, 2017 state and October 1, 2016 federal law levels. These pure premiums are adjusted to reflect the weighted effect of state and federal laws which bring losses to the proposed July 1, 2018 state and October 1, 2017 federal law levels. The distribution of state and federal losses in regard to total losses was used to determine the weighted effects.

State Weight (St%)	0.483
Federal Weight (Fed%)	0.517

	Indemnity	Medical	Total
(a) State Laws	1.009	1.000	1.004
(b) Federal Laws	1.003	1.000	1.002
(c) Weighted Laws = [(a)xSt%] + [(b)xFed%]	1.006	1.000	1.003

**2. Trend**

Since the trend in the current underlying pure premiums is adequate for the current rating year, additional trend is applied to bring the underlyings to the proposed rating year.

Indemnity	Medical
0.975	0.985



**MISSOURI**  
**APPENDIX B-IV**

**Section B – Present on Rate Level (continued)**

**3. Loss-Based Expenses**

The current underlying pure premiums are adjusted to reflect the change in the weighted effect of the loss-based expense provisions.

Proposed:

STATE ACT			
	Indemnity	Medical	Total
(a) Loss Adjustment Expense	1.188	1.188	1.188
(b) Loss-Based Assessment	1.000	1.000	1.000
(c) Total = (a) + (b) - 1	1.188	1.188	1.188

FEDERAL ACT			
	Indemnity	Medical	Total
(d) Loss Adjustment Expense	1.188	1.188	1.188
(e) Loss-Based Assessment	1.113	1.000	1.065
(f) Total = (d) + (e) - 1	1.301	1.188	1.253

	Indemnity	Medical	Total
(g) Weighted Proposed Expenses = [(c) x St%] + [(f) x Fed%]	1.246	1.188	1.222

Current:

STATE ACT			
	Indemnity	Medical	Total
(h) Loss Adjustment Expense	1.189	1.189	1.189
(i) Loss-Based Assessment	1.000	1.000	1.000
(j) Total = (h) + (i) - 1	1.189	1.189	1.189

FEDERAL ACT			
	Indemnity	Medical	Total
(k) Loss Adjustment Expense	1.189	1.189	1.189
(l) Loss-Based Assessment	1.119	1.000	1.071
(m) Total = (k) + (l) - 1	1.308	1.189	1.260

	Indemnity	Medical	Total
(n) Weighted Current Expenses = [(j) x St%] + [(m) x Fed%]	1.251	1.189	1.226

Change:

	Indemnity	Medical	Total
Weighted Expense Change in Loss-Based Expenses = [(g) / (n)]	0.996	0.999	0.997

**4. Conversion Factors = (1) x (2) x (3)**

The factors have been applied multiplicatively resulting in the following factors.

Indemnity	Medical
0.977	0.984



**MISSOURI**  
**APPENDIX B-IV**

**Section C – National Pure Premiums**

The latest three years of state and federal losses for states in which NCCI compiles workers compensation data are separately adjusted to the same level as the indicated and present on rate level pure premiums.

**Class Code 9077**

For Code 9077, the indicated, national and present on rate level pure premiums were calculated as described previously in Sections A, B and C but using the non-appropriated benefit changes and the federal loss-based expenses.

**Section D – Derived by Formula Pure Premiums**

The derived by formula pure premiums are calculated by a process similar to that of the industrial codes, which is described in Appendix B-I, Section D. To achieve full state credibility, a classification must have expected losses of at least: \$121,981,800 for indemnity and \$56,357,600 for medical.

**II. Calculation of Proposed Loss Costs**

The following items are combined with the derived by formula pure premiums to obtain the proposed loss cost:

**A. Test Correction Factor** **1.0000**

**B. Ratio of Manual Premium to Earned Premium** **1.215**  
(determined on a countrywide basis)

**C. Swing Limits**  
No classifications were adjusted on account of swing limits.



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APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 7317

The indicated pure premiums are developed by adjusting the limited losses by a set of conversion factors. The converted losses are then summarized into indemnity and medical and then divided by payroll (in hundreds). The derivation of the indicated pure premium for the above-captioned classification follows:

STATE ACT - LIMITED LOSSES (Workers Compensation Statistical Plan)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/11 - 12/31/11	0	0	0	0	0	0	5,613	0	0
01/01/12 - 12/31/12	0	0	0	0	0	0	0	0	0
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0
01/01/14 - 12/31/14	0	0	0	0	0	0	0	0	0
01/01/15 - 12/31/15	0	0	0	0	0	0	0	0	0

FEDERAL ACT - LIMITED LOSSES (Workers Compensation Statistical Plan)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/11 - 12/31/11	0	0	0	0	0	0	0	0	0
01/01/12 - 12/31/12	0	0	0	0	0	0	0	0	0
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0
01/01/14 - 12/31/14	0	0	0	0	224,187	0	0	0	126,742
01/01/15 - 12/31/15	0	0	0	0	62,357	0	0	0	34,500

STATE ACT - PRIMARY CONVERSION FACTORS (Appendix B-IV, Section A-1)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/11 - 12/31/11	0.929	0.875	0.929	0.977	0.921	0.929	0.875	1.060	0.918
01/01/12 - 12/31/12	0.975	0.912	0.975	1.020	0.955	0.975	0.912	1.098	0.937
01/01/13 - 12/31/13	1.098	0.985	1.098	1.138	1.020	1.098	0.985	1.144	0.974
01/01/14 - 12/31/14	1.268	1.088	1.268	1.307	1.122	1.268	1.088	1.239	1.010
01/01/15 - 12/31/15	2.013	1.582	2.013	2.055	1.615	2.013	1.582	1.478	1.077

FEDERAL ACT - PRIMARY CONVERSION FACTORS (Appendix B-IV, Section A-1)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/11 - 12/31/11	0.918	0.865	0.914	0.902	0.850	0.914	0.861	1.060	0.918
01/01/12 - 12/31/12	0.963	0.901	0.960	0.949	0.889	0.960	0.898	1.098	0.937
01/01/13 - 12/31/13	1.089	0.976	1.085	1.076	0.964	1.085	0.973	1.144	0.974
01/01/14 - 12/31/14	1.263	1.084	1.259	1.250	1.073	1.259	1.081	1.239	1.010
01/01/15 - 12/31/15	2.009	1.579	2.003	1.993	1.567	2.003	1.575	1.478	1.077



MISSOURI

APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 7317

**EXPECTED EXCESS PROVISION AND REDISTRIBUTION (Appendix B-IV, Section A-2)**

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of a hazard group-specific excess loss factor. The factor is shown below:

	HAZARD GROUP: G
Excess Factor	1.312

As the excess loss factor is on a combined (indemnity and medical) basis, the following portion of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses:

Redistribution %	40%
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**STATE ACT - EXPECTED UNLIM LOSSES (Lim Losses x Primary Conv Factors, then adjusted for the Excess Provision and Redistribution)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/11 - 12/31/11	0	0	0	0	0	0	6,445	0	0
01/01/12 - 12/31/12	0	0	0	0	0	0	0	0	0
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0
01/01/14 - 12/31/14	0	0	0	0	0	0	0	0	0
01/01/15 - 12/31/15	0	0	0	0	0	0	0	0	0

**FEDERAL ACT - EXPECTED UNLIM LOSSES (Lim Losses x Primary Conv Factors, then adjusted for the Excess Provision and Redistribution)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/11 - 12/31/11	0	0	0	0	0	0	0	0	0
01/01/12 - 12/31/12	0	0	0	0	0	0	0	0	0
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0
01/01/14 - 12/31/14	0	0	0	0	285,633	0	0	0	198,044
01/01/15 - 12/31/15	0	0	0	0	116,024	0	0	0	60,970

**STATE ACT - SECONDARY CONVERSION FACTORS (Appendix B-IV, Section A-3)**

	INDUSTRY GROUP: F-Class
Policy Period	
01/01/11 - 12/31/11	1.188
01/01/12 - 12/31/12	1.188
01/01/13 - 12/31/13	1.188
01/01/14 - 12/31/14	1.188
01/01/15 - 12/31/15	1.188

**FEDERAL ACT - SECONDARY CONVERSION FACTORS (Appendix B-IV, Section A-3)**

	INDUSTRY GROUP: F-Class
Policy Period	
01/01/11 - 12/31/11	1.256
01/01/12 - 12/31/12	1.254
01/01/13 - 12/31/13	1.205
01/01/14 - 12/31/14	1.254
01/01/15 - 12/31/15	1.262





MISSOURI

APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 7317

TOTAL - PAYROLL, FINAL CONVERTED LOSSES

Policy Period	Payroll	Indemnity Likely	Indemnity Not-Likely	Medical Likely	Medical Not-Likely	Total Indemnity	Total Medical	Total
01/01/11 - 12/31/11	1,968,342	0	7,657	0	0	7,657	0	7,657
01/01/12 - 12/31/12	3,143,009	0	0	0	0	0	0	0
01/01/13 - 12/31/13	2,564,420	0	0	0	0	0	0	0
01/01/14 - 12/31/14	1,211,490	0	358,184	0	248,347	358,184	248,347	606,531
01/01/15 - 12/31/15	1,652,562	0	146,422	0	76,944	146,422	76,944	223,366
<b>Total</b>	<b>10,539,823</b>	<b>0</b>	<b>512,263</b>	<b>0</b>	<b>325,291</b>	<b>512,263</b>	<b>325,291</b>	<b>837,554</b>
<b>INDICATED PURE PREMIUM</b>						<b>4.860</b>	<b>3.086</b>	<b>7.95</b>

The present on rate level pure premiums are developed by adjusting the pure premiums underlying the current loss cost by the conversion factors. The derivation of the present on rate level pure premiums for the above-captioned classification follows:

	Indemnity	Medical	Total
Pure Premiums Underlying Current Loss Cost	3.820	3.340	7.16
Conversion Factors (Section B)	0.977	0.984	xxx
<b>PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)</b>	<b>3.732</b>	<b>3.287</b>	<b>7.02</b>



**MISSOURI**

**APPENDIX B-IV**

**Derivation of Proposed Loss Cost - Code 7317**

Industry Group - F-Class, Hazard Group - G

The loss cost for the above-captioned classification is derived as follows:

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
1. Indicated Pure Premium	4.860	3.086	7.95
2. Pure Premium Indicated by National Relativity	3.403	2.801	6.20
3. Pure Premium Present on Rate Level	3.732	3.287	7.02
4. State Credibilities	6%	8%	xxx
5. National Credibilities	20%	22%	xxx
6. Residual Credibilities = 100% - (4) - (5)	74%	70%	xxx
7. Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	3.734	3.164	6.90
8. Test Correction Factor	1.0000	1.0000	xxx
9. Underlying Pure Premiums = (7) x (8) *	3.736	3.164	6.90
10. Ratio of Manual to Standard Premium			1.215
11. Loss Cost = (9) x (10)			8.38
12. Loss Cost Within Swing Limits			8.38
Current Loss Cost x Swing Limits			
a) Lower bound = 7.96 x 0.800 = 6.37			
b) Upper bound = 7.96 x 1.200 = 9.55			
13. Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	3.736	3.164	6.90
14. Disease, Catastrophe and/or Miscellaneous Loadings			0.00
15. Final Loaded Loss Cost			8.38

\* Indemnity pure premium is adjusted for the rounded total pure premium:  
 Indemnity Pure Premium = Total Pure Premium - Medical Pure Premium



**MISSOURI  
APPENDIX B-V**

**Derivation of Proposed Traumatic Loss Cost - Code 1016**

As previously explained in Appendix B-I, the indicated pure premiums are developed by adjusting the limited losses by a set of conversion factors. The converted losses are then summarized into indemnity and medical and then divided by payroll (in hundreds). The derivation of the indicated pure premium for classification 1016 follows:

**LIMITED LOSSES (Workers Compensation Statistical Plan)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
07/01/11 - 06/30/12	0	0	0	0	0	0	0	0	0
07/01/12 - 06/30/13	0	0	0	0	0	0	0	0	0
07/01/13 - 06/30/14	0	0	0	0	0	0	0	0	0
07/01/14 - 06/30/15	0	0	0	0	0	5,000	0	9,000	0
07/01/15 - 06/30/16	0	0	0	0	0	0	0	0	0

**PRIMARY PARTIAL CONVERSION FACTORS (Appendix B-I, Section A-1)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
07/01/11 - 06/30/12	0.963	0.877	0.963	1.011	0.920	0.963	0.877	0.972	0.900
07/01/12 - 06/30/13	1.038	0.903	1.038	1.080	0.939	1.038	0.903	0.990	0.912
07/01/13 - 06/30/14	1.133	0.935	1.133	1.171	0.966	1.133	0.935	1.014	0.925
07/01/14 - 06/30/15	1.321	1.008	1.321	1.356	1.035	1.321	1.008	1.057	0.940
07/01/15 - 06/30/16	1.696	1.136	1.696	1.725	1.155	1.696	1.136	1.159	0.962

**EXPECTED EXCESS PROVISION AND REDISTRIBUTION (Appendix B-I, Section A-2)**

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of a hazard group-specific excess loss factor. The factor is shown below:

	<b>HAZARD GROUP: G</b>
Excess Factor	1.312

As the excess loss factor is on a combined (indemnity and medical) basis, the following portion of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses:

Redistribution %	40%
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**MISSOURI**  
**APPENDIX B-V**

**Derivation of Proposed Traumatic Loss Cost - Code 1016**

**EXPECTED UNLIMITED LOSSES (Limited Losses x Primary Conversion Factors, then adjusted for the Excess Provision and Redistribution)**

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
07/01/11 - 06/30/12	0	0	0	0	0	0	0	0	0
07/01/12 - 06/30/13	0	0	0	0	0	0	0	0	0
07/01/13 - 06/30/14	0	0	0	0	0	0	0	0	0
07/01/14 - 06/30/15	0	0	0	0	0	7,843	0	13,309	0
07/01/15 - 06/30/16	0	0	0	0	0	0	0	0	0

**SECONDARY PARTIAL CONVERSION FACTOR (Loss-based expense, if applicable)**

	Indemnity	Medical
Loss Based Expense	1.188	1.188

**PAYROLL, FINAL CONVERTED LOSSES (Expected Unlimited Losses x Loss-Based Expenses, if applicable)**

Policy Period	Payroll	Indemnity Likely	Indemnity Not-Likely	Medical Likely	Medical Not-Likely	Total Indemnity	Total Medical	Total
07/01/11 - 06/30/12	0	0	0	0	0	0	0	0
07/01/12 - 06/30/13	0	0	0	0	0	0	0	0
07/01/13 - 06/30/14	0	0	0	0	0	0	0	0
07/01/14 - 06/30/15	10,773	9,317	0	15,811	0	9,317	15,811	25,129
07/01/15 - 06/30/16	0	0	0	0	0	0	0	0
<b>Total</b>	<b>10,773</b>	<b>9,317</b>	<b>0</b>	<b>15,811</b>	<b>0</b>	<b>9,317</b>	<b>15,811</b>	<b>25,129</b>
<b>INDICATED PURE PREMIUM</b>						<b>86.489</b>	<b>146.766</b>	<b>233.26</b>

The present on rate level pure premiums are developed by adjusting the pure premiums underlying the current loss cost by the conversion factors calculated in Appendix B-I. The derivation of the present on rate level pure premiums for the above-captioned classification follows:

	Indemnity	Medical	Total
Pure Premiums Underlying Current Loss Cost	4.354	3.926	8.28
Conversion Factors *	0.991	0.999	xxx
<b>PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)</b>	<b>4.315</b>	<b>3.922</b>	<b>8.24</b>

\* Conversion factors only adjust for changes in trend, benefit, and if applicable, loss-based expense provision.



MISSOURI

APPENDIX B-V

Derivation of Proposed Traumatic Loss Cost - Code 1016  
COAL MINING—NOC, Hazard Group - G

The traumatic loss cost for classification 1016 is derived as follows:

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
1. Indicated Pure Premium	86.489	146.766	233.26
2. Pure Premium Indicated by National Relativity	4.873	4.185	9.06
3. Pure Premium Present on Rate Level	4.315	3.922	8.24
4. State Credibilities†	0%	0%	xxx
5. National Credibilities	50%	50%	xxx
6. Residual Credibilities = 100% - (4) - (5)	50%	50%	xxx
7. Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	4.594	4.054	8.65
8. Voluntary Offset	1.000	1.000	xxx
9. Underlying Pure Premiums = (7) x (8) *	4.596	4.054	8.65
10. Ratio of Manual to Standard Premium			1.071
11. Loss Cost = (9) x (10)			9.26
12. Loss Cost Within Swing Limits			9.26
Current Loss Cost x Swing Limits			
a) Lower bound = 8.83 x 0.80 =	7.07		
b) Upper bound = 8.83 x 1.20 =	10.59		
13. Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	4.596	4.054	8.65
14. Proposed Traumatic Loss Cost			9.26

† To achieve full state credibility, the classification must have expected losses of at least: \$121,041,970 for indemnity, and \$48,914,157 for medical.

\* Indemnity pure premium is adjusted for the rounded total pure premium:

Indemnity Pure Premium = Total Pure Premium - Medical Pure Premium



**MISSOURI**

**APPENDIX B-V**

**Coal Mine Occupational Disease  
Proposed Underground and Surface Loss Costs**

**Part A - State Occupational Disease (OD) Pure Premium\***

1. Estimated Number of Claims per Year	5
2. Estimated Average Cost per Claim	\$50,000
3. Estimated Cost of State Act Disease Claims per Year = (1) x (2)	\$250,000
4. Estimated Coal Miner Payroll	\$732,651,126
5. State OD Pure Premium per \$100 of Payroll = (3) / (4) x 100	0.03

**Part B - Federal Occupational Disease (OD) Pure Premium\*\***

6. Estimated Entitlements for Claims Filed by Living Miners	25
7. Average Cost per Case for Living Miners	\$435,108
8. Cost of Claims Filed by Living Miners = (6) x (7)	\$10,877,700
9. Estimated Entitlements for Claims Filed by Living Widows	3
10. Average Cost per Case for Living Widows	\$263,481
11. Cost of Claims Filed by Living Widows = (9) x (10)	\$790,443
12. Total Cost of Federal Claims (8) + (11)	\$11,668,143
13. Estimated Coal Miner Payroll	\$994,984,355
14. Federal OD Pure Premium per \$100 of Payroll = (12) / (13) x 100	1.17

**Part C - Split Total Occupational Disease (OD) Pure Premium by Class Code**

15. Code 1016 OD Costs Relative to Code 1005 Costs	3.000
16. Distribution of Coal Mining Payroll**	
a) 1005 Payroll as % of Total Coal Mining Payroll	42.5%
b) 1016 Payroll as % of Total Coal Mining Payroll	57.5%
17. Proposed State OD Pure Premiums	
a) 1005 State OD Pure Premium = (5) / [(16a) + (16b) x (15)]	0.01
b) 1016 State OD Pure Premium = (17a) x (15)	0.03
18. Proposed Federal OD Pure Premiums	
a) 1005 Federal OD Pure Premium = (14) / [(16a) + (16b) x (15)]	0.54
b) 1016 Federal OD Pure Premium = (18a) x (15)	1.62
19. Loss-Based Expense Provision	1.188
20. Proposed State OD Loss Cost	
a) 1005 State OD Loss Cost = (17a) x (19)	0.01
b) 1016 State OD Loss Cost = (17b) x (19)	0.04
21. Proposed Federal OD Loss Cost	
a) 1005 Federal OD Loss Cost = (18a) x (19)	0.64
b) 1016 Federal OD Loss Cost = (18b) x (19)	1.92

\* Based on a review of data for all NCCI states excluding IL, KY, VA, and WV

\*\* Based on a review of data for all NCCI states excluding KY, VA, and WV



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Appendix C – Memoranda for Laws and Assessments

Appendix C provides details on changes affecting workers compensation benefit costs that are not yet reflected in the on-level factors shown in Appendix A-I. Such changes may result from annual updates in the state average weekly wage, medical reimbursement levels, or other recurring changes that directly affect worker compensation benefit levels. In addition, changes to the administration of the workers compensation system, including benefit levels, may result from specific regulatory, legislative, or judicial action. The overall effect of benefit changes displayed in Appendix C is calculated as of the benefit effective date, which may differ from the overall impact on the filing as shown in the Executive Summary.

The following changes affecting Missouri benefit levels are detailed in this section of the filing:

- Impact of the Change in the Missouri Average Weekly Wage, Effective July 1, 2018
- Longshore and Harbor Workers' Compensation Act
  - Change in the Minimum and Maximum Weekly Benefits, Effective October 1, 2017
  - Annual Assessment



# MISSOURI

## APPENDIX C-I

### Change in the Minimum and Maximum Weekly Benefits, Effective July 1, 2018

In Missouri, maximum and, for certain benefit types, minimum workers compensation indemnity benefit provisions are dependent upon the state average weekly wage (SAWW). The impacts summarized in the table below result from anticipated changes in workers compensation costs due to the change in the SAWW from \$879.06 ("current") to \$902.51 ("revised"), and apply to injuries occurring on or after July 1, 2018.

The approach used in calculating the effects of a change in the SAWW is as follows:

1. Obtain the latest available SAWW from the Division of Workers' Compensation.
2. Calculate the minimum and maximum benefits by benefit payment type that are dependent upon and expressed as a percentage of the current and revised SAWW.
3. Using a countrywide distribution of workers and their wages<sup>1</sup>, indexed to the Missouri average weekly wage<sup>2</sup>, determine expected current and revised average weekly benefits by benefit payment type (and dependency type, as appropriate)<sup>3</sup>.
4. Use the above-calculated average weekly benefits to determine the indemnity benefit costs for each injury type (Fatal, Permanent Total, Permanent Partial, and Temporary Total)<sup>4</sup> prior to and subsequent to the change in the SAWW. Calculate the ratio of the revised indemnity benefit costs to current indemnity benefit costs for each injury type to determine the impact by injury type from the change in the SAWW.
5. Determine the indemnity cost distribution by injury type<sup>5</sup>.
6. Using the indemnity cost distribution (Step 5) and the effects by injury type (Step 4), calculate the effect of the change in SAWW on total indemnity benefit costs.
7. Multiply the impact on total indemnity benefit costs (Step 6) by the percentage of losses attributed to indemnity benefits<sup>6</sup> to determine the impact of the change in the SAWW on overall benefit costs.

Type of Injury	Percentage of Losses	Effect (%)
Fatal	2.9%	+ 0.3
Permanent Total	3.2%	+ 0.3
Permanent Partial	26.7%	+ 1.2
Temporary Total	9.3%	+ 0.3
Total Indemnity	42.1%	+ 0.9
Medical	57.9%	0.0
Total	100.0%	+ 0.4

<sup>1</sup> Based on NCCI Detailed Claim Information data.

<sup>2</sup> Forecasted using the Bureau of Labor Statistics Quarterly Census of Employment and Wages, for all private sector employment, and adjusted to reflect injured workers.

<sup>3</sup> For states where the rate of compensation is based on spendable wages, state and federal tax withholding tables are used in conjunction with pertinent assumptions (e.g., number of dependents).

<sup>4</sup> Various distributions based on internal and external data are employed in determining the impact by type of injury. For example, for Fatal injuries, a countrywide distribution of average ages and dependents by type (e.g., spouse, spouse with one child, parent, etc.) is used in calculating mortality-adjusted annuity values under both the current and revised weekly maximum benefits, with the likelihood of remarriage incorporated as applicable.

<sup>5</sup> NCCI Unit Statistical Plan data for the 24-month policy period ending 06/30/2015 on the 07/01/2017 law level and developed to an ultimate basis by type of injury.

<sup>6</sup> NCCI Financial Call data for Missouri for Policy Years 2015 and 2016 projected to 07/01/2018.





## MISSOURI

### APPENDIX C-II

#### Longshore and Harbor Workers' Compensation Act

#### Change in the Minimum and Maximum Weekly Benefits, Effective October 1, 2017

In the Longshore And Harbor Workers' Compensation Act , maximum and, for certain benefit types, minimum workers compensation indemnity benefit provisions are dependent upon the national average weekly wage (NAWW). The impacts summarized in the table below result from anticipated changes in workers compensation costs due to the change in the NAWW from \$718.24 ("current") to \$735.89 ("revised"), and apply to injuries occurring on or after October 1, 2017.

The approach used in calculating the effects of a change in the NAWW is as follows:

1. Obtain the latest available NAWW from the United States Department of Labor, Division of Longshore and Harbor Workers' Compensation (DLHWC).
2. Calculate the minimum and maximum benefits by benefit payment type that are dependent upon and expressed as a percentage of the current and revised NAWW.
3. Using a countrywide distribution of workers and their wages<sup>1</sup>, indexed to the Longshore And Harbor Workers' Compensation Act average weekly wage<sup>2</sup>, determine expected current and revised average weekly benefits by benefit payment type (and dependency type, as appropriate)<sup>3</sup>.
4. Use the above-calculated average weekly benefits to determine the indemnity benefit costs for each injury type (Fatal, Permanent Total, Permanent Partial, and Temporary Total)<sup>4</sup> prior to and subsequent to the change in the NAWW. Calculate the ratio of the revised indemnity benefit costs to current indemnity benefit costs for each injury type to determine the impact by injury type from the change in the NAWW.
5. Determine the indemnity cost distribution by injury type<sup>5</sup>.
6. Using the indemnity cost distribution (Step 5) and the effects by injury type (Step 4), calculate the effect of the change in NAWW on total indemnity benefit costs.
7. Multiply the impact on total indemnity benefit costs (Step 6) by the percentage of losses attributed to indemnity benefits to determine the impact of the change in the NAWW on overall benefit costs.

Type of Injury	Percentage of Losses	Effect (%)
Fatal	2.2%	+ 0.5
Permanent Total	5.9%	+ 0.4
Permanent Partial	41.9%	+ 0.2
Temporary Total	7.6%	+ 0.4
Total Indemnity	57.6%	+ 0.3
Medical	42.4%	0.0
Total	100.0%	+ 0.2

<sup>1</sup> Based on NCCI Detailed Claim Information data.

<sup>2</sup> Bureau of Labor Statistics Quarterly Census of Employment and Wages, for all private sector employment, and adjusted to reflect injured workers.

<sup>3</sup> For states where the rate of compensation is based on spendable wages, state and federal tax withholding tables are used in conjunction with pertinent assumptions (e.g., number of dependents).

<sup>4</sup> Various distributions based on internal and external data are employed in determining the impact by type of injury. For example, for Fatal injuries, a countrywide distribution of average ages and dependents by type (e.g., spouse, spouse with one child, parent, etc.) is used in calculating mortality-adjusted annuity values under both the current and revised weekly maximum benefits, with the likelihood of remarriage incorporated as applicable.

<sup>5</sup> NCCI Unit Statistical Plan data for the 36-month policy period ending 12/31/2014 on the 10/01/2016 law level and developed to an ultimate basis by type of injury.



## MISSOURI

### APPENDIX C-III

#### U.S. Longshore and Harbor Workers' Compensation Act Assessment

The F-class and Program II, Option II maritime class voluntary loss costs include the following provision for the federal assessment:

1.) Estimated Total Expense Needed for 2018 *	107,000,000
2.) Compensation Payments Reported (on indemnity only) in 2017 *	948,926,168
3.) Assessment Rate on Indemnity Losses (1) / (2)	11.3%

#### Breakdown of Losses Under the Longshore and Harbor Workers Act

4.) Indemnity Losses (Combination of 1st through 3rd reports) #	44,388,071
5.) Medical Losses (Combination of 1st through 3rd reports) #	32,733,507
6.) Total Losses (4) + (5)	77,121,578
7.) Assessment Rate on Total Losses { (3) x (4) } / (6)	6.5%

\* Source: U.S. Department of Labor

# Source: On-leveled and developed USL&HW losses - statistical plan data



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Part 4 Additional Information

- Definitions
- NCCI Affiliate List
- Key Contacts



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Definitions

**Accident Year (AY):** A loss accounting definition in which experience is summarized by the calendar year in which an accident occurred.

**Calendar Year (CY):**

1. The 12-month period beginning January 1 and ending December 31.
2. Method of accounting for all financial transactions occurring during a specific year.

**Case Reserves:** Reserves that an insurance company establishes for specific (known) claims.

**DSR Level Premium:** The standard earned premium that would result if business were written at NCCI state-approved loss costs or rates instead of at the company rates. It is the common benchmark level at which carriers report premium on the Financial Calls.

**Frequency:** The number of lost-time claims per million dollars of on-leveled, wage-adjusted premium.

**Incurred Claim Count:** The total of all claims reported, whether open or closed, as of a given valuation date. An indemnity claim is associated with a payment or case reserve for an indemnity loss (i.e., lost work time-related benefits) and excludes claims closed without an indemnity payment.

**Lost-time Claims:** Claims where an injured employee has received wage replacement benefits due to a compensable workplace injury.

**Limited Losses:** Losses that result after the application of NCCI's large loss procedure—in which individual large claims are limited to jurisdiction and year-specific large loss thresholds.

**On-Level Factor:** Applied to historical premiums and losses to adjust the historical experience to reflect approved loss cost/rate level changes as well as statutory benefit level changes implemented since that time.

**Paid+Case Losses:** The sum of paid losses and case reserves. Also known as “case incurred losses.”

**Paid Losses:** Losses that an insurance company has paid as a result of claim activity.

**Policy Year:**

- The one-year period beginning with the effective date or anniversary of a policy.
- A premium and loss accounting definition in which experience is summarized for all policies with effective dates in a given calendar year period.

**Severity:** The average cost per case (claim) calculated as ultimate losses divided by ultimate lost-time claim counts.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Definitions

**Ultimate Development Factor:** For an aggregation of data, an estimate of the development that will occur between the data's current valuation date and the time when all claims are closed.

**Unlimited Losses:** Losses that have not been limited to jurisdiction and year-specific large loss thresholds as part of NCCI's large loss procedure.

**Valuation Date:** The date that premiums and losses are evaluated for reporting purposes. Premiums and losses may change over time from initial estimates to final values. Therefore, interim snapshots have associated valuation dates.

**Wage Level Adjustment Factor:** The ratio of the average workers' wages during the most recent time period to the average workers' wages during a historical time period.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### NCCI Affiliate List

7710 INSURANCE COMPANY  
A M C O INSURANCE COMPANY  
ACADIA INSURANCE COMPANY  
ACCIDENT FUND GENERAL INS CO  
ACCIDENT FUND INS CO OF AMERICA  
ACCIDENT FUND NATIONAL INS CO  
ACCIDENT INSURANCE COMPANY INC  
ACE AMERICAN INSURANCE COMPANY  
ACE FIRE UNDERWRITERS INSURANCE COMPANY  
ACE PROPERTY & CASUALTY INSURANCE COMPANY  
ACIG INS CO  
ACUITY A MUTUAL INS COMPANY  
ADDISON INSURANCE COMPANY  
ADVANTAGE WC INSURANCE CO  
AIG ASSURANCE COMPANY  
AIG PROPERTY CASUALTY COMPANY  
AIU INSURANCE CO (NATIONAL UNION FIRE OF PITTS PA)  
AK NATIONAL INS CO  
ALLIED EASTERN IND CO  
ALLIED INSURANCE COMPANY OF AMERICA  
ALLIED PROPERTY AND CASUALTY INS CO  
ALLMERICA FINANCIAL ALLIANCE INS CO  
ALLMERICA FINANCIAL BENEFIT INS CO  
AMERICAN ALTERNATIVE INSURANCE CORPORATION  
AMERICAN AUTOMOBILE INSURANCE CO  
AMERICAN BUSINESS AND MERCANTILE INS MUTUAL INC  
AMERICAN CASUALTY COMPANY OF READING P A  
AMERICAN COMPENSATION INS CO  
AMERICAN ECONOMY INS CO  
AMERICAN FAMILY HOME INS CO  
AMERICAN FAMILY INS CO  
AMERICAN FAMILY MUTUAL INSURANCE COMPANY, S.I.  
AMERICAN FIRE AND CASUALTY CO  
AMERICAN GUARANTEE AND LIABILITY INS CO  
AMERICAN HOME ASSUR CO-NATIONAL UNION FIRE OF PIT  
AMERICAN INS CO  
AMERICAN INTERSTATE INS CO  
AMERICAN MINING INS CO  
AMERICAN MODERN HOME INS CO  
AMERICAN NATIONAL PROPERTY AND CASUALTY CO  
AMERICAN SELECT INS CO  
AMERICAN STATES INS CO A SAFECO COMPANY  
AMERICAN ZURICH INS CO  
AMERISURE INS CO  
AMERISURE MUTUAL INS CO  
AMERISURE PARTNERS INS CO  
AMERITRUST INS CORP  
AMGUARD INS CO  
AMTRUST INSURANCE CO OF KS INC  
ARCH INDEMNITY INSURANCE COMPANY  
ARCH INSURANCE COMPANY  
ARGONAUT GREAT CENTRAL INS CO  
ARGONAUT INS CO  
ARGONAUT MIDWEST INS CO  
ASSOCIATED INDEMNITY CORP  
ASSOCIATION CASUALTY INS CO  
ATLANTA INTERNATIONAL INS CO  
ATLANTIC SPECIALTY INS CO (ONEBEACON)  
AUSTIN MUTUAL INSURANCE COMPANY  
AUTO OWNERS INS CO  
BANKERS STANDARD INS CO  
BEARING MIDWEST CASUALTY COMPANY  
BENCHMARK INSURANCE COMPANY  
BERKLEY INSURANCE COMPANY  
BERKLEY NATIONAL INSURANCE COMPANY  
BERKLEY REGIONAL INS CO  
BERKSHIRE HATHAWAY DIRECT INSURANCE COMPANY  
BERKSHIRE HATHAWAY HOMESTATE INS CO  
BITCO GENERAL INSURANCE CORPORATION  
BITCO NATIONAL INSURANCE COMPANY  
BLACKBOARD INSURANCE COMPANY  
BLOOMINGTON COMPENSATION INS CO  
BRICKSTREET MUTUAL INS CO  
BROTHERHOOD MUTUAL INS CO  
CALIFORNIA INSURANCE COMPANY  
CAROLINA CASUALTY INS CO  
CHARTER OAK FIRE INS CO  
CHEROKEE INS CO  
CHIRON INSURANCE COMPANY  
CHUBB INDEMNITY INS CO  
CHUBB NATIONAL INS CO  
CHURCH MUTUAL INS CO  
CIMARRON INSURANCE COMPANY INC  
CINCINNATI CASUALTY COMPANY  
CINCINNATI INDEMNITY COMPANY  
CINCINNATI INS CO  
CITIZENS INS CO OF AMERICA  
CLEAR SPRING PROPERTY AND CASUALTY COMPANY  
COLONIAL AMERICAN CASUALTY & SURETY CO  
COLUMBIA MUTUAL INSURANCE CO  
COLUMBIA NATIONAL INS CO  
COMMERCE AND INDUSTRY INS CO  
COMMERCIAL CASUALTY INS CO  
CONSOLIDATED INS CO  
CONTINENTAL CASUALTY CO  
CONTINENTAL INDEMNITY CO  
CONTINENTAL INS CO  
CONTINENTAL WESTERN INSURANCE COMPANY  
CRESTBROOK INS CO  
CRUM AND FORSTER INDEMNITY CO  
DAKOTA TRUCK UNDERWRITERS  
DEPOSITORS INS CO  
DIAMOND INS CO  
DISCOVER PROPERTY & CASUALTY INS CO  
EASTERN ADVANTAGE ASSURANCE COMPANY  
EASTERN ALLIANCE INSURANCE COMPANY  
EASTGUARD INS CO  
ELECTRIC INS CO  
EMC PROPERTY & CASUALTY COMPANY  
EMCASCO INS CO  
EMPLOYERS ASSURANCE COMPANY  
EMPLOYERS COMPENSATION INS CO  
EMPLOYERS INS CO OF WAUSAU  
EMPLOYERS MUTUAL CASUALTY CO  
EMPLOYERS PREFERRED INS CO  
ENDURANCE AMERICAN INS CO  
ENDURANCE ASSURANCE CORPORATION  
EVEREST DENALI INSURANCE COMPANY  
EVEREST NATIONAL INS CO  
EVEREST PREMIER INSURANCE COMPANY



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### NCCI Affiliate List

EVEREST REINSURANCE CO DIRECT  
EXACT PROPERTY AND CASUALTY CO INC  
EXECUTIVE RISK INDEMNITY INC  
EXPLORER INS CO  
FALLS LAKE NATIONAL INSURANCE CO  
FARMERS INSURANCE EXCHANGE  
FARMINGTON CASUALTY COMPANY  
FARMLAND MUTUAL INSURANCE COMPANY  
FCCI INSURANCE COMPANY  
FEDERAL INSURANCE COMPANY  
FEDERATED MUTUAL INS CO  
FEDERATED RESERVE INSURANCE CO  
FEDERATED RURAL ELECTRIC INS EXCHANGE  
FEDERATED SERVICE INS CO  
FIDELITY & DEPOSIT COMPANY OF MARYLAND  
FIDELITY & GUARANTY INS UNDERWRITERS  
FIDELITY & GUARANTY INSURANCE CO  
FIRE INS EXCHANGE  
FIREMANS FUND INSURANCE CO  
FIREMENS INS CO OF WASHINGTON DC  
FIRST DAKOTA INDEMNITY CO  
FIRST LIBERTY INS CORP  
FIRST NATIONAL INS CO OF AMERICA  
FIRST NONPROFIT INS CO  
FIRSTCOMP INSURANCE CO  
FLORISTS MUTUAL INSURANCE CO  
FOREMOST INS CO GRAND RAPIDS MICHIGAN  
FOREMOST PROPERTY & CAS INS  
FOREMOST SIGNATURE INS CO  
FRANK WINSTON CRUM INSURANCE CO  
FUEL MARKETERS INSURANCE TRUST  
GENERAL CASUALTY COMPANY OF WISCONSIN  
GENERAL CASUALTY INSURANCE COMPANY  
GENERAL INS CO OF AMERICA  
GENESIS INS CO  
GRANITE STATE INSURANCE COMPANY  
GRAY INSURANCE COMPANY  
GREAT AMERICAN ALLIANCE INS CO  
GREAT AMERICAN ASSURANCE COMPANY  
GREAT AMERICAN INS CO OF NY  
GREAT AMERICAN INSURANCE COMPANY  
GREAT AMERICAN SPIRIT INS CO  
GREAT DIVIDE INSURANCE COMPANY  
GREAT MIDWEST INS CO  
GREAT NORTHERN INS CO  
GREAT WEST CASUALTY COMPANY  
GREENWICH INS CO  
GRINNELL MUTUAL REINSURANCE CO  
GUARANTEE INS CO  
GUIDEONE ELITE INS CO  
GUIDEONE MUTUAL INS CO  
HANOVER AMERICAN INS CO  
HANOVER INS CO  
HARLEYSVILLE INSURANCE COMPANY  
HARTFORD ACCIDENT AND INDEMNITY CO  
HARTFORD CASUALTY INS CO  
HARTFORD FIRE INSURANCE CO  
HARTFORD INS CO OF IL  
HARTFORD INS CO OF MIDWEST  
HARTFORD INS CO OF THE SOUTHEAST  
HARTFORD UNDERWRITERS INS CO  
HAWKEYE-SECURITY INS CO  
HDI GLOBAL INSURANCE COMPANY  
HOME OWNERS INS CO  
HORIZON MIDWEST CASUALTY COMPANY  
ILLINOIS CASUALTY COMPANY  
ILLINOIS NATIONAL INSURANCE COMPANY  
IMPERIUM INSURANCE COMPANY  
INDEMNITY INS CO OF N AMERICA (INA INS) (CT GEN)  
INS CO OF NORTH AMERICA  
INS CO OF THE STATE PA  
INS CO OF THE WEST  
INTREPID INSURANCE COMPANY  
LIBERTY INS CORP  
LIBERTY INSURANCE UNDERWRITERS INC  
LIBERTY MUTUAL FIRE INS CO  
LIBERTY MUTUAL INS CO  
LM INS CORP  
MA BAY INS CO  
MAG MUTUAL INS CO  
MANUFACTURERS ALLIANCE INS CO  
MARKEL AMERICAN INSURANCE CO  
MARKEL INSURANCE CO  
MCDONALDS OPERATORS RISK MGMT ASSOC OF MO  
MEMIC INDEMNITY CO  
MERIDIAN SECURITY INSURANCE COMPANY  
MID CENTURY INS CO  
MIDDLESEX INS CO  
MIDSOUTH MUTUAL INSURANCE COMPANY  
MIDVALE INDEMNITY COMPANY  
MIDWEST BUILDERS CASUALTY MUTUAL COMPANY  
MIDWEST EMPLOYERS CASUALTY CO  
MIDWEST FAMILY MUTUAL INS CO  
MIDWEST INS CO  
MIDWESTERN INDEMNITY CO  
MILBANK INSURANCE COMPANY  
MILFORD CASUALTY INSURANCE CO  
MITSUI SUMITOMO INS CO OF AMERICA  
MITSUI SUMITOMO INS USA INC  
MO EMPLOYERS MUTUAL INS CO  
MO RURAL SERVICES WC INS TRUST  
MO WOOD INDUSTRY INS TRUST  
MONROE GUARANTY INS CO  
NATIONAL AMERICAN INS CO  
NATIONAL CASUALTY CO  
NATIONAL FIRE INS CO OF HARTFORD  
NATIONAL INTERSTATE INS CO  
NATIONAL LIABILITY & FIRE INSURANCE CO  
NATIONAL SURETY CORP  
NATIONAL TRUST INS CO  
NATIONAL UNION FIRE INS CO OF PITTSBURGH PA  
NATIONWIDE AGRIBUSINESS INS CO  
NATIONWIDE ASSURANCE CO  
NATIONWIDE GENERAL INSURANCE CO  
NATIONWIDE INS CO OF AMERICA  
NATIONWIDE MUTUAL FIRE INS CO  
NATIONWIDE MUTUAL INS CO  
NATIONWIDE PROPERTY AND CASUALTY INS CO  
NETHERLANDS INSURANCE COMPANY  
NEW HAMPSHIRE INSURANCE COMPANY



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### NCCI Affiliate List

NEW YORK MARINE AND GENERAL INSURANCE CO  
NORGUARD INS CO  
NORTH AMERICAN ELITE INSURANCE CO  
NORTH AMERICAN SPECIALTY INS CO  
NORTH POINTE INS CO  
NORTH RIVER INS CO  
NORTHSTONE INSURANCE COMPANY  
NOVA CASUALTY COMPANY  
OAK RIVER INSURANCE COMPANY  
OBI AMERICA INSURANCE COMPANY  
OBI NATIONAL INSURANCE COMPANY  
OH CASUALTY INS CO  
OH FARMERS INS CO  
OHIO SECURITY INS CO  
OLD REPUBLIC GENERAL INSURANCE CORPORATION  
OLD REPUBLIC INS CO  
OWNERS INSURANCE COMPANY  
PA MANUFACTURERS ASSN INS CO  
PA MANUFACTURERS INDEMNITY CO  
PA NATIONAL MUTUAL CAS INS CO  
PACIFIC EMPLOYERS INS CO  
PACIFIC INDEMNITY CO  
PATRONS MUTUAL INS CO OF CT  
PEERLESS INDEMNITY INS CO  
PEERLESS INSURANCE COMPANY  
PENN MILLERS INS CO  
PENNSYLVANIA INSURANCE COMPANY  
PETROLEUM CASUALTY CO  
PHARMACISTS MUTUAL INS CO  
PHOENIX INS CO  
PINNACLEPOINT INSURANCE COMPANY  
PLAZA INSURANCE CO  
PRAETORIAN INSURANCE COMPANY  
PREFERRED PROFESSIONAL INSURANCE COMPANY  
PREMIER GROUP INS CO  
PRIVILEGE UNDERWRITERS RECIPROCAL EXCHANGE  
PROPERTY AND CASUALTY INS CO OF HARTFORD  
PROTECTIVE INS CO  
PUBLIC SERVICE INSURANCE COMPANY  
QBE INSURANCE CORPORATION  
REDWOOD FIRE & CASUALTY INS CO  
REGENT INSURANCE COMPANY  
REPUBLIC INDEMNITY CO OF CA  
REPUBLIC INDEMNITY COMPANY OF AMERICA  
RIVERPORT INSURANCE COMPANY  
RLI INSURANCE COMPANY  
ROCKWOOD CASUALTY INS CO  
RURAL TRUST INSURANCE COMPANY  
SAFECO INS CO OF AMERICA  
SAFETY FIRST INS CO  
SAFETY NATIONAL CASUALTY CORP  
SAGAMORE INSURANCE CO  
SAMSUNG FIRE AND MARINE INS CO LTD USB  
SAVERS PROPERTY & CASUALTY INS CO  
SCOTTSDALE INDEMNITY CO  
SECURA INSURANCE A MUTUAL CO  
SECURA SUPREME INS CO  
SECURITY NATIONAL INS CO (AMTRUST GROUP)  
SELECT INS CO  
SELECTIVE INS CO OF SC  
SELECTIVE INS CO OF THE SOUTHEAST  
SELECTIVE INSURANCE COMPANY OF AMERICA  
SELECTIVE WAY INS CO  
SENECA INSURANCE CO  
SENTINEL INS CO  
SENTRY CASUALTY CO  
SENTRY INSURANCE A MUTUAL CO  
SENTRY SELECT INSURANCE COMPANY  
SFM MUTUAL INS CO  
SOMPO AMERICA FIRE & MARINE INSURANCE COMPANY  
SOMPO AMERICA INSURANCE COMPANY  
SOUTHERN INS CO  
ST PAUL FIRE AND MARINE INS CO  
ST PAUL GUARDIAN INS CO  
ST PAUL MERCURY INS CO  
ST PAUL PROTECTIVE INS CO  
STANDARD FIRE INSURANCE COMPANY  
STAR INS CO  
STARNET INSURANCE COMPANY  
STARR INDEMNITY AND LIABILITY CO  
STARR SPECIALTY INSURANCE COMPANY  
STARSTONE NATIONAL INSURANCE COMPANY  
STATE AUTO PROPERTY AND CASUALTY INS CO  
STATE AUTOMOBILE MUTUAL INS CO  
STATE FARM FIRE AND CASUALTY CO  
STATE NATIONAL INSURANCE COMPANY  
STONETRUST COMMERCIAL INS CO  
STONEWOOD INSURANCE CO  
STONINGTON INS CO  
SUMMITPOINT INSURANCE COMPANY  
SUNZ INSURANCE COMPANY  
SYNERGY INS CO  
T H E INSURANCE COMPANY  
TECHNOLOGY INSURANCE CO  
THE TRAVELERS CASUALTY COMPANY  
TNUS INSURANCE CO  
TOKIO MARINE AMERICA INSURANCE CO  
TRANS PACIFIC INS CO  
TRANSGUARD INS CO OF AMERICA INC  
TRANSPORTATION INS CO  
TRAVELERS CASUALTY & SURETY CO OF AMERICA  
TRAVELERS CASUALTY AND SURETY CO  
TRAVELERS CASUALTY INS CO OF AMERICA  
TRAVELERS COMMERCIAL CASUALTY CO  
TRAVELERS INDEMNITY CO  
TRAVELERS INDEMNITY CO OF AMERICA  
TRAVELERS INDEMNITY CO OF CT  
TRAVELERS INSURANCE CO  
TRAVELERS PROPERTY CASUALTY CO OF AMERICA  
TRI STATE INSURANCE COMPANY OF MINNESOTA  
TRIANGLE INSURANCE COMPANY INC  
TRIUMPH CASUALTY COMPANY  
TRUCK INSURANCE EXCHANGE  
TRUMBULL INS CO  
TWIN CITY FIRE INS CO  
UNION INS CO OF PROVIDENCE  
UNION INSURANCE COMPANY  
UNITED FIRE AND CASUALTY CO  
UNITED STATES FIDELITY AND GUARANTY CO  
UNITED WI INS CO





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### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### NCCI Affiliate List

US FIRE INS CO  
UTAH BUSINESS INSURANCE COMPANY INC  
UTICA MUTUAL INS CO  
VALLEY FORGE INS CO  
VANLINER INS CO  
VANTAPRO SPECIALTY INS CO  
VIGILANT INS CO  
WASHINGTON INTERNATIONAL INSURANCE COMPANY  
WESCO INSURANCE COMPANY (AMTRUST GROUP)  
WEST AMERICAN INS CO  
WEST BEND MUTUAL INS CO  
WESTCHESTER FIRE INSURANCE COMPANY  
WESTFIELD INS CO  
WESTFIELD NATIONAL INS CO  
WESTPORT INSURANCE CORPORATION  
WILLIAMSBURG NATIONAL INS CO  
WORK FIRST CASUALTY CO  
XL INS CO OF NY INC  
XL INSURANCE AMERICA INC  
XL SPECIALTY INS CO  
ZENITH INS CO  
ZNAT INS CO  
ZURICH AMERICAN INS CO  
ZURICH AMERICAN INS CO OF IL



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2019

#### Key Contacts

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Jim Davis, ACAS, MAAA  
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All NCCI employees can be contacted via e-mail using the following format:

First Name\_Last Name@NCCI.com

State: Missouri

Filing Company: NCCI Inc

TO/Sub-TOI: 16.0 Workers Compensation/16.0004 Standard WC

Product Name: Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019

Project Name/Number: /

### Supporting Document Schedules

<b>Bypassed - Item:</b>	Actuarial Justification
<b>Bypass Reason:</b>	NA
<b>Attachment(s):</b>	
<b>Item Status:</b>	REVIEWED
<b>Status Date:</b>	12/03/2018
<b>Bypassed - Item:</b>	Electronic Rate Submission
<b>Bypass Reason:</b>	NA
<b>Attachment(s):</b>	
<b>Item Status:</b>	REVIEWED
<b>Status Date:</b>	12/03/2018
<b>Bypassed - Item:</b>	Exhibits A & B (20 CSR 500-6.950)(2)
<b>Bypass Reason:</b>	NA
<b>Attachment(s):</b>	
<b>Item Status:</b>	REVIEWED
<b>Status Date:</b>	12/03/2018
<b>Satisfied - Item:</b>	Filing Memorandum
<b>Comments:</b>	
<b>Attachment(s):</b>	MO 1.1.2019 Filing Cover Letter.pdf
<b>Item Status:</b>	REVIEWED
<b>Status Date:</b>	12/03/2018



National Council on  
Compensation Insurance, Inc.

**Carla Townsend**  
State Relations Executive  
Regulatory Division  
(P) 561-893-3819  
(F) 561-893-5779  
Email: [Carla\\_townsend@ncci.com](mailto:Carla_townsend@ncci.com)

August 20, 2018

The Honorable Chlora Lindley-Myers  
Director  
Missouri Department of Insurance,  
Financial Institutions and Professional Registration  
Harry S Truman Bldg, Room 530  
P.O. Box 690  
Jefferson City, Missouri 65102

**Re: Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2019**

Dear Director Lindley-Myers:

In accordance with the applicable statutes and regulations of the state of Missouri, we are filing advisory voluntary loss costs for Missouri to be effective January 1, 2019 for new and renewal policies.

This filing proposes an average overall change of -3.5% in the voluntary loss costs from the January 1, 2018 NCCI Voluntary Loss Costs Including Trend. Enclosed are the NCCI Voluntary Loss Costs Including Trend proposed to be effective January 1, 2019.

Please note the following in connection with this filing:

- As a result of Item B-1397, effective January 1, 2008, a single combined loss cost is still calculated for Class Codes 7710 and 7711 via a payroll-weighted average of the separately indicated loss costs for these two Class Codes.
- As a result of Item B-1435, effective January 1, 2018:
  - Class Codes 1741, 1853, and 1701 are combined to reflect the final year of a two-year transition program, and Class Codes 1741 and 1853 are discontinued.
  - Class Codes 1860, 4282, and 4279 are combined to reflect the final year of a two-year transition program, and Class Codes 1860 and 4282 are discontinued.
  - Class Codes 2791 and 2841 are combined to reflect the final year of a two-year transition program, and Class Code 2791 is discontinued.
  - Class Codes 1655 and 1642 are combined to reflect the second year of a three-year transition program. In the third year of the transition, Class Code 1655 will be discontinued.
  - Class Codes 5067 and 5040 are combined to reflect the second year of a three-year transition program. In the third year of the transition, Class Code 5067 will be discontinued.

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[www.ncci.com](http://www.ncci.com)



- Class Codes 5505 and 5506 are combined to reflect the second year of a three-year transition program. In the third year of the transition, Class Code 5505 will be discontinued.
- As a result of Item B-1436, effective January 1, 2019:
  - Class Codes 8825 and 8826 are combined to reflect the first year of a two-year transition program. In the second year of the transition, Class Code 8825 will be discontinued.
- As a result of Item R-1414, new parameters are shown on the retrospective rating plan manual pages effective January 1, 2019.
- As a result of Item R-1415, the retrospective rating plan parameters were updated.

I hereby certify that I am familiar with the insurance laws, rules and regulations of the State of Missouri, and to the best of my knowledge, information, and belief, this filing complies in all respects to such laws, rules, and regulations. This filing is made on behalf of the members and subscribers of the National Council on Compensation Insurance, Inc., who are now writing or will write workers compensation insurance in Missouri.

This filing is made exclusively on behalf of the companies that have given valid consideration for the express purpose of fulfilling regulatory rate or pure premium filing requirements and other private use of this information.

In the enclosed appendix is a list of companies, which as of the time this filing is submitted, are eligible to reference this information. The inclusion of a company on this list merely indicates that the company, or the group to which it belongs, is affiliated with NCCI in this state, or has licensed this information as a non-affiliate, and is not intended to indicate whether the company is currently writing business or is even licensed to write business in this state.

Please contact me (561-893-3819) if you have any questions or need any further information.

Respectfully submitted,

A handwritten signature in cursive script that reads "Carla Townsend".

Carla Townsend  
State Relations Executive  
Regulatory Division