

**2020**

# **MISSOURI ADVISORY VOLUNTARY LOSS COST FILING**

Effective January 1, 2021

MISSOURI DEPARTMENT OF COMMERCE & INSURANCE



**DCI**

Missouri Department of Commerce & Insurance

**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, 2021  
**Project Name/Number:** /

## Filing at a Glance

**Company:** NCCI Inc  
**Product Name:** Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2021  
**State:** Missouri  
**TOI:** 16.0 Workers Compensation  
**Sub-TOI:** 16.0004 Standard WC  
**Filing Type:** Rate  
**Date Submitted:** 08/17/2020  
**SERFF Tr Num:** NCCI-132488376  
**SERFF Status:** Closed-REVIEWED  
**State Tr Num:** 342  
**State Status:** REVIEWED  
**Co Tr Num:** MISSOURI LC 01012021

**Effective Date** 01/01/2021  
**Requested (New):**  
**Effective Date** 01/01/2021  
**Requested (Renewal):**

**Author(s):** Lesley O'Brien, Frank Gnolfo, Whitney Quailey, Nancy Mattei  
**Reviewer(s):** Patrick Lennon (primary), Julie Lederer  
**Disposition Date:** 11/04/2020  
**Disposition Status:** REVIEWED  
**Effective Date (New):** 01/01/2021  
**Effective Date (Renewal):** 01/01/2021

State Filing Description:

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**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, 2021  
**Project Name/Number:** /

## 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: 11/04/2020  
State Status Changed: 11/04/2020 Deemer Date:  
Created By: Frank Gnolfo Submitted By: Frank Gnolfo  
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, 2021.

## Company and Contact

### Filing Contact Information

Carla Townsend, State Relations Executive carla\_townsend@ncci.com  
901 Peninsula Corporate Circle 561-893-3819 [Phone]  
Boca Raton, FL 33487-1362 561-893-5779 [FAX]

### 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

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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, 2021  
 Project Name/Number: /

## Filing Fees

### State Fees

Fee Required? Yes  
 Fee Amount: \$150.00  
 Retaliatory? No  
 Fee Explanation:  
 Per Company: Yes

Company	Amount	Date Processed	Transaction #
NCCI Inc	\$150.00	08/17/2020 07:45 AM	182670259
<b>EFT Total</b>	<b>\$150.00</b>		

### 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 \$150 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

**State:** Missouri  
**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, 2021  
**Project Name/Number:** /

**Filing Company:** NCCI Inc

## Correspondence Summary

### Dispositions

Status	Created By	Created On	Date Submitted
REVIEWED	Patrick Lennon	11/04/2020	11/04/2020

## Objection Letters and Response Letters

### Objection Letters

Status	Created By	Created On	Date Submitted
PENDING INDUSTRY RESPONSE	Patrick Lennon	10/20/2020	10/20/2020
PENDING INDUSTRY RESPONSE	Patrick Lennon	10/13/2020	10/13/2020
PENDING INDUSTRY RESPONSE	Patrick Lennon	09/28/2020	09/28/2020

### Response Letters

Responded By	Created On	Date Submitted
Frank Gnolfo	10/20/2020	10/20/2020
Frank Gnolfo	10/15/2020	10/15/2020
Frank Gnolfo	10/05/2020	10/05/2020

**State:** Missouri  
**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, 2021  
**Project Name/Number:** /

**Filing Company:** NCCI Inc

## Disposition

Disposition Date: 11/04/2020

Effective Date (New): 01/01/2021

Effective Date (Renewal): 01/01/2021

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 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	1.000%	0.000%	\$0	0	\$0	22.000%	-21.000%

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
Supporting Document	Narrative	REVIEWED	Yes
Supporting Document	Response to Objection	REVIEWED	Yes
Supporting Document	Response to Objection	REVIEWED	Yes
Supporting Document	Response to Objection	REVIEWED	Yes
Rate	New Filing	REVIEWED	Yes

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**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, 2021  
**Project Name/Number:** /

## Objection Letter

Objection Letter Status	PENDING INDUSTRY RESPONSE
Objection Letter Date	10/20/2020
Submitted Date	10/20/2020
Respond By Date	10/27/2020

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Dear Carla Townsend,

**Introduction:**

Thank you for your response to our previous inquiry. Upon review of the information provided, the following concerns remain:

**Objection 1**

Comments: Please explain why the Average Ultimate AOE Ratios provided in the response to the objection dated October 13, 2020 do not equal the AOE ratios in Exhibit II on page 43 of the filing.

**Conclusion:**

Please respond to this letter by the above date. This submission will be held in suspense pending your response. Feel free to contact me at [Patrick.Lennon@insurance.mo.gov](mailto:Patrick.Lennon@insurance.mo.gov) should you have any questions or concerns.

Sincerely,

Patrick Lennon

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**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, 2021  
**Project Name/Number:** /

## Objection Letter

Objection Letter Status	PENDING INDUSTRY RESPONSE
Objection Letter Date	10/13/2020
Submitted Date	10/13/2020
Respond By Date	10/20/2020

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Dear Carla Townsend,

**Introduction:**

Thank you for your response to our previous inquiry. Upon review of the information provided, the following concerns remain:

**Objection 1**

Comments: Exhibit II section B Page 43 of 98: Please provide the underlying data and analysis used to determine the Missouri Selected AOE provision of 9.1%. This would include the data and calculations used to determine the provision for the Missouri state fund that was weighted with countrywide private carrier AOE provision.

**Conclusion:**

Please respond to this letter by the above date. This submission will be held in suspense pending your response. Feel free to contact me at [Patrick.Lennon@insurance.mo.gov](mailto:Patrick.Lennon@insurance.mo.gov) should you have any questions or concerns.

Sincerely,

Patrick Lennon



**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, 2021  
**Project Name/Number:** /

## Objection Letter

Objection Letter Status	PENDING INDUSTRY RESPONSE
Objection Letter Date	09/28/2020
Submitted Date	09/28/2020
Respond By Date	10/05/2020

Dear Carla Townsend,

### **Introduction:**

Thank you for your submission of this filing. Upon review, areas of concern for Missouri insurance regulatory guidelines were found. Please address the following objections and respond by the date above.

### **Objection 1**

*Comments: Have any of the data sources used in determining the Missouri Advisory Loss Costs and Rating Values Filing changed since the previous filing? For example, using data from a different data call to develop expenses.*

### **Objection 2**

*Comments: Please provide the estimated overall impact for each change in methodology from the previous filing.*

### **Objection 3**

*Comments: Page 27 of 98: Please provide the updated calculation for the terrorism advisory lost cost if any of the underlying assumptions and/or data have changed.*

### **Objection 4**

*Comments: Please provide loss development triangles with at least 10 diagonals for both the voluntary and assigned risk markets separated by indemnity, medical, and DCCE for the past 19 years. In the prior year, this was submitted as NCCI response to ATSI Interrogatories for MO 1-1-2020.xlsx. An updated version of this file will suffice for these purposes.*

### **Objection 5**

*Comments: Please explain your reasoning and provide detailed support for using a 2-year average of the paid LDFs in this filing when last year a 3-year average was used.*

### **Objection 6**

*Comments: Please provide an Excel file with the specific calculations used to determine Appendix A-II, Section G, column (6).*

### **Objection 7**

*Comments: Please provide an excel file spreadsheet with the specific calculations that provide the derivation of the 0.859 factor in Appendix A-II, Section H, line 2.*

### **Objection 8**

*Comments: Exhibit II Section B Page 43 of 98:*

- a) Please provide in excel an additional 5 years of Countrywide AOE Ultimate AOE Ratios.
- b) Please provide the underlying data and calculations to bring AOE to an ultimate level including the development factors, AOE, losses, and any other values used to determine the Ultimate AOE ratios.
- c) Please provide the Ultimate AOE Ratios for MO only data.
- d) Please provide your reasoning and support for the selected Countrywide AOE ratio of 8.9% when all other accident years aside from 2019 are below 8.9%.
- e) Please provide the underlying data and calculations for the MO Selected AOE ratio.

### **Objection 9**

**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, 2021  
**Project Name/Number:** /

*Comments: Page 45 of 98: Exhibit II Section E: Please explain the rationale of only using the average of 2 years to select the DCCE loss development factor. Why weren't more years considered or a geometric average?*

**Objection 10**

*Comments: Page 44 of 98: Exhibit II Section C: Please provide an excel file that expands this section to include years 2009 through 2013.*

**Objection 11**

*Comments: Page 44 of 98: Companies that did not report AOE may be including expenses typically considered to be AOE in DCCE expenses, potentially inflating the DCCE provision for the same reasons that this error would reduce the AOE provision. Were companies that did not report AOE excluded from the calculation of the DCCE provision as well? If not, please provide a revised DCCE provision excluding DCCE and losses from companies that did not report AOE.*

**Objection 12**

*Comments: Appendix A-IV Section I Page 62 of 98: Please show the calculations underlying the factors in Col (4) and Col (5).*

**Objection 13**

*Comments: Appendix B-I Section I Page 65 of 98: Please provide underlying data and calculations for how the Likely-to-Develop and Not-Likely-to-Develop columns are calculated.*

**Objection 14**

*Comments: Page 61 of 98 (Appendix A-III). Provide the underlying data, fits, assumptions, calculations, selections and rationale of the selection of the indemnity and medical trend factors. Please include an update of the excel file provided last year entitled Supplemental Loss Development and Trend Information. Please include fifteen years of information including:*  
*Lost-Time claim frequency and severity based on data in excess of wage inflation*  
*Claim counts*  
*Premium*  
*Limited indemnity losses*  
*Limited medical losses*

**Objection 15**

*Comments: Please provide the indication as of 1/1/2021 if all assigned risk experience was excluded. Please provide these calculations in an excel file and include all the underlying components that will change because they are based on only voluntary experience, such as loss development, trend, LAE, etc.*

**Objection 16**

*Comments: Page 72 of 98 (Appendix B-II). Please explain how these impacts are not having a disparate effect on classes with low loss costs. For example, a company with a loss cost of \$0.05 would never decrease for several of the industry groups since the cap from below is less than 20%.*

**Objection 17**

*Comments: Please provide any updates on class ratemaking research, status and results, or stability performance results on tests of the performance of the recently implemented small class ratemaking project intended to address the stability of the small classes.*

**Objection 18**

*Comments: Please provide an Excel file with seven columns of information. The first column should be the class code, the second column should be the exposures by class code, the third column should be the current advisory loss cost, the fourth column should be the proposed advisory loss cost by class code and the last three columns should be the percentage loss cost changes effective 2021, 2020, and 2019 by class code. Include totals in columns 4, 5 and 6 and please exclude discontinued classes.*

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**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, 2021  
**Project Name/Number:** /

**Objection 19**

*Comments: Please confirm that the indication provided in Exhibit I is an indication for the voluntary market but that the data upon which it is based is on combined voluntary and assigned risk plan losses. If not, please explain. Please confirm that although the voluntary indications are based on combined voluntary and assigned risk plan data, that you are not providing loss costs or rates for the assigned risk market.*

**Conclusion:**

*Please respond to this letter by the above date. This submission will be held in suspense pending your response. Feel free to contact me at [Patrick.Lennon@insurance.mo.gov](mailto:Patrick.Lennon@insurance.mo.gov) should you have any questions or concerns.*

*Sincerely,*

*Patrick Lennon*

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, 2021  
Project Name/Number: /

## Response Letter

Response Letter Status Submitted to State  
Response Letter Date 10/20/2020  
Submitted Date 10/20/2020

Dear Patrick Lennon,

**Introduction:**

Hello

**Response 1**

**Comments:**

Response is in supporting doc

**Related Objection 1**

Comments: Please explain why the Average Ultimate AOE Ratios provided in the response to the objection dated October 13, 2020 do not equal the AOE ratios in Exhibit II on page 43 of the filing.

**Changed Items:**

Supporting Document Schedule Item Changes	
Satisfied - Item:	Response to Objection
Comments:	
Attachment(s):	NCCI_Response_to_the_Missouri_DCI_Request_dated_102020.pdf

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Conclusion:**

Thank you

Sincerely,

Frank Gnolfo

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, 2021  
Project Name/Number: /

## Response Letter

Response Letter Status Submitted to State  
Response Letter Date 10/15/2020  
Submitted Date 10/15/2020

Dear Patrick Lennon,

**Introduction:**

Hello

**Response 1**

**Comments:**

Please see response to objection in supporting docs

**Related Objection 1**

Comments: Exhibit II section B Page 43 of 98: Please provide the underlying data and analysis used to determine the Missouri Selected AOE provision of 9.1%. This would include the data and calculations used to determine the provision for the Missouri state fund that was weighted with countrywide private carrier AOE provision.

**Changed Items:**

Supporting Document Schedule Item Changes	
<b>Satisfied - Item:</b>	Response to Objection
<b>Comments:</b>	
<b>Attachment(s):</b>	NCCI_Responses_to_the_Missouri_DCI_Requests_dated_101320.pdf

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Conclusion:**

Thank you

Sincerely,

Frank Gnolfo

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**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, 2021  
**Project Name/Number:** /

## Response Letter

Response Letter Status	Submitted to State
Response Letter Date	10/05/2020
Submitted Date	10/05/2020

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Dear Patrick Lennon,

### **Introduction:**

Hello

### **Response 1**

#### **Comments:**

Response is in supporting doc folder

### **Related Objection 1**

*Comments: Have any of the data sources used in determining the Missouri Advisory Loss Costs and Rating Values Filing changed since the previous filing? For example, using data from a different data call to develop expenses.*

### **Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

### **Response 2**

#### **Comments:**

Response is in supporting doc folder

### **Related Objection 2**

*Comments: Please provide the estimated overall impact for each change in methodology from the previous filing.*

### **Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

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, 2021  
Project Name/Number: /

No Rate/Rule Schedule items changed.

**Response 3**

**Comments:**

Response is in supporting doc folder

**Related Objection 3**

Comments: Page 27 of 98: Please provide the updated calculation for the terrorism advisory lost cost if any of the underlying assumptions and/or data have changed.

**Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 4**

**Comments:**

Response is in supporting doc folder

**Related Objection 4**

Comments: Please provide loss development triangles with at least 10 diagonals for both the voluntary and assigned risk markets separated by indemnity, medical, and DCCE for the past 19 years. In the prior year, this was submitted as NCCI response to ATSI Interrogatories for MO 1-1-2020.xlsx. An updated version of this file will suffice for these purposes.

**Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 5**

**Comments:**

Response is in supporting doc folder

**Related Objection 5**

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**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, 2021  
**Project Name/Number:** /

*Comments: Please explain your reasoning and provide detailed support for using a 2-year average of the paid LDFs in this filing when last year a 3-year average was used.*

**Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*

**Response 6**

**Comments:**

*Response is in supporting doc folder*

**Related Objection 6**

*Comments: Please provide an Excel file with the specific calculations used to determine Appendix A-II, Section G, column (6).*

**Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*

**Response 7**

**Comments:**

*Response is in supporting doc folder*

**Related Objection 7**

*Comments: Please provide an excel file spreadsheet with the specific calculations that provide the derivation of the 0.859 factor in Appendix A-II, Section H, line 2.*

**Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*



**State:** Missouri  
**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, 2021  
**Project Name/Number:** /

**Filing Company:** NCCI Inc

### Response 8

#### Comments:

Response is in supporting doc folder

### Related Objection 8

Comments: Exhibit II Section B Page 43 of 98:

- a) Please provide in excel an additional 5 years of Countrywide AOE Ultimate AOE Ratios.
- b) Please provide the underlying data and calculations to bring AOE to an ultimate level including the development factors, AOE, losses, and any other values used to determine the Ultimate AOE ratios.
- c) Please provide the Ultimate AOE Ratios for MO only data.
- d) Please provide your reasoning and support for the selected Countrywide AOE ratio of 8.9% when all other accident years aside from 2019 are below 8.9%.
- e) Please provide the underlying data and calculations for the MO Selected AOE ratio.

### Changed Items:

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

### Response 9

#### Comments:

Response is in supporting doc folder

### Related Objection 9

Comments: Page 45 of 98: Exhibit II Section E: Please explain the rationale of only using the average of 2 years to select the DCCE loss development factor. Why werent more years considered or a geometric average?

### Changed Items:

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

### Response 10

#### Comments:

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<b>State:</b>	Missouri	<b>Filing Company:</b>	NCCI Inc
<b>TOI/Sub-TOI:</b>	16.0 Workers Compensation/16.0004 Standard WC		
<b>Product Name:</b>	Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2021		
<b>Project Name/Number:</b>	/		

*Response is in supporting doc folder*

#### **Related Objection 10**

*Comments: Page 44 of 98: Exhibit II Section C: Please provide an excel file that expands this section to include years 2009 through 2013.*

#### **Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*

#### **Response 11**

##### **Comments:**

*Response is in supporting doc folder*

#### **Related Objection 11**

*Comments: Page 44 of 98: Companies that did not report AOE may be including expenses typically considered to be AOE in DCCE expenses, potentially inflating the DCCE provision for the same reasons that this error would reduce the AOE provision. Were companies that did not report AOE excluded from the calculation of the DCCE provision as well? If not, please provide a revised DCCE provision excluding DCCE and losses from companies that did not report AOE.*

#### **Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*

#### **Response 12**

##### **Comments:**

*Response is in supporting doc folder*

#### **Related Objection 12**

*Comments: Appendix A-IV Section I Page 62 of 98: Please show the calculations underlying the factors in Col (4) and Col (5).*

#### **Changed Items:**

*No Supporting Documents changed.*

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, 2021  
Project Name/Number: /

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 13**

**Comments:**

Response is in supporting doc folder

**Related Objection 13**

Comments: Appendix B-I Section I Page 65 of 98: Please provide underlying data and calculations for how the Likely-to-Develop and Not-Likely-to-Develop columns are calculated.

**Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 14**

**Comments:**

Response is in supporting doc folder

**Related Objection 14**

Comments: Page 61 of 98 (Appendix A-III). Provide the underlying data, fits, assumptions, calculations, selections and rationale of the selection of the indemnity and medical trend factors. Please include an update of the excel file provided last year entitled Supplemental Loss Development and Trend Information. Please include fifteen years of information including:

Lost-Time claim frequency and severity based on data in excess of wage inflation

Claim counts

Premium

Limited indemnity losses

Limited medical losses

**Changed Items:**

No Supporting Documents changed.

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, 2021  
Project Name/Number: /

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 15**

**Comments:**

Response is in supporting doc folder

**Related Objection 15**

Comments: Please provide the indication as of 1/1/2021 if all assigned risk experience was excluded. Please provide these calculations in an excel file and include all the underlying components that will change because they are based on only voluntary experience, such as loss development, trend, LAE, etc.

**Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 16**

**Comments:**

Response is in supporting doc folder

**Related Objection 16**

Comments: Page 72 of 98 (Appendix B-II). Please explain how these impacts are not having a disparate effect on classes with low loss costs. For example, a company with a loss cost of \$0.05 would never decrease for several of the industry groups since the cap from below is less than 20%.

**Changed Items:**

No Supporting Documents changed.

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Response 17**

**Comments:**

Response is in supporting doc folder

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**State:** Missouri  
**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, 2021  
**Project Name/Number:** /

**Filing Company:** NCCI Inc

### **Related Objection 17**

*Comments: Please provide any updates on class ratemaking research, status and results, or stability performance results on tests of the performance of the recently implemented small class ratemaking project intended to address the stability of the small classes.*

### **Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*

### **Response 18**

#### **Comments:**

*Response is in supporting doc folder*

### **Related Objection 18**

*Comments: Please provide an Excel file with seven columns of information. The first column should be the class code, the second column should be the exposures by class code, the third column should be the current advisory loss cost, the fourth column should be the proposed advisory loss cost by class code and the last three columns should be the percentage loss cost changes effective 2021, 2020, and 2019 by class code. Include totals in columns 4, 5 and 6 and please exclude discontinued classes.*

### **Changed Items:**

*No Supporting Documents changed.*

*No Form Schedule items changed.*

*No Rate/Rule Schedule items changed.*

### **Response 19**

#### **Comments:**

*Response is in supporting doc folder*

### **Related Objection 19**

*Comments: Please confirm that the indication provided in Exhibit I is an indication for the voluntary market but that the data upon which it is based is on combined voluntary and assigned risk plan losses. If not, please explain. Please confirm that although the voluntary indications are based on combined voluntary and assigned risk plan data, that you are not providing loss costs or rates for the assigned risk market.*

### **Changed Items:**

SERFF Tracking #:

NCCI-132488376

State Tracking #:

342

Company Tracking #:

MISSOURI LC 01012021

**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, 2021  
**Project Name/Number:** /

Supporting Document Schedule Item Changes	
<b>Satisfied - Item:</b>	Response to Objection
<b>Comments:</b>	
<b>Attachment(s):</b>	NCCI_Responses_to_the_Missouri_DCI_Requests_dated_092820.pdf NCCI_Responses_to_the_Missouri_DCI_Requests_dated_092820_Attachments.zip

No Form Schedule items changed.

No Rate/Rule Schedule items changed.

**Conclusion:**

TThank you

Sincerely,

Frank Gnolfo

SERFF Tracking #:

NCCI-132488376

State Tracking #:

342

Company Tracking #:

MISSOURI LC 01012021

**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, 2021  
**Project Name/Number:** /

### Rate Information

Rate data applies to filing.

**Filing Method:** SERFF  
**Rate Change Type:** Increase  
**Overall Percentage of Last Rate Revision:** -1.600%  
**Effective Date of Last Rate Revision:** 01/01/2020  
**Filing Method of Last Filing:** SERFF  
**SERFF Tracking Number of Last Filing:** NCCI-132044956

### 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	1.000%	0.000%	\$0	0	\$0	22.000%	-21.000%

SERFF Tracking #:

NCCI-132488376

State Tracking #:

342

Company Tracking #:

MISSOURI LC 01012021

**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, 2021  
**Project Name/Number:** /

## Rate/Rule Schedule

Item No.	Schedule Item Status	Exhibit Name	Rule # or Page #	Rate Action	Previous State Filing Number	Attachments
1	REVIEWED 11/04/2020	New Filing	MO-2019-06	Replacement	112	MO_010121_Filing_Complete.pdf





# Missouri

Advisory Loss Costs and  
Rating Values Filing

Proposed Effective January 1, 2021



**Carla Townsend**  
Regulatory Division  
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Email: [Carla\\_Townsend@ncci.com](mailto:Carla_Townsend@ncci.com)

August 17, 2020

The Honorable Chlora Lindley-Myers  
Director  
Missouri Department of Commerce and Insurance  
Harry S. Truman Building, Room 530  
P.O. Box 690  
Jefferson City, Missouri 65102

**Re: Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2021**

Dear Director Lindley-Myers:

In accordance with the applicable statutes and regulations of the state of Missouri, we are filing advisory voluntary loss costs and rating values to be effective January 1, 2021 for new and renewal policies.

Enclosed are NCCI's Voluntary Loss Costs Including Trend proposed to be effective January 1, 2021. The proposed loss costs represent an overall average change of +1.0% from the current, similar set of loss costs that have been in effect since January 1, 2020.

Please note the following regarding this filing:

- Although considered, since the combined impact and direction of all direct and indirect COVID-19-related forces is unknown, no explicit adjustment has been made in this year's analysis at an overall or individual classification code level.
- 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-1437, effective January 1, 2020:
  - Class Codes 2286 and 2220 are combined to reflect the final year of a two-year transition program, and Class Code 2286 is discontinued.
  - Class Codes 2670 and 2688 are combined to reflect the final year of a two-year transition program, and Class Code 2670 is discontinued.

- As a result of Item B-1439, effective January 1, 2021:
  - Class Codes 2683 and 2501 are combined to reflect the first year of a two-year transition program. In the second year of the transition, Class Code 2683 will be discontinued.
  - Class Codes 3240 and 3257 are combined to reflect the first year of a two-year transition program. In the second year of the transition, Class Code 3240 will be discontinued.
  
- As a result of Item R-1418, the retrospective rating plan parameters were updated.

I hereby certify that I am familiar with Missouri's insurance laws, rules, and regulations, 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 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 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 if you have any questions or need further information.

Sincerely,

National Council on Compensation Insurance, Inc.



Carla Townsend  
State Relations Executive



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## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Actuarial Certification

I, Jay Rosen, am a Practice Leader and Senior Actuary for the National Council on Compensation Insurance, Inc. I am a Fellow 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 black ink that reads "Jay Rosen".

Jay Rosen, FCAS, MAAA  
Practice Leader and Senior Actuary  
Actuarial and Economic Services



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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, 2021. 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.).

Although considered, since the combined impact and direction of all direct and indirect COVID-19-related forces is unknown, no explicit adjustment for the pandemic has been made in this year's analysis at an overall or individual classification code level.

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 12, 2020 were not considered for inclusion in the analysis.

The overall average loss cost level change in this filing is based on premium and loss experience evaluated as of December 31, 2019. Therefore, the data on which this change is based does not reflect potential direct or indirect effects of the COVID-19 pandemic.

Loss cost level changes at the classification code level are based on Unit Statistical Plan Data, which is the audited exposure, premium and loss information reported to NCCI on a policy level. The Unit Statistical Plan Data used in this filing includes policies with expiration dates through



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Disclosures

June 2019. Therefore, the individual classification code experience does not reflect potential direct or indirect effects of the COVID-19 pandemic. In this filing, Unit Statistical Plan Data submissions received after June 24, 2020 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.

This filing was prepared as of July 13, 2020. 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. In this year's filing, data for all carriers writing at least one-tenth of one percent of the Missouri workers compensation written premium volume have been included in the experience period on which this filing is based.

#### 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.

The premium and loss experience on which this filing is based does not reflect potential direct or indirect effects of the COVID-19 pandemic. At this time, the course of the pandemic remains unclear and represents a significant source of uncertainty with respect to estimating workers compensation costs that may exist during the proposed loss cost effective period.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Disclosures

The direct effect of compensable claims resulting from COVID-19 infections may put upward pressure on workers compensation costs, as could certain indirect effects. For example, there is potential for the weakened labor market to lengthen return-to-work times or adverse loss development to occur if the pandemic serves to increase the time to medical treatment for injured workers. However, it is possible that various indirect effects may put downward pressure on workers compensation costs—such as increased telecommuting, decreased exposure to motor vehicle accidents, and an increased focus on worker health and safety. Additional COVID-19-related considerations, such as future economic conditions and their corresponding impact on the labor market, contribute additional uncertainty when estimating future costs.

After considering direct and indirect pandemic-related factors, it is reasonable to believe they will give rise to component changes that may, to some extent, have offsetting impacts on workers compensation system costs. Although considered, since the combined impact and direction of all direct and indirect COVID-19-related forces is unknown, no explicit adjustment for the pandemic has been made in this year's analysis at an overall or individual classification code level.





## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

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

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- 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 – Memorandum for Assessment

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

- Definitions
- NCCI Affiliate List
- Key Contacts



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

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

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



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Overview of Methodology

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 +1.0% to become effective January 1, 2021.

#### Key Components

Experience, Trend and Benefit Change	+0.5%
<u>Change in Loss-Based Expenses</u>	<u>+0.5%</u>
<b>Proposed Overall Average Voluntary Loss Cost Level Change</b>	<b>+1.0%</b>

Here are some key observations:

- The filing is based on premium and loss experience for Policy Years 2017 and 2018. Policy Year 2017’s experience is comparatively more favorable than that for Policy Year 2018.
- Missouri’s lost-time claim frequency has generally declined when viewed over the most recent eight years.
- After adjusting to a common wage level, Missouri’s indemnity average cost per case figures have been relatively more consistent from year-to-year when compared with those for medical.

The proposed average loss cost level changes by industry group are as follows:

<b>Industry Group</b>	<b>Average Change</b>
Manufacturing	+1.4%
Contracting	-1.1%
Office & Clerical	+2.3%
Goods & Services	+1.7%
Miscellaneous	+0.9%



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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, 2021

#### Summary of Selections

The following is a summary of selections underlying the most recent two Missouri voluntary loss cost filings.

<b>Voluntary Loss Costs</b>	<b>Effective January 1, 2020</b>	<b>Effective January 1, 2021</b>
Experience Period	Policy Years 2016 and 2017	Policy Years 2017 and 2018
Premium Development	Three-year average	Three-year average
Basis of Loss Experience	Average of Paid and Paid+Case losses	Average of Paid and Paid+Case losses
Paid Loss Development	Three-year average	Two-year average
Paid+Case Loss Development	Five-year average	Five-year average
Tail Factors	Selected	Selected
Indemnity Annual Loss Ratio Trend Factor	0.980	0.980
Medical Annual Loss Ratio Trend Factor	0.990	0.990
Loss Adjustment Expense Provision	18.7%	19.3%
Base Threshold for Limiting Losses	\$9,720,476	\$9,919,089
Large Loss Excess Ratio	1.1%	1.1%
Classification Swing Limits (applied by Industry Group)	+/-20%	+/-20%



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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 2017 and 2018 evaluated as of December 31, 2019. The most recently available full policy year is 2018 since the last policy had an effective date of December 31, 2018 and did not expire until December 31, 2019. 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 two-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 based on a review of the ten most recently available factors

The ultimate impact that the COVID-19 pandemic will have on Missouri's loss development factors is unknown. Although considered, since the combined impact and direction of all direct and indirect COVID-19-related forces is unknown, no explicit adjustment for the pandemic has been made in this year's analysis.

##### Trend

This filing relies primarily on the experience from Policy Years 2017 and 2018. However, the proposed loss costs are intended for use with policies with effective dates on and after January 1, 2021. 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



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Selections Underlying the Proposed Changes

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.

The COVID-19 pandemic is an extraordinary, unprecedented event. At this time, the overall impact the COVID-19 pandemic may have on trends is indeterminate. It is reasonable to believe COVID-19 will give rise to component changes that may, to some extent, have offsetting impacts on system costs. For example,

- There could be an increase in the number of compensable workers compensation claims arising in occupations with greater potential exposure to the pandemic
- There could be a decrease in workers compensation claims due to the increased number of employees who are teleworking

Short- and long-term COVID-19-related impacts may also differ. For example,

- In the short term, during the COVID-19 pandemic, there may be a reduction in the number of physical therapy sessions attended by injured employees and/or a deferral in the number of workers compensation-related surgeries that are not deemed to be immediately critical
- Over the longer term, an increase in these types of services may be expected as the current burden on medical-related personnel and facilities is lessened
- In economic downturns, workers may forego filing claims for certain injuries to maintain active employment as the economy navigates these uncertain times—leading to temporary downward pressure on claim frequency

Although considered, since the combined impact and direction of all direct and indirect COVID-19-related forces is unknown, no explicit adjustment for the pandemic has been made in this year's trend analysis.



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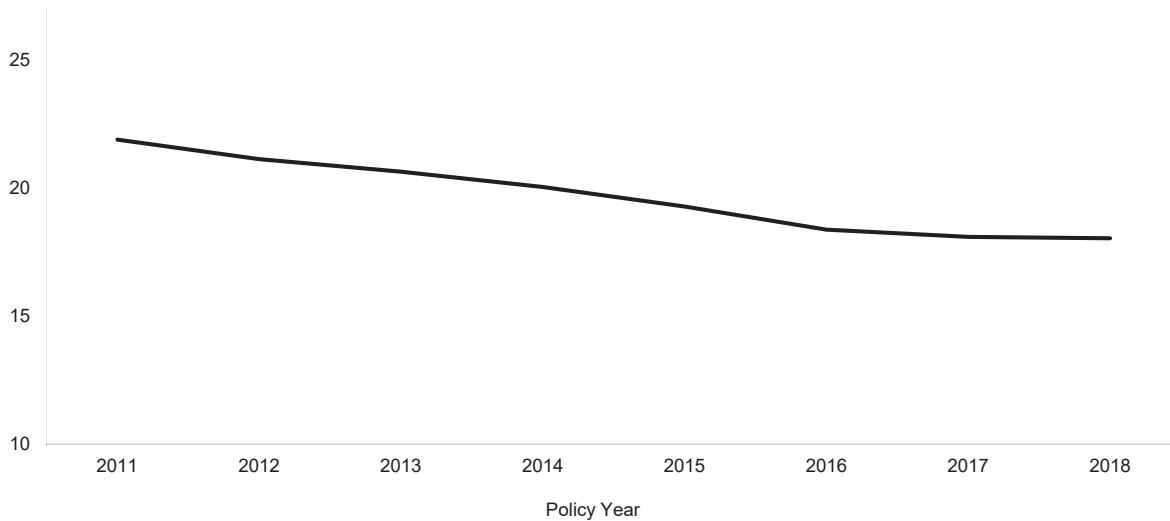
### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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 Claim Frequency

Per Million of On-Leveled, Wage-Adjusted Premium



Missouri's lost-time claim frequency has generally declined since 2011.





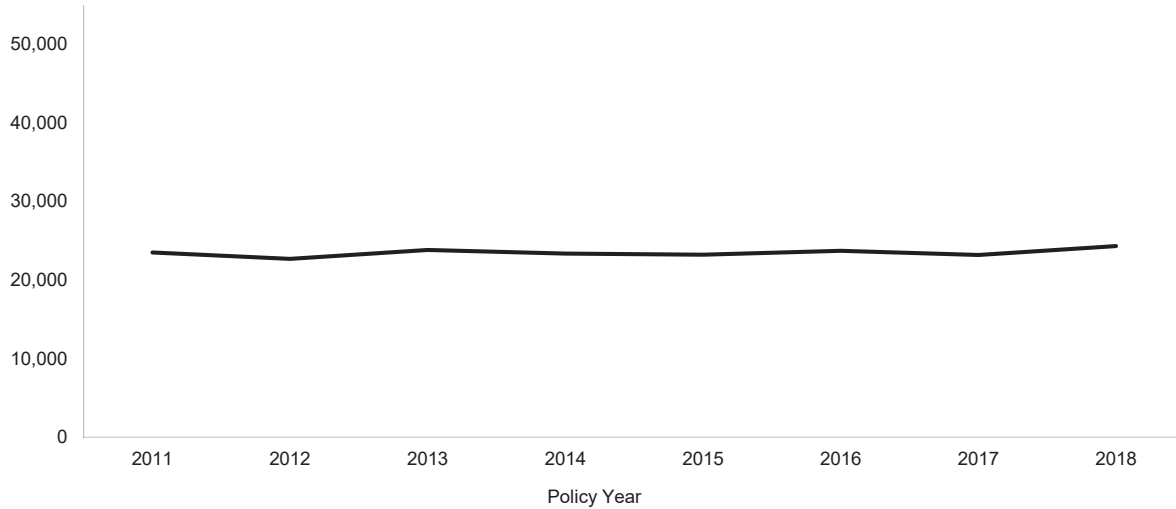
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## Advisory Loss Costs and Rating Values Filing – January 1, 2021

### Selections Underlying the Proposed Changes

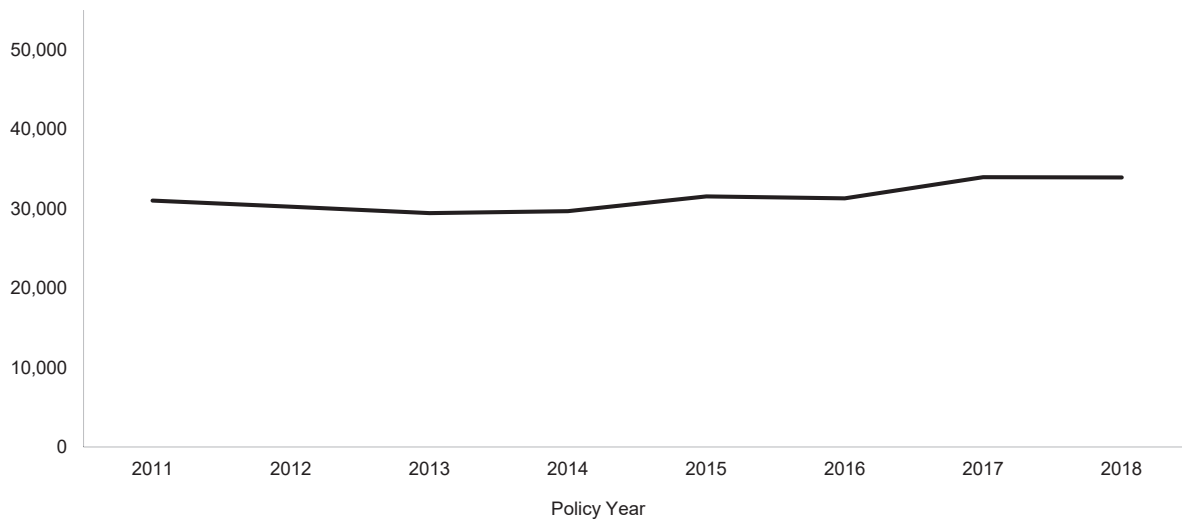
#### Missouri Indemnity Average Cost Per Case

Adjusted to a Common Wage Level, Based on an Average of Paid and Paid+Case Losses



#### Missouri Medical Average Cost Per Case

Adjusted to a Common Wage Level, Based on an Average of Paid and Paid+Case Losses



As these two charts illustrate, Missouri’s average indemnity cost per case values in excess of wage growth have remained relatively consistent over time, while the average medical cost per case figures have increased in recent years.



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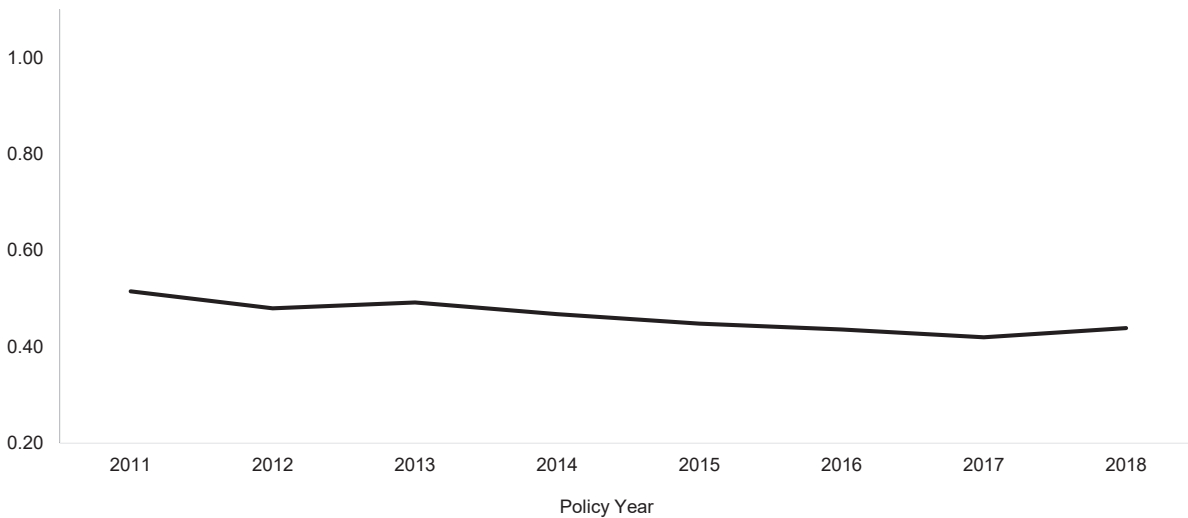
## Advisory Loss Costs and Rating Values Filing – January 1, 2021

### 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.

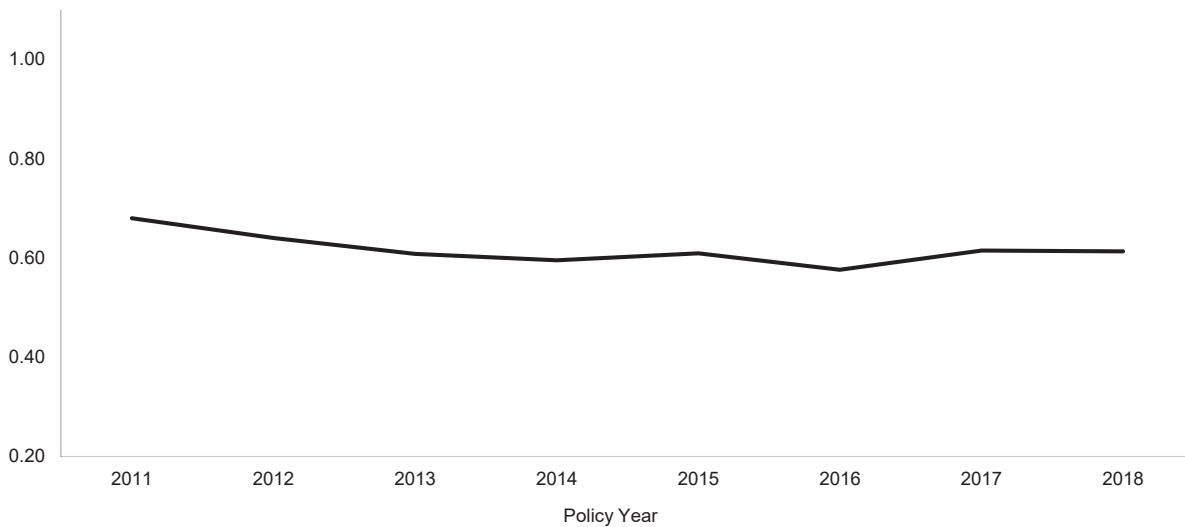
#### Missouri Indemnity Loss Ratio History

Based on an Average of Paid and Paid+Case Losses



#### Missouri Medical Loss Ratio History

Based on an Average of Paid and Paid+Case Losses



Based on our analysis this year, we are proposing to maintain the current annual loss ratio trend factors of -2.0% for indemnity and -1.0% for medical.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Selections Underlying the Proposed Changes

##### 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 change the current voluntary LAE provision from 18.7% to 19.3% of losses.

#### Additional Proposed Changes

##### Adjusting and Other Expense (AOE) Provision

Each year, NCCI performs a countrywide analysis to determine an actuarially appropriate AOE provision for inclusion in state loss cost/rate filings. The analysis is based on data from NCCI's Call for Loss Adjustment Expense (Financial Call 19). As a result of Third-Party Administrator (TPA) agreements, some carriers report losses on Call 19 without associated AOE. Beginning with this filing, for policies associated with TPA agreements where the AOE is not reported to NCCI, the associated losses will be excluded from the AOE analysis so that they do not impact the countrywide ultimate AOE ratios. All other aspects of the current AOE methodology remain unchanged.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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, 2021

#### 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

Note: Please refer to the “Special Classifications” section of the *Basic Manual* for information on state-specific classification phraseology. The “X” footnote, which previously indicated the existence of state-special classification phraseology, has been retired from the pages that follow.

- 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
- Summary description of expected loss rates and d-ratios

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

**MISSOURI**

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

Effective January 1, 2021

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
0005	2.90	2.25	0.39	2016	2.84	2.26	0.39	2709	19.92	14.15	0.30
0008	2.39	1.78	0.34	2021	2.49	1.85	0.34	2710	12.62	8.47	0.26
0016	4.80	3.39	0.30	2039	2.68	2.13	0.39	2714	4.50	3.59	0.39
0034	2.62	2.03	0.38	2041	2.54	2.02	0.39	2731	3.47	2.46	0.30
0035	2.03	1.62	0.39	2065	1.70	1.31	0.38	2735	3.69	2.94	0.39
0036	5.93	4.61	0.39	2070	3.86	2.98	0.38	2747	-	2.29	0.46
0037	2.99	2.22	0.34	2081	4.79	3.72	0.39	2759	5.91	4.72	0.39
0042	5.69	3.88	0.34	2089	3.13	2.43	0.38	2790	1.80	1.44	0.39
0050	4.55	3.23	0.38	2095	3.42	2.65	0.39	2791	-	3.15	0.39
0059D	0.12	0.04	0.30	2105	4.00	3.19	0.39	2797	5.07	3.93	0.39
0065D	0.04	0.01	0.30	2110	1.76	1.40	0.39	2799	4.69	3.20	0.34
0066D	0.04	0.01	0.30	2111	1.98	1.57	0.39	2802	4.88	3.63	0.34
0067D	0.04	0.01	0.30	2112	3.57	2.85	0.39	2835	2.26	1.87	0.46
0079	3.42	2.43	0.30	2114	2.92	2.33	0.39	2836	2.48	2.04	0.46
0083	4.25	3.29	0.39	2121	1.26	0.97	0.38	2841	3.94	3.15	0.39
0106	6.74	4.51	0.26	2130	1.72	1.33	0.38	2881	2.78	2.29	0.46
0113	4.39	3.41	0.39	2131	2.34	1.81	0.38	2883	2.74	2.12	0.38
0170	1.99	1.55	0.39	2143	2.31	1.85	0.39	2913	-	2.12	0.38
0251	3.38	2.61	0.38	2157	5.32	4.10	0.38	2915	3.32	2.46	0.34
0400	-	1.67	0.34	2172	1.48	1.10	0.34	2916	3.41	2.28	0.26
0401	10.77	7.23	0.26	2174	2.93	2.34	0.39	2923	1.77	1.41	0.39
0771N	0.44	-	-	2211	8.97	6.32	0.30	2942	-	0.99	0.46
0908P	117.00	90.64	0.38	2220	2.03	1.57	0.38	2960	4.97	3.84	0.38
0913P	423.00	327.35	0.38	2286	-	1.57	0.38	3004	1.71	1.21	0.30
0917	3.31	2.64	0.39	2288	3.84	3.06	0.39	3018	3.87	2.73	0.30
1005*	5.70	3.11	0.23	2300	-	1.96	0.39	3022	3.28	2.61	0.39
1016*	14.64	7.81	0.23	2302	1.71	1.33	0.39	3027	2.28	1.61	0.30
1164D	4.25	2.61	0.23	2305	2.18	1.62	0.34	3028	3.71	2.87	0.38
1165D	3.00	1.98	0.26	2352	-	1.57	0.38	3030	4.48	3.16	0.30
1320	1.42	0.94	0.26	2361	1.74	1.35	0.39	3040	4.76	3.36	0.30
1322	6.44	3.94	0.26	2362	1.94	1.50	0.39	3041	3.96	3.07	0.38
1430	5.22	3.69	0.30	2380	2.00	1.55	0.39	3042	4.79	3.56	0.34
1438	12.78	8.52	0.26	2386	-	1.96	0.39	3064	3.45	2.67	0.38
1452	2.96	2.08	0.30	2388	1.55	1.24	0.39	3076	2.99	2.32	0.38
1463	8.77	5.86	0.26	2402	2.54	1.80	0.30	3081D	4.27	3.00	0.30
1472	2.74	1.84	0.26	2413	2.65	2.06	0.39	3082D	4.76	3.35	0.30
1624D	2.46	1.64	0.26	2416	1.94	1.50	0.38	3085D	4.61	3.23	0.30
1642	2.60	1.84	0.30	2417	1.40	1.08	0.38	3110	4.19	3.24	0.38
1654	3.45	2.43	0.30	2501	2.53	1.96	0.39	3111	2.08	1.61	0.38
1655	-	1.84	0.30	2503	1.21	0.96	0.39	3113	1.64	1.27	0.38
1699	2.50	1.77	0.30	2534	-	1.96	0.39	3114	3.35	2.57	0.38
1701	2.94	2.08	0.30	2570	3.86	3.08	0.39	3118	1.99	1.58	0.39
1710D	3.28	2.29	0.30	2585	2.94	2.34	0.39	3119	1.41	1.16	0.46
1741	-	2.08	0.30	2586	2.78	2.15	0.38	3122	2.08	1.66	0.39
1747	1.99	1.40	0.30	2587	1.95	1.55	0.39	3126	1.36	1.05	0.38
1748	5.60	3.97	0.30	2589	1.96	1.52	0.39	3131	1.79	1.38	0.38
1803D	7.24	4.74	0.26	2600	4.08	3.24	0.39	3132	4.45	3.46	0.39
1852	-	1.25	0.23	2623	5.79	4.30	0.34	3145	2.33	1.80	0.38
1853	-	2.08	0.30	2651	2.23	1.78	0.39	3146	2.25	1.75	0.39
1860	-	1.80	0.38	2660	2.83	2.26	0.39	3169	2.48	1.92	0.38
1924	3.32	2.64	0.39	2670	-	1.84	0.39	3175	-	1.92	0.38
1925	3.35	2.49	0.34	2683	2.53	1.96	0.39	3179	2.08	1.65	0.39
2002	3.08	2.45	0.39	2688	2.30	1.84	0.39	3180	2.65	2.12	0.39
2003	3.65	2.82	0.38	2701	10.42	7.32	0.30	3188	2.19	1.75	0.39
2014	4.62	3.26	0.30	2702	15.80	9.80	0.23	3220	2.19	1.69	0.38

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

**MISSOURI**

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Effective January 1, 2021

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
3223	-	2.12	0.39	4018D	5.34	3.71	0.30	4611	1.07	0.85	0.39
3224	3.12	2.48	0.39	4021	5.40	3.81	0.30	4635	2.77	1.71	0.23
3227	2.83	2.25	0.39	4034	6.28	4.43	0.30	4653	1.41	1.12	0.39
3240	2.48	1.92	0.38	4036	2.25	1.59	0.30	4665	9.02	6.40	0.30
3241	2.60	2.02	0.38	4038	3.71	3.03	0.45	4670	-	2.78	0.38
3255	2.37	1.95	0.46	4053	-	2.07	0.38	4683	3.60	2.78	0.38
3257	2.48	1.92	0.38	4061	-	2.07	0.38	4686	2.16	1.53	0.30
3270	3.62	2.81	0.39	4062	2.67	2.07	0.38	4692	0.86	0.68	0.39
3300	4.28	3.32	0.39	4101	2.21	1.64	0.34	4693	0.92	0.71	0.38
3303	2.04	1.63	0.39	4109	0.57	0.45	0.39	4703	1.87	1.45	0.38
3307	2.92	2.26	0.39	4110	1.16	0.89	0.38	4716	-	2.78	0.38
3315	2.97	2.36	0.39	4111	1.79	1.42	0.39	4717	2.11	1.74	0.46
3334	1.79	1.38	0.38	4113	-	1.42	0.39	4720	2.05	1.59	0.39
3336	2.72	1.92	0.30	4114	3.11	2.40	0.38	4740	1.01	0.71	0.30
3365	3.28	2.12	0.30	4130	3.03	2.35	0.39	4741	2.31	1.79	0.38
3372	2.99	2.23	0.34	4131	4.58	3.65	0.39	4751	2.05	1.45	0.30
3373	4.37	3.39	0.39	4133	1.96	1.57	0.39	4771N	2.52	1.56	0.23
3383	1.55	1.23	0.39	4149	0.77	0.63	0.46	4777	3.86	2.39	0.23
3385	0.88	0.70	0.39	4206	2.49	1.92	0.38	4825	0.72	0.51	0.30
3400	4.31	3.21	0.34	4207	1.92	1.35	0.30	4828	1.94	1.44	0.34
3507	2.59	2.01	0.38	4239	2.01	1.42	0.30	4829	1.11	0.74	0.26
3515	2.57	1.99	0.39	4240	3.37	2.69	0.39	4902	2.34	1.87	0.39
3548	1.48	1.15	0.39	4243	2.21	1.71	0.38	4923	0.99	0.77	0.38
3559	2.35	1.82	0.38	4244	2.48	1.92	0.38	4940	-	2.32	0.38
3574	2.08	1.65	0.39	4250	1.72	1.33	0.38	5020	4.07	2.63	0.30
3581	1.27	1.01	0.39	4251	3.41	2.64	0.38	5022	5.66	3.46	0.26
3612	1.96	1.46	0.34	4263	3.36	2.60	0.39	5037	9.86	5.59	0.23
3620	3.64	2.57	0.30	4273	2.34	1.81	0.38	5040	9.71	5.53	0.23
3629	1.48	1.18	0.39	4279	2.33	1.80	0.38	5057	4.34	2.46	0.23
3632	2.81	2.09	0.34	4282	-	1.80	0.38	5059	23.46	13.39	0.23
3634	1.50	1.19	0.39	4283	1.28	0.99	0.38	5067	-	5.53	0.23
3635	2.08	1.61	0.38	4299	1.96	1.57	0.39	5069	-	13.39	0.23
3638	2.18	1.74	0.39	4304	5.07	3.78	0.34	5102	4.96	3.04	0.26
3642	1.12	0.87	0.39	4307	1.79	1.47	0.46	5146	4.46	2.88	0.30
3643	2.68	2.08	0.39	4351	0.89	0.69	0.38	5160	1.96	1.20	0.26
3647	2.76	2.05	0.34	4352	1.66	1.32	0.39	5183	2.59	1.68	0.30
3648	1.55	1.24	0.39	4360	-	0.31	0.34	5188	2.58	1.67	0.30
3681	0.72	0.57	0.39	4361	0.67	0.54	0.39	5190	2.49	1.61	0.30
3685	1.09	0.87	0.39	4410	3.06	2.37	0.38	5191	0.69	0.54	0.38
3719	0.95	0.53	0.23	4420	3.89	2.59	0.26	5192	2.55	1.97	0.38
3724	3.19	1.96	0.26	4431	1.26	1.04	0.46	5213	4.86	2.98	0.26
3726	3.25	1.84	0.23	4432	1.20	0.99	0.46	5215	4.86	3.31	0.34
3803	2.28	1.76	0.38	4439	-	1.33	0.38	5221	4.15	2.68	0.30
3807	2.28	1.81	0.39	4452	2.47	1.91	0.38	5222	6.70	4.10	0.26
3808	3.59	2.66	0.34	4459	2.39	1.85	0.38	5223	4.97	3.22	0.30
3821	4.57	3.40	0.34	4470	2.15	1.66	0.38	5348	3.50	2.26	0.30
3822	3.45	2.57	0.34	4484	2.65	2.05	0.38	5402	4.26	3.11	0.39
3824	3.91	2.91	0.34	4493	3.66	2.85	0.39	5403	4.92	3.01	0.26
3826	1.07	0.83	0.38	4511	0.40	0.30	0.34	5437	4.45	2.88	0.30
3827	2.39	1.78	0.34	4557	2.23	1.77	0.39	5443	2.82	2.00	0.38
3830	0.70	0.52	0.34	4558	1.72	1.33	0.38	5445	3.97	2.43	0.26
3851	2.38	1.89	0.39	4568	3.30	2.33	0.30	5462	4.67	3.02	0.30
3865	2.47	2.04	0.46	4581	1.91	1.29	0.26	5472	4.36	2.48	0.23
3881	3.57	2.77	0.38	4583	4.43	2.96	0.26	5473	6.85	3.90	0.23
4000	3.99	2.66	0.26	4597	-	1.77	0.39	5474	4.75	2.91	0.26

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Effective January 1, 2021

CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO	CLASS CODE	LOSS COST	ELR	D RATIO
5478	4.41	2.85	0.30	7016M	2.64	1.62	0.23	7580	2.50	1.76	0.30
5479	6.14	4.19	0.34	7024M	2.93	1.80	0.23	7590	2.62	1.94	0.34
5480	4.91	2.99	0.26	7038M	4.80	3.00	0.24	7600	3.14	2.21	0.30
5491	1.49	0.92	0.26	7046M	9.49	5.85	0.23	7605	1.66	1.07	0.30
5505	-	2.63	0.23	7047M	4.83	2.83	0.23	7610	0.41	0.31	0.34
5506	4.62	2.63	0.23	7050M	8.79	5.24	0.24	7705	3.79	2.81	0.34
5507	3.28	2.01	0.26	7090M	5.33	3.33	0.24	7710	4.12	2.75	0.26
5508	-	2.01	0.26	7098M	10.54	6.50	0.23	7711	4.12	2.75	0.26
5515	-	1.85	0.34	7099M	17.38	10.22	0.23	7720	2.71	1.92	0.30
5535	5.52	3.57	0.30	7133	2.57	1.72	0.26	7855	3.17	2.05	0.30
5537	3.66	2.37	0.30	7151M	3.12	2.09	0.26	8001	1.95	1.56	0.39
5551	14.25	8.12	0.23	7152M	5.72	3.65	0.26	8002	1.78	1.38	0.39
5606	1.12	0.69	0.26	7153M	3.47	2.32	0.26	8006	1.60	1.25	0.39
5610	3.68	2.61	0.38	7207	-	3.42	0.26	8008	0.91	0.73	0.39
5645	8.95	5.50	0.26	7219	6.38	4.25	0.26	8010	1.60	1.28	0.39
5703	11.90	7.73	0.30	7222	5.80	4.07	0.30	8013	0.34	0.26	0.38
5705	19.95	13.00	0.30	7225	7.28	5.11	0.30	8015	0.68	0.53	0.38
5951	0.39	0.31	0.39	7228	-	4.25	0.26	8017	1.28	1.02	0.39
6003	4.58	2.95	0.30	7229	-	4.25	0.26	8018	2.31	1.84	0.39
6005	4.32	2.79	0.30	7230	6.30	4.68	0.34	8021	2.69	2.08	0.39
6045	3.52	2.27	0.30	7231	6.99	5.17	0.34	8031	2.01	1.56	0.39
6204	7.30	4.48	0.26	7232	7.53	5.00	0.26	8032	1.75	1.40	0.39
6206	2.28	1.29	0.23	7250	-	4.25	0.26	8033	1.55	1.20	0.39
6213	1.11	0.68	0.26	7309F	9.20	4.36	0.21	8034	2.01	1.56	0.38
6214	1.52	0.86	0.23	7313F	3.25	1.54	0.21	8037	1.72	1.38	0.39
6216	4.01	2.27	0.23	7317F	7.99	3.77	0.21	8039	1.19	0.95	0.39
6217	3.15	1.93	0.26	7327F	18.71	8.96	0.21	8044	2.20	1.63	0.34
6229	4.14	2.54	0.26	7333M	1.97	1.21	0.23	8045	0.52	0.41	0.39
6233	2.07	1.27	0.26	7335M	2.19	1.34	0.23	8046	2.09	1.63	0.39
6235	5.18	2.94	0.23	7337M	3.61	2.11	0.23	8047	0.77	0.61	0.39
6236	5.14	3.32	0.30	7350F	9.46	4.74	0.25	8058	2.49	1.94	0.39
6237	1.16	0.74	0.30	7360	3.73	2.62	0.30	8061	1.55	1.20	0.38
6251D	2.90	1.77	0.26	7370	4.02	3.12	0.38	8072	0.51	0.41	0.39
6252D	2.79	1.57	0.23	7380	4.45	3.30	0.34	8102	2.01	1.61	0.39
6260	-	1.77	0.26	7382	4.14	3.20	0.38	8103	2.24	1.67	0.34
6306	4.53	2.78	0.26	7390	4.54	3.51	0.38	8105	-	1.84	0.39
6319	3.30	2.03	0.26	7394M	3.73	2.29	0.23	8106	4.56	3.22	0.30
6325	2.80	1.72	0.26	7395M	4.14	2.55	0.23	8107	2.32	1.63	0.30
6400	4.94	3.36	0.34	7398M	6.83	4.01	0.23	8111	1.52	1.17	0.38
6503	2.00	1.59	0.39	7402	0.10	0.08	0.38	8116	1.99	1.54	0.38
6504	2.25	1.80	0.39	7403	4.26	3.00	0.30	8203	5.86	4.53	0.38
6702M*	3.54	2.49	0.30	7405N	1.22	0.86	0.30	8204	3.36	2.37	0.30
6703M*	6.48	4.35	0.30	7420	6.50	3.98	0.23	8209	3.56	2.77	0.39
6704M*	3.93	2.77	0.30	7421	0.58	0.39	0.26	8215	3.71	2.63	0.30
6824F	6.64	3.36	0.25	7422	1.52	0.94	0.23	8227	2.90	1.65	0.23
6825F	2.58	1.23	0.21	7425	1.82	1.12	0.23	8232	5.00	3.53	0.30
6826F	3.93	2.06	0.29	7431N	1.04	0.64	0.23	8233	1.96	1.37	0.30
6834	2.62	1.95	0.34	7445N	0.66	-	-	8235	3.58	2.77	0.38
6835	2.62	1.61	0.23	7453N	0.56	-	-	8263	4.58	3.41	0.34
6836	3.09	2.18	0.30	7502	2.07	1.46	0.30	8264	4.43	3.14	0.30
6845a	a	a	a	7515	0.95	0.59	0.23	8265	4.13	2.76	0.26
6872F	9.12	4.34	0.21	7520	2.55	1.98	0.38	8279	5.10	3.42	0.26
6874F	14.63	6.92	0.21	7538	5.10	2.91	0.23	8288	6.96	4.95	0.30
6882	3.16	1.96	0.23	7539	1.62	1.08	0.26	8291	2.99	2.22	0.34
6884	5.03	3.09	0.23	7540	2.51	1.56	0.23	8292	3.52	2.73	0.38

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8293	7.09	5.00	0.30	9014	2.27	1.76	0.38				
8304	4.26	3.01	0.30	9015	2.73	2.11	0.38				
8350	5.23	3.48	0.26	9016	2.83	2.20	0.39				
8353	3.44	2.43	0.30	9019	1.94	1.37	0.30				
8370	3.52	2.48	0.30	9033	1.71	1.32	0.38				
8381	2.06	1.53	0.34	9040	3.38	2.71	0.39				
8385	1.86	1.32	0.30	9044	0.90	0.72	0.39				
8387	2.48	1.84	0.34	9052	1.66	1.32	0.39				
8391	2.01	1.50	0.34	9058	1.39	1.15	0.46				
8392	2.10	1.63	0.39	9060	1.12	0.89	0.39				
8393	1.30	1.00	0.38	9061	1.25	1.03	0.46				
8500	4.61	3.25	0.30	9062	1.20	0.99	0.46				
8601	0.22	0.16	0.34	9063	0.76	0.61	0.39				
8602	1.11	0.82	0.34	9077F	2.43	1.36	0.37				
8603	0.07	0.05	0.38	9082	1.12	0.92	0.46				
8606	1.68	1.12	0.26	9083	0.97	0.81	0.46				
8709F	4.12	1.96	0.21	9084	1.16	0.90	0.39				
8719	1.73	1.07	0.23	9088a	a	a	a				
8720	1.02	0.72	0.30	9089	0.94	0.75	0.39				
8721	0.26	0.18	0.30	9093	1.16	0.93	0.39				
8723	0.14	0.11	0.38	9101	3.36	2.69	0.39				
8725	2.05	1.44	0.30	9102	2.48	1.92	0.39				
8726F	1.82	0.95	0.29	9110	2.52	1.96	0.39				
8728	0.41	0.29	0.30	9154	1.63	1.27	0.39				
8734M	0.34	0.24	0.30	9156	2.19	1.63	0.34				
8737M	0.30	0.21	0.30	9170	10.85	6.77	0.23				
8738M	0.56	0.38	0.30	9178	10.32	8.60	0.46				
8742	0.25	0.18	0.30	9179	17.95	14.38	0.39				
8745	3.19	2.37	0.34	9180	3.87	2.74	0.30				
8748	0.51	0.38	0.34	9182	1.75	1.36	0.39				
8755	0.30	0.21	0.30	9186	13.02	8.77	0.26				
8799	0.36	0.28	0.38	9220	3.53	2.62	0.34				
8800	1.21	1.00	0.46	9402	4.17	2.94	0.30				
8803	0.05	0.03	0.30	9403	6.87	4.59	0.26				
8805M	0.15	0.12	0.39	9410	2.71	2.10	0.39				
8810	0.11	0.09	0.39	9501	2.99	2.22	0.34				
8814M	0.13	0.10	0.39	9505	3.87	2.88	0.34				
8815M	0.24	0.19	0.39	9516	2.35	1.65	0.30				
8820	0.11	0.08	0.34	9519	3.34	2.35	0.30				
8824	1.91	1.52	0.39	9521	3.45	2.43	0.30				
8825	-	1.46	0.39	9522	4.35	3.36	0.38				
8826	1.87	1.46	0.39	9534	3.99	2.44	0.26				
8829	-	1.52	0.39	9554	7.40	4.53	0.26				
8831	1.14	0.89	0.39	9586	0.48	0.39	0.46				
8832	0.23	0.18	0.38	9600	3.17	2.52	0.39				
8833	1.07	0.83	0.39	9620	1.05	0.78	0.34				
8835	1.74	1.35	0.39								
8855	0.14	0.11	0.39								
8856	0.36	0.28	0.38								
8861	1.25	0.97	0.39								
8868	0.39	0.31	0.39								
8869	0.89	0.71	0.39								
8871	0.06	0.05	0.39								
8901	0.16	0.12	0.34								
9012	0.71	0.52	0.34								

Refer to the special classification section of the *Basic Manual* for any state specific classification phraseology.

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

Effective January 1, 2021

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	1165D	0.02	S	3082D	0.03	S
0065D	0.04	S	1624D	0.01	S	3085D	0.03	S,L
0066D	0.04	S	1710D	0.02	S	4018D	0.06	S
0067D	0.04	S	1803D	0.16	S	6251D	0.01	S
1164D	0.04	S	3081D	0.02	S	6252D	0.01	S

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.

**\* 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 \$1.97. (For coverage written separately for federal benefits only, \$1.93. 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 2.226 and elr x 2.124.

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, 2021

**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	1.1%	0.8%	0.7%	0.5%	0.3%	0.2%	0.2%
\$200	2.2%	1.6%	1.3%	0.9%	0.7%	0.4%	0.4%
\$300	3.1%	2.3%	1.9%	1.3%	1.0%	0.7%	0.6%
\$400	4.0%	3.0%	2.4%	1.7%	1.3%	0.9%	0.8%
\$500	4.9%	3.6%	3.0%	2.1%	1.6%	1.1%	1.0%
\$1,000	8.3%	6.3%	5.2%	3.8%	2.9%	2.0%	1.8%
\$1,500	11.0%	8.5%	7.0%	5.2%	4.0%	2.8%	2.5%
\$2,000	13.2%	10.3%	8.6%	6.4%	4.9%	3.6%	3.1%
\$2,500	15.1%	11.8%	9.9%	7.5%	5.8%	4.3%	3.7%
\$5,000	22.2%	17.9%	15.3%	12.0%	9.6%	7.3%	6.4%
\$10,000	31.4%	26.1%	22.9%	18.6%	15.4%	12.2%	10.6%
\$15,000	38.1%	32.2%	28.7%	23.9%	20.1%	16.4%	14.2%
\$20,000	43.4%	37.1%	33.4%	28.3%	24.0%	19.9%	17.3%

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

Employee operated vehicle.....	\$75,200
Leased or rented vehicle.....	\$50,100

**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" .....

\$1,000

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

\$45,100

**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.....

85%

(Multiply a Non-F classification loss cost by a factor of 1.85 to adjust for differences in benefits and loss-based expenses. This factor is the product of the adjustment for differences in benefits (1.75) and the adjustment for differences in loss-based expenses (1.057).)

**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, 2021

#### Proposed Voluntary Loss Costs and Rating Values

##### Summary Description of Expected Loss Rates and D-ratios

An expected loss rate for a classification is used to estimate the expected losses per \$100 of payroll during the experience rating period for risks within that classification. These expected losses are then compared with the actual losses of a risk during the experience rating period to determine the experience modification (mod). The actual losses reflect the loss data during the experience rating period. Expected losses and actual losses must be at the same level to enable an appropriate comparison for purposes of the experience mod calculation. As such, the proposed loss costs are adjusted to reflect the average loss levels of the proposed effective rating period. This is accomplished through the application of ELR factors to the proposed underlying pure premiums. These ELR factors, calculated by hazard group (HG), remove the effects of items such as loss development, losses in excess of the state accident limit, a portion of medical-only losses, benefit changes, trend, and loss-based expenses.

An adjustment is made to the ELR factors so that the resulting ELRs produce an expected experience rating off-balance that equals the targeted experience rating off-balance used in the calculation of the overall loss cost level change for the state. For the calculation of experience mods, the experience rating plan for Missouri uses actual losses net of the deductible reimbursement amount reported per the *Unit Statistical Reporting Guidebook* for the calculation of experience mods. As a result, the ELR adjustment mentioned above also modifies the ELRs uniformly across all class codes in the state to account for net experience rating. The final ELR for each classification is calculated as follows:

$$\text{ELR} = \{(\text{HG indemnity ELR factor}) \times (\text{indemnity pure premium}) + (\text{HG medical ELR factor}) \times (\text{medical pure premium})\} \times \text{Manual/Standard Ratio}$$

In experience rating, losses are divided into primary and excess portions. For each claim, losses below the split point are primary losses, while losses above the split point are excess losses. The d-ratio represents the estimated ratio of expected primary losses to expected total losses for a classification. The d-ratio is used to determine the expected primary losses to be used in the experience mod calculation.

D-ratio factors are calculated separately for indemnity and medical losses by hazard group and are based on the latest three years of Unit Statistical Data. A comparison of the resulting d-ratio factors across hazard groups is done to ensure that the factors monotonically decrease from hazard group A to hazard group G. If they do not, an adjustment is made by averaging the d-ratios over adjacent hazard groups. The final D-ratio for each classification is calculated as follows:

$$\text{D-ratio} = \{(\text{HG indemnity d-ratio factor}) \times (\text{indemnity pure premium}) + (\text{HG medical d-ratio factor}) \times (\text{medical pure premium})\} / \text{total pure premium}$$



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

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

The following pages include a summary description of the weighting and ballast values along with proposed values for inclusion in the Experience Rating Plan Manual, such as:

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



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

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

##### Summary Description of the Weighting and Ballast Values

###### Table of Weighting Values

The weighting value determines the volume of actual and expected excess losses that will enter the experience modification formula. The weighting value increases as expected losses increase with larger insureds receiving a larger weighting value. The weighting value for various levels of expected losses is provided in the Table of Weighting Values. The table is updated in each experience filing based on the state reference point.

The state reference point is calculated based on Unit Statistical Data as the state average cost per case for the experience rating period multiplied by 250. The state reference point serves to determine how much credibility is assigned to the losses of an individual risk and as an index of claim cost differences by state. The state per claim accident limitation shown on the Table of Weighting Values is 10% of the state reference point.

###### Table of Ballast Values

The ballast value is a stabilizing value designed to limit the effect of any actual loss experience on the experience rating modification. It is added to both the numerator and denominator in the experience modification calculation and increases as expected losses increase. The ballast value for various levels of expected loss ranges is provided in the Table of Ballast Values. The table is updated based on the state reference point. The G value used in the ballast formula is the state reference point divided by 250,000, rounded to the nearest 0.05.

Effective January 1, 2021  
**TABLE OF WEIGHTING VALUES**  
**APPLICABLE TO ALL POLICIES**  
*Experience Rating Program - ERA*

Expected Losses			Weighting Values	Expected Losses			Weighting Values
0	--	2,994	0.04	1,688,673	--	1,781,819	0.44
2,995	--	12,105	0.05	1,781,820	--	1,880,358	0.45
12,106	--	21,411	0.06	1,880,359	--	1,984,774	0.46
21,412	--	30,918	0.07	1,984,775	--	2,095,609	0.47
30,919	--	40,633	0.08	2,095,610	--	2,213,475	0.48
40,634	--	67,963	0.09	2,213,476	--	2,339,063	0.49
67,964	--	101,166	0.10	2,339,064	--	2,473,160	0.50
101,167	--	130,699	0.11	2,473,161	--	2,616,662	0.51
130,700	--	159,455	0.12	2,616,663	--	2,770,595	0.52
159,456	--	188,215	0.13	2,770,596	--	2,936,140	0.53
188,216	--	217,329	0.14	2,936,141	--	3,114,663	0.54
217,330	--	246,995	0.15	3,114,664	--	3,307,755	0.55
246,996	--	277,345	0.16	3,307,756	--	3,517,275	0.56
277,346	--	308,482	0.17	3,517,276	--	3,745,415	0.57
308,483	--	340,489	0.18	3,745,416	--	3,994,771	0.58
340,490	--	373,442	0.19	3,994,772	--	4,268,450	0.59
373,443	--	407,411	0.20	4,268,451	--	4,570,195	0.60
407,412	--	442,468	0.21	4,570,196	--	4,904,555	0.61
442,469	--	478,682	0.22	4,904,556	--	5,277,123	0.62
478,683	--	516,125	0.23	5,277,124	--	5,694,846	0.63
516,126	--	554,873	0.24	5,694,847	--	6,166,464	0.64
554,874	--	595,004	0.25	6,166,465	--	6,703,127	0.65
595,005	--	636,601	0.26	6,703,128	--	7,319,291	0.66
636,602	--	679,752	0.27	7,319,292	--	8,034,037	0.67
679,753	--	724,554	0.28	8,034,038	--	8,873,080	0.68
724,555	--	771,105	0.29	8,873,081	--	9,871,935	0.69
771,106	--	819,517	0.30	9,871,936	--	11,081,070	0.70
819,518	--	869,906	0.31	11,081,071	--	12,574,701	0.71
869,907	--	922,398	0.32	12,574,702	--	14,466,626	0.72
922,399	--	977,133	0.33	14,466,627	--	16,940,675	0.73
977,134	--	1,034,259	0.34	16,940,676	--	20,314,369	0.74
1,034,260	--	1,093,940	0.35	20,314,370	--	25,187,472	0.75
1,093,941	--	1,156,351	0.36	25,187,473	--	32,845,194	0.76
1,156,352	--	1,221,688	0.37	32,845,195	--	46,629,076	0.77
1,221,689	--	1,290,164	0.38	46,629,077	--	78,791,442	0.78
1,290,165	--	1,362,011	0.39	78,791,443	--	239,603,194	0.79
1,362,012	--	1,437,486	0.40	239,603,195	AND OVER		0.80
1,437,487	--	1,516,873	0.41				
1,516,874	--	1,600,485	0.42				
1,600,486	--	1,688,672	0.43				

(a) G . . . . .	14.30
(b) State Per Claim Accident Limitation . . . . .	\$357,000
(c) State Multiple Claim Accident Limitation . . . . .	\$714,000
(d) USL&HW Per Claim Accident Limitation . . . . .	\$665,000
(e) USL&HW Multiple Claim Accident Limitation . . . . .	\$1,330,000
(f) Employers Liability Accident Limitation . . . . .	\$55,000
(g) Primary/Excess Loss Split Point . . . . .	\$18,000
(h) USL&HW Act -- Expected Loss Factor -- Non-F Classes . . . . .	1.75
<i>(Multiply a Non-F classification ELR by the USL&amp;HW Act - Expected Loss Factor of 1.75.)</i>	

Effective January 1, 2021  
**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 -- 76,917	35,750	2,468,195 -- 2,539,653	286,000	4,969,969 -- 5,041,458	536,250
76,918 -- 132,381	42,900	2,539,654 -- 2,611,115	293,150	5,041,459 -- 5,112,948	543,400
132,382 -- 196,111	50,050	2,611,116 -- 2,682,579	300,300	5,112,949 -- 5,184,438	550,550
196,112 -- 263,341	57,200	2,682,580 -- 2,754,044	307,450	5,184,439 -- 5,255,929	557,700
263,342 -- 332,207	64,350	2,754,045 -- 2,825,512	314,600	5,255,930 -- 5,327,420	564,850
332,208 -- 401,936	71,500	2,825,513 -- 2,896,981	321,750	5,327,421 -- 5,398,911	572,000
401,937 -- 472,171	78,650	2,896,982 -- 2,968,451	328,900	5,398,912 -- 5,470,402	579,150
472,172 -- 542,724	85,800	2,968,452 -- 3,039,923	336,050	5,470,403 -- 5,541,894	586,300
542,725 -- 613,489	92,950	3,039,924 -- 3,111,396	343,200	5,541,895 -- 5,613,386	593,450
613,490 -- 684,403	100,100	3,111,397 -- 3,182,870	350,350	5,613,387 -- 5,684,878	600,600
684,404 -- 755,425	107,250	3,182,871 -- 3,254,346	357,500	5,684,879 -- 5,756,370	607,750
755,426 -- 826,527	114,400	3,254,347 -- 3,325,822	364,650	5,756,371 -- 5,827,862	614,900
826,528 -- 897,692	121,550	3,325,823 -- 3,397,300	371,800	5,827,863 -- 5,899,355	622,050
897,693 -- 968,905	128,700	3,397,301 -- 3,468,778	378,950	5,899,356 -- 5,970,848	629,200
968,906 -- 1,040,157	135,850	3,468,779 -- 3,540,257	386,100	5,970,849 -- 6,042,341	636,350
1,040,158 -- 1,111,441	143,000	3,540,258 -- 3,611,738	393,250	6,042,342 -- 6,113,834	643,500
1,111,442 -- 1,182,750	150,150	3,611,739 -- 3,683,218	400,400	6,113,835 -- 6,185,327	650,650
1,182,751 -- 1,254,080	157,300	3,683,219 -- 3,754,700	407,550	6,185,328 -- 6,256,821	657,800
1,254,081 -- 1,325,429	164,450	3,754,701 -- 3,826,182	414,700	6,256,822 -- 6,328,314	664,950
1,325,430 -- 1,396,793	171,600	3,826,183 -- 3,897,665	421,850	6,328,315 -- 6,399,808	672,100
1,396,794 -- 1,468,170	178,750	3,897,666 -- 3,969,149	429,000	6,399,809 -- 6,471,302	679,250
1,468,171 -- 1,539,559	185,900	3,969,150 -- 4,040,633	436,150	6,471,303 -- 6,542,796	686,400
1,539,560 -- 1,610,957	193,050	4,040,634 -- 4,112,118	443,300	6,542,797 -- 6,614,290	693,550
1,610,958 -- 1,682,364	200,200	4,112,119 -- 4,183,603	450,450	6,614,291 -- 6,685,784	700,700
1,682,365 -- 1,753,778	207,350	4,183,604 -- 4,255,089	457,600	6,685,785 -- 6,757,278	707,850
1,753,779 -- 1,825,199	214,500	4,255,090 -- 4,326,575	464,750	6,757,279 -- 6,828,250	715,000
1,825,200 -- 1,896,626	221,650	4,326,576 -- 4,398,061	471,900		
1,896,627 -- 1,968,059	228,800	4,398,062 -- 4,469,548	479,050		
1,968,060 -- 2,039,496	235,950	4,469,549 -- 4,541,036	486,200		
2,039,497 -- 2,110,937	243,100	4,541,037 -- 4,612,524	493,350		
2,110,938 -- 2,182,382	250,250	4,612,525 -- 4,684,012	500,500		
2,182,383 -- 2,253,830	257,400	4,684,013 -- 4,755,500	507,650		
2,253,831 -- 2,325,282	264,550	4,755,501 -- 4,826,989	514,800		
2,325,283 -- 2,396,736	271,700	4,826,990 -- 4,898,479	521,950		
2,396,737 -- 2,468,194	278,850	4,898,480 -- 4,969,968	529,100		

For Expected Losses greater than \$6,828,250, the Ballast Value can be calculated using the following formula (rounded to the nearest 1):

$$\text{Ballast} = (0.10)(\text{Expected Losses}) + 2500(\text{Expected Losses})(14.30) / (\text{Expected Losses} + (700)(14.30))$$

G = 14.30



# 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	Rating Effective Date	Column A (\$)	Column B (\$)
MO	<u>7/1/21 and after</u>	<u>8,000</u>	<u>4,000</u>
	<u>7/1/20 - 6/30/21</u>	7,500	3,750
	<u>7/1/19 - 6/30/20</u>	7,500	3,750

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, 2021

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

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

- Excess loss pure premium factors
- Excess loss and allocated expense pure premium factors
- Hazard group average cost per case
- Hazard group average cost per case including ALAE

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

**MISSOURI**

*Effective January 1, 2021*

**1. Average Cost per Case by Hazard Group**

A	B	C	D	E	F	G
8,882	12,238	15,074	21,408	29,427	43,664	49,016

**Average Cost per Case including ALAE by Hazard Group**

A	B	C	D	E	F	G
9,874	13,592	16,718	23,711	32,548	48,239	54,019

**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	0.578	0.623	0.650	0.685	0.713	0.739	0.753
\$15,000	0.522	0.572	0.601	0.641	0.674	0.705	0.723
\$20,000	0.477	0.530	0.561	0.604	0.640	0.675	0.697
\$25,000	0.439	0.494	0.527	0.572	0.610	0.648	0.673
\$30,000	0.408	0.464	0.497	0.543	0.584	0.624	0.651
\$35,000	0.381	0.437	0.470	0.518	0.560	0.602	0.632
\$40,000	0.357	0.413	0.447	0.495	0.539	0.581	0.614
\$50,000	0.319	0.374	0.407	0.456	0.501	0.546	0.581
\$75,000	0.253	0.303	0.336	0.383	0.430	0.476	0.517
\$100,000	0.210	0.257	0.288	0.334	0.380	0.425	0.469
\$125,000	0.180	0.224	0.254	0.297	0.342	0.387	0.432
\$150,000	0.158	0.199	0.228	0.269	0.313	0.356	0.402
\$175,000	0.140	0.179	0.207	0.246	0.289	0.331	0.378
\$200,000	0.126	0.163	0.190	0.228	0.269	0.310	0.357
\$225,000	0.115	0.149	0.176	0.212	0.253	0.292	0.339
\$250,000	0.106	0.138	0.164	0.199	0.238	0.276	0.323
\$275,000	0.098	0.129	0.153	0.187	0.226	0.263	0.309
\$300,000	0.091	0.120	0.144	0.177	0.215	0.251	0.297
\$325,000	0.085	0.113	0.137	0.168	0.205	0.240	0.286
\$350,000	0.080	0.107	0.130	0.160	0.196	0.230	0.276
\$375,000	0.075	0.101	0.123	0.153	0.188	0.221	0.267
\$400,000	0.071	0.096	0.118	0.147	0.181	0.213	0.258
\$425,000	0.068	0.092	0.113	0.141	0.175	0.206	0.250
\$450,000	0.064	0.088	0.108	0.136	0.169	0.199	0.243
\$475,000	0.061	0.084	0.104	0.131	0.163	0.193	0.237
\$500,000	0.059	0.081	0.101	0.126	0.158	0.187	0.231
\$600,000	0.050	0.070	0.088	0.112	0.141	0.168	0.210
\$700,000	0.044	0.062	0.079	0.101	0.128	0.153	0.193
\$800,000	0.039	0.056	0.072	0.092	0.118	0.141	0.180
\$900,000	0.036	0.051	0.066	0.085	0.109	0.131	0.169
\$1,000,000	0.033	0.047	0.061	0.079	0.102	0.123	0.159
\$2,000,000	0.018	0.027	0.037	0.049	0.065	0.079	0.106
\$3,000,000	0.013	0.020	0.027	0.036	0.049	0.059	0.082
\$4,000,000	0.010	0.015	0.021	0.028	0.039	0.048	0.067
\$5,000,000	0.008	0.012	0.017	0.023	0.032	0.040	0.056
\$6,000,000	0.006	0.010	0.014	0.019	0.027	0.034	0.048
\$7,000,000	0.005	0.008	0.012	0.016	0.023	0.029	0.042
\$8,000,000	0.004	0.007	0.010	0.014	0.020	0.025	0.036
\$9,000,000	0.003	0.006	0.008	0.012	0.017	0.022	0.032
\$10,000,000	0.003	0.005	0.007	0.010	0.015	0.020	0.029

Effective January 1, 2021

**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	0.651	0.700	0.728	0.766	0.795	0.823	0.837
\$15,000	0.590	0.644	0.676	0.719	0.753	0.787	0.805
\$20,000	0.540	0.598	0.632	0.679	0.717	0.754	0.777
\$25,000	0.499	0.559	0.594	0.643	0.685	0.726	0.752
\$30,000	0.464	0.525	0.561	0.612	0.656	0.699	0.729
\$35,000	0.434	0.496	0.532	0.584	0.630	0.675	0.707
\$40,000	0.408	0.469	0.506	0.559	0.607	0.653	0.687
\$50,000	0.364	0.425	0.462	0.515	0.565	0.614	0.652
\$75,000	0.289	0.346	0.381	0.434	0.485	0.536	0.580
\$100,000	0.241	0.293	0.327	0.377	0.429	0.479	0.527
\$125,000	0.207	0.255	0.288	0.336	0.386	0.435	0.485
\$150,000	0.181	0.227	0.259	0.304	0.353	0.401	0.451
\$175,000	0.162	0.204	0.235	0.279	0.326	0.372	0.423
\$200,000	0.146	0.186	0.216	0.257	0.304	0.348	0.400
\$225,000	0.133	0.171	0.200	0.240	0.285	0.328	0.379
\$250,000	0.122	0.158	0.186	0.225	0.268	0.311	0.362
\$275,000	0.113	0.148	0.175	0.212	0.254	0.295	0.346
\$300,000	0.105	0.138	0.164	0.200	0.242	0.282	0.332
\$325,000	0.098	0.130	0.156	0.190	0.231	0.270	0.320
\$350,000	0.092	0.123	0.148	0.181	0.221	0.259	0.308
\$375,000	0.087	0.116	0.141	0.173	0.212	0.249	0.298
\$400,000	0.082	0.111	0.134	0.166	0.204	0.240	0.289
\$425,000	0.078	0.106	0.129	0.160	0.197	0.232	0.280
\$450,000	0.075	0.101	0.124	0.154	0.190	0.224	0.272
\$475,000	0.071	0.097	0.119	0.148	0.184	0.217	0.265
\$500,000	0.068	0.093	0.115	0.143	0.178	0.211	0.258
\$600,000	0.058	0.080	0.100	0.126	0.159	0.189	0.235
\$700,000	0.051	0.071	0.090	0.114	0.144	0.172	0.216
\$800,000	0.045	0.064	0.081	0.104	0.133	0.158	0.201
\$900,000	0.041	0.058	0.075	0.096	0.123	0.147	0.188
\$1,000,000	0.038	0.054	0.069	0.089	0.115	0.138	0.178
\$2,000,000	0.021	0.031	0.042	0.055	0.073	0.088	0.119
\$3,000,000	0.015	0.022	0.031	0.040	0.055	0.067	0.092
\$4,000,000	0.011	0.017	0.024	0.032	0.044	0.054	0.075
\$5,000,000	0.009	0.014	0.019	0.026	0.036	0.045	0.063
\$6,000,000	0.007	0.012	0.016	0.022	0.031	0.038	0.054
\$7,000,000	0.006	0.010	0.014	0.019	0.026	0.033	0.047
\$8,000,000	0.005	0.008	0.012	0.016	0.023	0.029	0.042
\$9,000,000	0.004	0.007	0.010	0.014	0.020	0.026	0.037
\$10,000,000	0.004	0.006	0.009	0.012	0.018	0.023	0.033



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### **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 – Memorandum for Assessment



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

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

NCCI utilizes 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. Reported standard earned premium at the Designated Statistical Reporting (DSR) level is developed to an ultimate basis and adjusted (via on-level factors) to the current pure premium level.
2. Reported indemnity and medical losses are limited by a large loss threshold, developed to an ultimate report, and adjusted (via on-level factors) to the current benefit level.
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 anticipated changes in the amount of indemnity and medical benefits as compared with anticipated changes in the amount of workers' wages between (i) the years in filing's experience period and (ii) the period during which the proposed loss costs will be in effect.
5. An excess provision is applied to adjust the limited cost ratios to an unlimited basis.
6. The impact of proposed indemnity and medical benefit changes is then applied.
7. The separate indemnity and medical cost ratios including benefit changes are then summed to yield the indicated change based on experience, trend, and benefits.

This filing's overall indicated change based on experience, trend and benefits 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 to determine the indicated overall average loss cost level change.



## MISSOURI

### EXHIBIT I

#### Determination of Indicated Loss Cost Level Change

##### Section A - Policy Year 2018 Experience

###### Premium:

(1) Standard Earned Premium Developed to Ultimate (Appendix A-II)	\$634,026,730
(2) Premium On-level Factor (Appendix A-I)	0.799
(3) Pure Premium Available for Benefit Costs = (1) x (2)	\$506,587,357

###### Indemnity Benefit Cost:

(4) Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	\$222,512,298
(5) Indemnity Loss On-level Factor (Appendix A-I)	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$222,512,298
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.439
(8) Factor to Reflect Indemnity Trend (Appendix A-III)	0.941
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.413
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.011
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.418
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.418

###### Medical Benefit Cost:

(14) Limited Medical Losses Developed to Ultimate (Appendix A-II)	\$310,450,166
(15) Medical Loss On-level Factor (Appendix A-I)	1.000
(16) Adjusted Limited Medical Losses = (14) x (15)	\$310,450,166
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.613
(18) Factor to Reflect Medical Trend (Appendix A-III)	0.970
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.595
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.011
(21) Projected Medical Cost Ratio = (19) x (20)	0.602
(22) Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.000
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.602

###### Total Benefit Cost:

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	1.020
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## MISSOURI

### EXHIBIT I

#### Determination of Indicated Loss Cost Level Change

##### Section B - Policy Year 2017 Experience

###### Premium:

(1) Standard Earned Premium Developed to Ultimate (Appendix A-II)	\$656,818,816
(2) Premium On-level Factor (Appendix A-I)	0.760
(3) Pure Premium Available for Benefit Costs = (1) x (2)	\$499,182,300

###### Indemnity Benefit Cost:

(4) Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	\$209,505,189
(5) Indemnity Loss On-level Factor (Appendix A-I)	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$209,505,189
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.420
(8) Factor to Reflect Indemnity Trend (Appendix A-III)	0.922
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.387
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.011
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.391
(12) Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.391

###### Medical Benefit Cost:

(14) Limited Medical Losses Developed to Ultimate (Appendix A-II)	\$307,074,787
(15) Medical Loss On-level Factor (Appendix A-I)	1.000
(16) Adjusted Limited Medical Losses = (14) x (15)	\$307,074,787
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.615
(18) Factor to Reflect Medical Trend (Appendix A-III)	0.961
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.591
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.011
(21) Projected Medical Cost Ratio = (19) x (20)	0.598
(22) Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.000
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.598

###### Total Benefit Cost:

(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.989
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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 2018 Indicated Change Based on Experience, Trend, and Benefits	1.020
(2) Policy Year 2017 Indicated Change Based on Experience, Trend, and Benefits	0.989
(3) Indicated Change Based on Experience, Trend, and Benefits = $[(1)+(2)] / 2$	1.005

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

(1) Indicated Loss Cost Level Change	1.005
(2) Effect of the Change in Loss-based Expenses (Exhibit II)	1.005
(3) Indicated Change Modified to Reflect the Change in Loss-based Expenses = (1) x (2)	1.010

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

Industry Group Differentials (Appendix A-IV):

Manufacturing	1.004
Contracting	0.979
Office & Clerical	1.013
Goods & Services	1.007
Miscellaneous	0.999

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	1.010	1.004	1.014	(+1.4%)
Contracting	1.010	0.979	0.989	(-1.1%)
Office & Clerical	1.010	1.013	1.023	(+2.3%)
Goods & Services	1.010	1.007	1.017	(+1.7%)
Miscellaneous	1.010	0.999	1.009	(+0.9%)
Overall	1.010	1.000	1.010	(+1.0%)



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

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

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).

Given the nature of AOE, it cannot be allocated to a specific claim, and hence cannot be accurately attributed to specific states. Therefore, the Missouri-specific AOE ratio reflects a weighting of the latest selected countrywide AOE provision (which was calculated based on private carrier data) and an AOE provision calculated based on the state fund’s data. The countrywide provision was calculated using data obtained from the NCCI Call for Loss Adjustment Expense. The accident year developed AOE ratios displayed in Section B are calculated on a countrywide basis using private carrier-only data.

NCCI used the following general methodology to determine the proposed DCCE provision based on Missouri-specific paid DCCE and losses obtained from NCCI’s Policy Year Financial Call:

- Ratios of paid DCCE to paid losses by policy year are developed to an ultimate basis.
- The proposed DCCE provision is selected based on the ultimate projected DCCE ratios by policy year.

These policy year DCCE ratios were calculated using combined private carrier and state fund data.



**MISSOURI**

**EXHIBIT II**

**Workers Compensation Loss Adjustment Expense Provision**

**Section A - Proposed Change in Missouri Loss Adjustment Expense Provision**

In this filing, NCCI is proposing a 19.3% loss adjustment expense allowance as a percentage of incurred losses.

Missouri Provisions	(1) <u>Current</u>	(2) <u>Proposed</u>
AOE	8.4%	9.1%
DCCE	10.3%	10.2%
Total LAE	18.7%	19.3%

$$\begin{aligned} \text{Proposed Change in Missouri LAE Provision} &= 1.005 \quad (+0.5\%) \\ &= [1.0 + (2)] / [1.0 + (1)] \end{aligned}$$

**Section B - Selection of AOE Provision**

The adjusting and other expense data by accident year shown below is based on countrywide data for private carriers. NCCI's countrywide selection for the AOE provision is 8.9%.

<u>Accident Year</u>	<u>Ultimate AOE Ratio</u>
2015	7.2%
2016	7.7%
2017	8.1%
2018	7.9%
2019	8.9%
Countrywide Selected	8.9%
Missouri Selected	9.1%



**MISSOURI**

**EXHIBIT II**

**Workers Compensation Loss Adjustment Expense Provision**

**Section C - Selection of DCCE Provision**

<u>Policy Year</u>	(1) Reported Ratio of Paid DCCE to <u>Paid Losses</u>	(2) Age to Ultimate Development <u>Factor</u>	(3) = (1) x (2) Ultimate DCCE <u>Ratio</u>
2014	11.3%	0.965	10.9%
2015	10.5%	0.967	10.2%
2016	10.4%	0.977	10.2%
2017	9.7%	1.006	9.8%
2018	9.2%	1.101	<u>10.1%</u>
		Missouri Selected	10.2%

**Section D - Summary of Paid DCCE to Paid Loss Ratio Development Factors**

<u>Report</u>	(1) <u>DCCE Ratio Development</u> <u>To Next Report</u>	(2) <u>To Ultimate</u>
1st	1.094	1.101
2nd	1.030	1.006
3rd	1.010	0.977
4th	1.002	0.967
5th	0.999	0.965
6th	0.994	0.966
7th	0.996	0.972
8th	0.997	0.976
9th	0.994	0.979
10th	0.998	0.985
11th	1.000	0.987
12th	0.998	0.987
13th	0.996	0.989
14th	0.998	0.993
15th	1.000	0.995
16th	0.995	0.995
17th	1.000	1.000
18th	1.000	1.000
19th		1.000*

(1) Section E

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

\*Selection



**MISSOURI**

**EXHIBIT II**

**Workers Compensation Loss Adjustment Expense Provision**

**Section E - Paid DCCE to Paid Loss Ratio Development Factors**

<u>Valuation</u>	<u>1st/2nd</u>	<u>2nd/3rd</u>	<u>3rd/4th</u>	<u>4th/5th</u>	<u>5th/6th</u>	<u>6th/7th</u>
12/31/2018	1.098	1.036	1.019	1.003	0.995	0.993
12/31/2019	<u>1.090</u>	<u>1.023</u>	<u>1.001</u>	<u>1.000</u>	<u>1.002</u>	<u>0.995</u>
Average	1.094	1.030	1.010	1.002	0.999	0.994

<u>Valuation</u>	<u>7th/8th</u>	<u>8th/9th</u>	<u>9th/10th</u>	<u>10th/11th</u>	<u>11th/12th</u>	<u>12th/13th</u>
12/31/2018	0.997	0.997	0.993	0.996	0.998	0.995
12/31/2019	<u>0.995</u>	<u>0.996</u>	<u>0.995</u>	<u>1.000</u>	<u>1.002</u>	<u>1.000</u>
Average	0.996	0.997	0.994	0.998	1.000	0.998

<u>Valuation</u>	<u>13th/14th</u>	<u>14th/15th</u>	<u>15th/16th</u>	<u>16th/17th</u>	<u>17th/18th</u>	<u>18th/19th</u>
12/31/2018	0.995	0.997	1.001	0.995	0.999	0.999
12/31/2019	<u>0.997</u>	<u>0.998</u>	<u>0.999</u>	<u>0.994</u>	<u>1.000</u>	<u>1.001</u>
Average	0.996	0.998	1.000	0.995	1.000	1.000



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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. 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, proposed 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.



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APPENDIX A-I

Determination of Policy Year On-level Factors

Section A - Factor Adjusting 2018 Policy Year Premium to Present Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Date	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)
NR 01/01/18	Base	1.000	1.000	1.000	0.950	0.842	0.999	0.799
NR 01/01/19	0.965	0.965						
NR 01/01/20	0.984	0.950						
				1.000				

Section B - Factor Adjusting 2018 Policy Year Indemnity Losses to Present Benefit Level

	(1)	(2)	(3)	(4)	(5)
Date	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
01/01/14	Base	1.000	1.000	1.000	1.000
				1.000	

Section C - Factor Adjusting 2018 Policy Year Medical Losses to Present Benefit Level

	(1)	(2)	(3)	(4)	(5)
Date	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
01/01/14	Base	1.000	1.000	1.000	1.000
				1.000	

NR New and renewal business.

\* 0.999 = 0.958 / 0.959 = (Targeted Off-balance) / (Off-balance for Policy Year 2018)



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

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

**Section D - Factor Adjusting 2017 Policy Year Premium to Present Level**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Date	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)
NR 01/01/17	Base	1.000	0.661	0.661	0.897	0.842	1.007	0.760
NR 08/01/17	0.960	0.960	0.339	0.325				
NR 01/01/18	0.970	0.931						
NR 01/01/19	0.965	0.898						
NR 01/01/20	0.984	0.884						
				0.986				

**Section E - Factor Adjusting 2017 Policy Year Indemnity Losses to Present Benefit Level**

	(1)	(2)	(3)	(4)	(5)
Date	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
01/01/14	Base	1.000	1.000	1.000	1.000
				1.000	

**Section F - Factor Adjusting 2017 Policy Year Medical Losses to Present Benefit Level**

	(1)	(2)	(3)	(4)	(5)
Date	Benefit Level Change	Cumulative Index	Weight	Product (2)x(3)	Adj. Factor Present Index/ Sum Column (4)
01/01/14	Base	1.000	1.000	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 2017)





## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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.

For premium development, link ratios are used from first through fifth report, after which it is assumed no further development occurs.

For indemnity and medical loss development, link ratios are used from first through nineteenth report. For loss development beyond a nineteenth report, a “tail” factor is used to reflect all future expected emergence. Tail factors are calculated separately for indemnity and medical losses by comparing the changes in the volume of policy year losses that occur for years older than a nineteenth report to the volume of policy year losses at the nineteenth report, along with the application of a growth adjustment factor.

To limit volatility on the loss cost level indications due to the impact of large losses, a limited large loss methodology is utilized. 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 is detrended by policy year to reflect the inflationary impact on claim costs due to wage inflation. The wage index used is based on the Missouri average weekly wages from the Quarterly Census of Employment and Wages. Indemnity and medical losses are limited to the year-specific detrended large loss thresholds. Limited indemnity and medical losses are used to calculate estimated losses at an ultimate report. A statewide excess ratio is used to adjust the limited losses to an unlimited basis.



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### APPENDIX A-II

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

##### Section A - Premium and Loss Summary Valued as of 12/31/2019

###### Policy Year 2018

(1) Standard Earned Premium	\$629,619,394
(2) Factor to Develop Premium to Ultimate	1.007
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$634,026,730
(4) Limited Indemnity Paid Losses	\$62,656,894
(5) Limited Indemnity Paid Development Factor to Ultimate	3.515
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$220,238,982
(7) Limited Indemnity Paid+Case Losses	\$162,652,397
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.382
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$224,785,613
(10) Policy Year 2018 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$222,512,298
(11) Limited Medical Paid Losses	\$205,729,460
(12) Limited Medical Paid Development Factor to Ultimate	1.514
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$311,474,402
(14) Limited Medical Paid+Case Losses	\$299,251,383
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.034
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$309,425,930
(17) Policy Year 2018 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$310,450,166

###### Policy Year 2017

(1) Standard Earned Premium	\$656,818,816
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$656,818,816
(4) Limited Indemnity Paid Losses	\$108,058,588
(5) Limited Indemnity Paid Development Factor to Ultimate	1.956
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$211,362,598
(7) Limited Indemnity Paid+Case Losses	\$169,924,533
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.222
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$207,647,779
(10) Policy Year 2017 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$209,505,189
(11) Limited Medical Paid Losses	\$244,076,116
(12) Limited Medical Paid Development Factor to Ultimate	1.252
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$305,583,297
(14) Limited Medical Paid+Case Losses	\$305,208,978
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.011
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$308,566,277
(17) Policy Year 2017 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$307,074,787



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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>
2015	1.008	2014	1.000	2013	1.000	2012	1.000
2016	1.006	2015	1.000	2014	1.001	2013	1.001
2017	1.007	2016	1.001	2015	0.999	2014	1.000
Average	1.007	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>
1.007	1.000	1.000	1.000



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**APPENDIX A-II**

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

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

Policy <u>Year</u>	<u>1st/2nd</u>	Policy <u>Year</u>	<u>2nd/3rd</u>	Policy <u>Year</u>	<u>3rd/4th</u>	Policy <u>Year</u>	<u>4th/5th</u>
2016	1.781	2015	1.282	2014	1.117	2013	1.073
2017	1.812	2016	1.291	2015	1.144	2014	1.074
Average	1.797	Average	1.287	Average	1.131	Average	1.074
Policy <u>Year</u>	<u>5th/6th</u>	Policy <u>Year</u>	<u>6th/7th</u>	Policy <u>Year</u>	<u>7th/8th</u>	Policy <u>Year</u>	<u>8th/9th</u>
2012	1.052	2011	1.045	2010	1.020	2009	1.017
2013	1.040	2012	1.031	2011	1.024	2010	1.016
Average	1.046	Average	1.038	Average	1.022	Average	1.017
Policy <u>Year</u>	<u>9th/10th</u>	Policy <u>Year</u>	<u>10th/11th</u>	Policy <u>Year</u>	<u>11th/12th</u>	Policy <u>Year</u>	<u>12th/13th</u>
2008	1.020	2007	1.013	2006	1.010	2005	1.006
2009	1.012	2008	1.009	2007	1.006	2006	1.005
Average	1.016	Average	1.011	Average	1.008	Average	1.006
Policy <u>Year</u>	<u>13th/14th</u>	Policy <u>Year</u>	<u>14th/15th</u>	Policy <u>Year</u>	<u>15th/16th</u>	Policy <u>Year</u>	<u>16th/17th</u>
2004	1.012	2003	1.007	2002	1.003	2001	1.004
2005	1.004	2004	1.005	2003	1.005	2002	1.005
Average	1.008	Average	1.006	Average	1.004	Average	1.005
Policy <u>Year</u>	<u>17th/18th</u>	Policy <u>Year</u>	<u>18th/19th</u>				
2000	1.004	1999	1.002				
2001	1.002	2000	1.001				
Average	1.003	Average	1.002				



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

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

Policy <u>Year</u>	<u>1st/2nd</u>	Policy <u>Year</u>	<u>2nd/3rd</u>	Policy <u>Year</u>	<u>3rd/4th</u>	Policy <u>Year</u>	<u>4th/5th</u>
2016	1.205	2015	1.059	2014	1.021	2013	1.016
2017	1.212	2016	1.060	2015	1.035	2014	1.015
Average	1.209	Average	1.060	Average	1.028	Average	1.016
Policy <u>Year</u>	<u>5th/6th</u>	Policy <u>Year</u>	<u>6th/7th</u>	Policy <u>Year</u>	<u>7th/8th</u>	Policy <u>Year</u>	<u>8th/9th</u>
2012	1.015	2011	1.013	2010	1.009	2009	1.006
2013	1.005	2012	1.009	2011	1.012	2010	1.007
Average	1.010	Average	1.011	Average	1.011	Average	1.007
Policy <u>Year</u>	<u>9th/10th</u>	Policy <u>Year</u>	<u>10th/11th</u>	Policy <u>Year</u>	<u>11th/12th</u>	Policy <u>Year</u>	<u>12th/13th</u>
2008	1.012	2007	1.005	2006	1.005	2005	1.005
2009	1.003	2008	1.005	2007	1.003	2006	1.003
Average	1.008	Average	1.005	Average	1.004	Average	1.004
Policy <u>Year</u>	<u>13th/14th</u>	Policy <u>Year</u>	<u>14th/15th</u>	Policy <u>Year</u>	<u>15th/16th</u>	Policy <u>Year</u>	<u>16th/17th</u>
2004	1.004	2003	1.004	2002	1.003	2001	1.003
2005	1.004	2004	1.006	2003	1.002	2002	1.011
Average	1.004	Average	1.005	Average	1.003	Average	1.007
Policy <u>Year</u>	<u>17th/18th</u>	Policy <u>Year</u>	<u>18th/19th</u>				
2000	1.003	1999	1.001				
2001	1.003	2000	1.001				
Average	1.003	Average	1.001				



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

**Section E - Limited Indemnity Paid + Case 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	1.128	2012	1.078	2011	1.072	2010	1.029
2014	1.135	2013	1.089	2012	1.038	2011	1.033
2015	1.123	2014	1.054	2013	1.074	2012	1.019
2016	1.140	2015	1.063	2014	1.021	2013	1.040
2017	1.127	2016	1.062	2015	1.033	2014	1.028
Average	1.131	Average	1.069	Average	1.048	Average	1.030
<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	1.005	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
2012	1.008	2011	1.003	2010	1.005	2009	1.001
2013	1.002	2012	1.009	2011	1.003	2010	1.000
Average	1.009	Average	1.008	Average	1.008	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	1.002	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
2008	1.002	2007	1.002	2006	0.998	2005	1.004
2009	1.004	2008	1.003	2007	1.002	2006	1.002
Average	1.005	Average	1.001	Average	1.001	Average	1.005
<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	1.001	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
2004	1.006	2003	1.004	2002	1.002	2001	1.000
2005	1.002	2004	1.002	2003	1.001	2002	1.002
Average	1.002	Average	1.001	Average	1.001	Average	1.001
<u>Policy Year</u>	<u>17th/18th</u>	<u>Policy Year</u>	<u>18th/19th</u>				
1997	1.004	1996	1.002				
1998	1.003	1997	1.003				
1999	1.001	1998	1.000				
2000	0.996	1999	1.003				
2001	0.998	2000	1.002				
Average	1.000	Average	1.002				



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

**Section F - Limited Medical Paid + Case 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	1.013	2012	1.005	2011	0.972	2010	0.993
2014	1.034	2013	0.993	2012	1.004	2011	0.993
2015	1.035	2014	0.993	2013	1.000	2012	0.998
2016	1.007	2015	1.006	2014	0.992	2013	1.000
2017	1.025	2016	0.966	2015	1.007	2014	1.008
Average	1.023	Average	0.993	Average	0.995	Average	0.998
<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	0.998	2008	1.007	2007	1.003	2006	0.998
2010	1.010	2009	1.007	2008	0.996	2007	1.004
2011	1.024	2010	1.001	2009	1.007	2008	1.007
2012	0.986	2011	0.992	2010	0.997	2009	0.996
2013	0.981	2012	0.995	2011	1.006	2010	0.998
Average	1.000	Average	1.000	Average	1.002	Average	1.001
<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	1.023	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
2008	0.990	2007	0.996	2006	1.001	2005	1.002
2009	0.997	2008	0.985	2007	1.001	2006	1.003
Average	1.003	Average	0.996	Average	1.001	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	0.999	2000	0.990	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
2004	0.994	2003	1.009	2002	1.001	2001	1.000
2005	1.000	2004	0.998	2003	1.001	2002	1.002
Average	0.999	Average	1.001	Average	0.998	Average	1.002
<u>Policy Year</u>	<u>17th/18th</u>	<u>Policy Year</u>	<u>18th/19th</u>				
1997	1.013	1996	1.002				
1998	1.000	1997	0.990				
1999	0.999	1998	1.000				
2000	1.001	1999	0.999				
2001	0.996	2000	1.003				
Average	1.002	Average	0.999				



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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    20th Report		(4) <u>Losses for All Prior Policy Years</u> Previous    Current		(6) Factor to Adjust Losses for Prior Policy Years	(7) Indicated 19th-to-Ult Development for Policy Year
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	163,726,551	163,870,863	2,566,044,372	2,568,255,311	1.098	1.013
1995	141,313,490	141,545,926	2,727,688,854	2,729,411,452	1.309	1.011
1996	147,966,426	148,885,395	2,870,128,232	2,872,051,105	1.256	1.017
1997	154,311,500	154,746,190	3,017,196,317	3,016,590,277	1.201	1.000
1998	182,540,288	182,664,069	3,169,160,582	3,171,144,364	1.008	1.011
1999	178,274,607	178,699,133	3,218,869,043	3,221,136,033	0.987	1.015
Selected Indemnity 19th-to-Ultimate Loss Development Factor						1.012

Medical Paid+Case Data for Matching Companies

(8) Policy Year	(9) <u>Losses for Policy Year</u> 19th Report    20th Report		(11) <u>Losses for All Prior Policy Years</u> Previous    Current		(13) Factor to Adjust Losses for Prior Policy Years	(14) Indicated 19th-to-Ult Development for Policy Year
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	151,270,232	149,612,389	1,915,056,614	1,916,008,300	0.935	0.996
1995	134,266,425	134,657,354	2,061,176,436	2,065,782,021	1.111	1.034
1996	128,546,172	128,496,716	2,199,686,714	2,200,950,027	1.194	1.008
1997	152,933,798	153,607,274	2,327,361,810	2,327,688,399	1.021	1.006
1998	156,288,073	155,917,719	2,480,377,273	2,483,028,345	1.011	1.014
1999	162,855,364	162,873,779	2,532,868,394	2,541,713,451	0.946	1.058
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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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
1996	0.972	0.953
1997	0.975	0.981
1998	0.973	0.975
1999	0.968	0.986
2000	0.989	0.959
Selected	0.975	0.975

	Indemnity	Medical
(1) Paid+Case 19th-to-Ultimate Loss Development Factor (Section G)	1.012	1.020
(2) Factor to Adjust 19th-to-Ultimate Development Factor to a Limited Basis	0.859	0.859
(3) Limited Paid+Case 19th-to-Ultimate Loss Development Factor = $[(1)-1] \times (2) + 1$	1.010	1.017
(4) Limited Paid-to-Paid+Case Ratio (Section H)	0.975	0.975
(5) Limited Paid 19th-to-Ultimate Loss Development Factor = (3) / (4)	1.036	1.043

Section I - Summary of Limited Paid Loss Development Factors

Report	(1) Indemnity Paid Loss Development to Next Report	(2) to Ultimate	Report	(3) Medical Paid Loss Development to Next Report	(4) to Ultimate
1st	1.797	3.515	1st	1.209	1.514
2nd	1.287	1.956	2nd	1.060	1.252
3rd	1.131	1.520	3rd	1.028	1.181
4th	1.074	1.344	4th	1.016	1.149
5th	1.046	1.251	5th	1.010	1.131
6th	1.038	1.196	6th	1.011	1.120
7th	1.022	1.152	7th	1.011	1.108
8th	1.017	1.127	8th	1.007	1.096
9th	1.016	1.108	9th	1.008	1.088
10th	1.011	1.091	10th	1.005	1.079
11th	1.008	1.079	11th	1.004	1.074
12th	1.006	1.070	12th	1.004	1.070
13th	1.008	1.064	13th	1.004	1.066
14th	1.006	1.056	14th	1.005	1.062
15th	1.004	1.050	15th	1.003	1.057
16th	1.005	1.046	16th	1.007	1.054
17th	1.003	1.041	17th	1.003	1.047
18th	1.002	1.038	18th	1.001	1.044
19th		1.036	19th		1.043

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

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



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Determination of Premium and Losses Developed to an Ultimate Report

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

Report	(1) Indemnity Paid+Case Loss Development		Report	(3) Medical Paid+Case Loss Development	
	to Next Report	to Ultimate		to Next Report	to Ultimate
1st	1.131	1.382	1st	1.023	1.034
2nd	1.069	1.222	2nd	0.993	1.011
3rd	1.048	1.143	3rd	0.995	1.018
4th	1.030	1.091	4th	0.998	1.023
5th	1.009	1.059	5th	1.000	1.025
6th	1.008	1.050	6th	1.000	1.025
7th	1.008	1.042	7th	1.002	1.025
8th	1.005	1.034	8th	1.001	1.023
9th	1.005	1.029	9th	1.003	1.022
10th	1.001	1.024	10th	0.996	1.019
11th	1.001	1.023	11th	1.001	1.023
12th	1.005	1.022	12th	1.004	1.022
13th	1.002	1.017	13th	0.999	1.018
14th	1.001	1.015	14th	1.001	1.019
15th	1.001	1.014	15th	0.998	1.018
16th	1.001	1.013	16th	1.002	1.020
17th	1.000	1.012	17th	1.002	1.018
18th	1.002	1.012	18th	0.999	1.016
19th		1.010	19th		1.017

(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*	9,919,089
(2) Statewide Excess Ratio for (1)	0.011
(3) Market Share for Carriers Missing from Large Loss and Catastrophe Call	0.000
(4) Factor to Adjust Limited Losses to an Unlimited Basis = $1.0 / \{1.0 - [(2) \times (1.0 - (3))]\}$	1.011

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

Experience Year	Policy Year Detrended Limit
2018	9,319,883
2017	8,994,599
2016	8,717,883
2015	8,563,753
2014	8,383,398
2013	8,142,511
2012	8,010,768
2011	7,832,668
2010	7,635,719
2009	7,498,944
2008	7,505,134
2007	7,345,076
2006	7,042,734
2005	6,798,543
2004	6,581,358
2003	6,374,711
2002	6,219,439
2001	6,100,997
2000	5,939,654
1999	5,695,621
1998	5,460,720
1997	5,240,301
1996	5,009,083

\* November 28, 2021 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, 2021

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

##### Appendix A-III Trend Factors

NCCI applies loss ratio trend factors in the determination of the proposed overall average loss cost level change. In addition, historical changes in claim frequency and average cost per case are also reviewed.

The claim frequency and average cost per case analysis is based on the premium, losses, and lost-time claim counts reported to NCCI. Note that the medical-only claim counts are excluded from the claim frequency and severity calculations, but the losses associated with medical-only claims are included.

The lost-time claim frequency, average costs per case, and loss ratios are shown in Appendix A-III, along with the impact of the trend factor selection on each policy year in the filing's experience period. The trend lengths displayed are based on the number of years between the average accident date of the loss cost effective period and the average accident date of the respective experience period year.



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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^
2011	21.892	23,515	0.515	31,069	0.680
2012	21.137	22,719	0.480	30,293	0.640
2013	20.648	23,826	0.492	29,463	0.608
2014	20.044	23,371	0.468	29,707	0.595
2015	19.281	23,251	0.448	31,581	0.609
2016	18.382	23,738	0.436	31,334	0.576
2017	18.104	23,194	0.420	33,995	0.615
2018	18.040	24,348	0.439	33,970	0.613

\* 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	0.990
(2) Selected Annual Loss Ratio Trend Factor	<b>0.980</b>	<b>0.990</b>
(3) Length of Trend Period from Midpoint of Policy Year to Midpoint of Effective Period:		
		<u>Years</u>
	Policy Year 2017	4.001
	Policy Year 2018	3.001
(4) Trend Factor Applied to Experience Year = (2) ^ (3)	<u>Indemnity</u>	<u>Medical</u>
	Policy Year 2017	0.961
	Policy Year 2018	0.970



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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	182,966,859	852,561,640	861,087,256	1.256	1.258
Contracting	184,694,647	838,574,929	846,960,678	1.121	1.124
Office & Clerical	106,556,114	486,855,804	491,724,362	1.139	1.140
Goods & Services	283,173,869	1,300,859,918	1,313,868,517	1.075	1.083
Miscellaneous	190,493,709	867,933,562	876,612,898	1.075	1.072
Statewide	947,885,198	4,346,785,853	4,390,253,711		

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	182,675,974	851,206,216	859,718,278	0.990	1.000
Contracting	184,201,690	836,336,739	844,700,107	0.990	1.000
Office & Clerical	106,462,644	486,428,737	491,293,025	0.990	1.000
Goods & Services	281,082,095	1,291,250,611	1,304,163,117	0.990	1.000
Miscellaneous	191,026,807	870,362,480	879,066,105	0.990	1.000
Statewide	945,449,210	4,335,584,783	4,378,940,632	0.990	



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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	864,924,965	1.006	1.004	17,398
Contracting	827,347,355	0.979	0.977	10,231
Office & Clerical	498,976,703	1.016	1.014	9,928
Goods & Services	1,316,455,165	1.009	1.007	29,851
Miscellaneous	879,686,019	1.001	0.999	14,248
Statewide	4,387,390,207	1.002		

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	1.006	1.004
Contracting	12,000	0.92	0.981	0.979
Office & Clerical	12,000	0.91	1.015	1.013
Goods & Services	12,000	1.00	1.009	1.007
Miscellaneous	12,000	1.00	1.001	0.999
Statewide			1.002	1.000

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



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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.





**MISSOURI**

**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
7/13-6/14	1.131	1.022	1.060	1.006
7/14-6/15	1.199	1.035	1.064	1.006
7/15-6/16	1.294	1.062	1.068	1.005
7/16-6/17	1.476	1.123	1.091	1.007
7/17-6/18	1.880	1.243	1.179	1.013

**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
7/13-6/14	0.860	0.928
7/14-6/15	0.877	0.937
7/15-6/16	0.895	0.946
7/16-6/17	0.913	0.956
7/17-6/18	0.932	0.966

**3. Factors to Adjust to the Proposed 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
7/13-6/14	1.001	1.001	1.001	1.001	1.000
7/14-6/15	1.000	1.000	1.000	1.000	1.000
7/15-6/16	1.000	1.000	1.000	1.000	1.000
7/16-6/17	1.000	1.000	1.000	1.000	1.000
7/17-6/18	1.000	1.000	1.000	1.000	1.000



**MISSOURI**  
**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)
7/13-6/14	0.974	0.880	0.974	0.974	0.880	0.974	0.880	0.984	0.934
7/14-6/15	1.052	0.908	1.052	1.052	0.908	1.052	0.908	0.997	0.943
7/15-6/16	1.158	0.950	1.158	1.158	0.950	1.158	0.950	1.010	0.951
7/16-6/17	1.348	1.025	1.348	1.348	1.025	1.348	1.025	1.043	0.963
7/17-6/18	1.752	1.158	1.752	1.752	1.158	1.752	1.158	1.139	0.979

\* 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	0.064	0.090	0.113	0.143	0.181	0.216	0.267
(2) Excess Factors 1/(1-(1))	1.068	1.099	1.127	1.167	1.221	1.276	1.364

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*	1.004	0.977	1.014	1.007	0.999
(2) Final Differentials**	1.004	0.979	1.013	1.007	0.999
(3) Adjustment (2)/(1)	1.000	1.002	0.999	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)
7/13-6/14	0.895	1.127	1.121	1.005	0.899
7/14-6/15	0.889	1.127	1.130	0.997	0.886
7/15-6/16	0.909	1.126	1.130	0.996	0.905
7/16-6/17	0.917	1.126	1.130	0.996	0.913
7/17-6/18	0.895	1.126	1.122	1.004	0.899

**3. Adjustment for Experience Change**

A factor of 1.005 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 1.193 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
7/13-6/14	1.078	1.080	1.077	1.078	1.078
7/14-6/15	1.062	1.064	1.061	1.062	1.062
7/15-6/16	1.085	1.087	1.084	1.085	1.085
7/16-6/17	1.095	1.097	1.094	1.095	1.095
7/17-6/18	1.078	1.080	1.077	1.078	1.078



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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 1.005 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, 1.000 and 1.000, for indemnity and medical, respectively, are applied to adjust to the proposed trend level.

**3. Factors to Adjust to the Proposed Benefit Level**

The following factors are applied to adjust the pure premiums underlying the current loss costs to the proposed benefit level.

	Indemnity	Medical
Benefit Adjustment	1.000	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	1.187	1.187	1.193	1.193
(2) Overall Change (1b)/(1a)			1.005	1.005

**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	1.256	1.258	0.998
Contracting	1.121	1.124	0.997
Office & Clerical	1.139	1.140	0.999
Goods & Services	1.075	1.083	0.993
Miscellaneous	1.075	1.072	1.003



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**APPENDIX B-I**

**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	1.004	1.000	1.004
Contracting	0.979	1.000	0.979
Office & Clerical	1.013	1.000	1.013
Goods & Services	1.007	1.000	1.007
Miscellaneous	0.999	1.000	0.999

\*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	1.012	1.012
Contracting	0.986	0.986
Office & Clerical	1.022	1.022
Goods & Services	1.010	1.010
Miscellaneous	1.012	1.012



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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: \$36,125,145 for indemnity and \$26,005,743 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.



**MISSOURI**  
**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	1.0080
Contracting	1.0044
Office & Clerical	0.9871
Goods & Services	0.9893
Miscellaneous	1.0005

**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	1.258
Contracting	1.124
Office & Clerical	1.140
Goods & Services	1.083
Miscellaneous	1.072

**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. When a code is limited, the underlying pure premiums are adjusted to reflect the limited loss cost. The classifications which have been so limited are shown below. Note that classifications that are subject to special handling may fall outside of the swing limits. A code listed below with an asterisk indicates the code's swing limit was adjusted by one cent before being applied; this is only performed when the upper and lower bounds calculated by the swing limit are equal.

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. The loss costs for other classifications are calculated in the same manner.

List of Classifications Limited by the Upper Swing

2021 3132 3574 4581 5703 7225 7711 8856
9522

List of Classifications Limited by the Lower Swing

None

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 1.090 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
07/01/13 - 06/30/14	0	0	31,756	2,234,578	4,277,737	972,758	1,280,629	4,545,651	10,786,668
07/01/14 - 06/30/15	0	1,000	0	2,444,962	4,181,142	769,605	1,929,642	3,300,053	10,058,828
07/01/15 - 06/30/16	100,000	80,168	0	1,909,800	3,634,962	617,412	1,674,967	2,942,339	9,695,822
07/01/16 - 06/30/17	70,000	97,398	0	916,084	3,904,423	657,145	1,677,472	1,526,603	10,521,133
07/01/17 - 06/30/18	0	0	0	951,121	3,092,406	516,894	1,494,636	2,076,532	11,952,389

**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
07/01/13 - 06/30/14	0.974	0.880	0.974	0.974	0.880	0.974	0.880	0.984	0.934
07/01/14 - 06/30/15	1.052	0.908	1.052	1.052	0.908	1.052	0.908	0.997	0.943
07/01/15 - 06/30/16	1.158	0.950	1.158	1.158	0.950	1.158	0.950	1.010	0.951
07/01/16 - 06/30/17	1.348	1.025	1.348	1.348	1.025	1.348	1.025	1.043	0.963
07/01/17 - 06/30/18	1.752	1.158	1.752	1.752	1.158	1.752	1.158	1.139	0.979

**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:

HAZARD GROUP: C	
Excess Factor	1.127

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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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
07/01/13 - 06/30/14	0	0	33,294	2,342,843	4,052,151	1,019,888	1,213,095	5,203,519	11,607,484
07/01/14 - 06/30/15	0	978	0	2,768,705	4,086,670	871,510	1,886,042	3,881,631	10,976,677
07/01/15 - 06/30/16	124,651	81,981	0	2,380,593	3,717,169	769,613	1,712,847	3,505,383	10,656,344
07/01/16 - 06/30/17	101,573	107,464	0	1,329,272	4,307,939	953,542	1,850,836	1,907,968	11,719,247
07/01/17 - 06/30/18	0	0	0	1,793,737	3,854,729	974,819	1,863,085	2,797,546	13,462,776

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

Policy Period	INDUSTRY GROUP: Office and Clerical
07/01/13 - 06/30/14	1.077
07/01/14 - 06/30/15	1.061
07/01/15 - 06/30/16	1.084
07/01/16 - 06/30/17	1.094
07/01/17 - 06/30/18	1.077

**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
07/01/13 - 06/30/14	22,571,464,769	3,657,519	5,670,670	5,604,190	12,501,260	9,328,189	18,105,450	27,433,639
07/01/14 - 06/30/15	23,178,790,585	3,862,268	6,338,085	4,118,410	11,646,254	10,200,353	15,764,664	25,965,017
07/01/15 - 06/30/16	24,770,870,452	3,549,945	5,975,005	3,799,835	11,551,477	9,524,950	15,351,312	24,876,262
07/01/16 - 06/30/17	25,553,178,727	2,608,519	6,855,265	2,087,317	12,820,856	9,463,784	14,908,173	24,371,957
07/01/17 - 06/30/18	26,658,399,658	2,981,735	6,158,086	3,012,957	14,499,410	9,139,821	17,512,367	26,652,188
Total	122,732,704,191	16,659,986	30,997,111	18,622,709	63,019,257	47,657,097	81,641,966	129,299,063
<b>INDICATED PURE PREMIUM</b>						<b>0.039</b>	<b>0.067</b>	<b>0.11</b>

The pure premiums shown were calculated using unrounded losses, while the converted losses have been rounded for display purposes.

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	0.034	0.066	0.10
Conversion Factors (App. B-I, Section B)	1.022	1.022	xxx
<b>PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)</b>	<b>0.035</b>	<b>0.067</b>	<b>0.10</b>



MISSOURI

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	0.039	0.067	0.11
2. Pure Premium Indicated by National Relativity	0.037	0.067	0.10
3. Pure Premium Present on Rate Level	0.035	0.067	0.10
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)	0.039	0.067	0.11
8. Test Correction Factor	0.9871	0.9871	xxx
9. Underlying Pure Premiums = (7) x (8) *	0.034	0.066	0.10
10. Ratio of Manual to Standard Premium			1.140
11. Loss Cost = (9) x (10)			0.11
12. Loss Cost Within Swing Limits			0.11
Current Loss Cost x Swing Limits			
a) Lower bound = 0.11 x 0.820 = 0.10			
b) Upper bound = 0.11 x 1.220 = 0.13			
13. Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	0.034	0.066	0.10
14. Disease, Catastrophe and/or Miscellaneous Loadings			0.00
15. Final Loaded Loss Cost			0.11

\* 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 -6.6%.

**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 and federal losses are adjusted to the proposed state and federal benefit levels, respectively.

STATE ACT

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/13 - 12/13	1.004	1.004	1.004	1.004	1.000
1/14 - 12/14	1.000	1.000	1.000	1.000	1.000
1/15 - 12/15	1.000	1.000	1.000	1.000	1.000
1/16 - 12/16	1.000	1.000	1.000	1.000	1.000
1/17 - 12/17	1.000	1.000	1.000	1.000	1.000

FEDERAL ACT

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/13 - 12/13	1.000	1.000	1.000	1.000	1.000
1/14 - 12/14	1.000	1.000	1.000	1.000	1.000
1/15 - 12/15	1.000	1.000	1.000	1.000	1.000
1/16 - 12/16	1.000	1.000	1.000	1.000	1.000
1/17 - 12/17	1.000	1.000	1.000	1.000	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 0.980 and 0.990 for indemnity and medical, respectively.

Policy Period	Indemnity	Medical
1/13 - 12/13	0.851	0.923
1/14 - 12/14	0.868	0.932
1/15 - 12/15	0.886	0.941
1/16 - 12/16	0.904	0.951
1/17 - 12/17	0.922	0.961



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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
1/13 - 12/13	1.085	1.041	1.184	1.029
1/14 - 12/14	1.110	1.055	1.228	1.028
1/15 - 12/15	1.278	1.110	1.305	1.029
1/16 - 12/16	1.477	1.255	1.374	1.065
1/17 - 12/17	2.319	1.811	1.594	1.141

**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)
1/13 - 12/13	0.927	0.889	0.927	0.927	0.889	0.927	0.889	1.093	0.950
1/14 - 12/14	0.963	0.916	0.963	0.963	0.916	0.963	0.916	1.144	0.958
1/15 - 12/15	1.132	0.983	1.132	1.132	0.983	1.132	0.983	1.228	0.968
1/16 - 12/16	1.335	1.135	1.335	1.335	1.135	1.335	1.135	1.307	1.013
1/17 - 12/17	2.138	1.670	2.138	2.138	1.670	2.138	1.670	1.532	1.097

**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)
1/13 - 12/13	0.923	0.886	0.923	0.923	0.886	0.923	0.886	1.093	0.950
1/14 - 12/14	0.963	0.916	0.963	0.963	0.916	0.963	0.916	1.144	0.958
1/15 - 12/15	1.132	0.983	1.132	1.132	0.983	1.132	0.983	1.228	0.968
1/16 - 12/16	1.335	1.135	1.335	1.335	1.135	1.335	1.135	1.307	1.013
1/17 - 12/17	2.138	1.670	2.138	2.138	1.670	2.138	1.670	1.532	1.097

\* 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	0.064	0.090	0.113	0.143	0.181	0.216	0.267
(2) Excess Factors 1/(1-(1))	1.068	1.099	1.127	1.167	1.221	1.276	1.364

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
1/13 - 12/13	1.193	1.210
1/14 - 12/14	1.193	1.260
1/15 - 12/15	1.193	1.267
1/16 - 12/16	1.193	1.193
1/17 - 12/17	1.193	1.259

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



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**APPENDIX B-IV**

**Section B – Present on Rate Level**

**1. Benefits**

The underlying pure premiums are adjusted by the weighted impact of the proposed state and federal benefit levels. The distribution of state and federal losses was used to determine the weighted effects.

State Weight (St%)	0.236
Federal Weight (Fed%)	0.764

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

**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
0.980	0.990



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**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	1.193	1.193	1.193
(b) Loss-Based Assessment	1.000	1.000	1.000
(c) Total = (a) + (b) - 1	1.193	1.193	1.193

FEDERAL ACT			
	Indemnity	Medical	Total
(d) Loss Adjustment Expense	1.193	1.193	1.193
(e) Loss-Based Assessment	1.120	1.000	1.068
(f) Total = (d) + (e) - 1	1.313	1.193	1.261

	Indemnity	Medical	Total
(g) Weighted Proposed Expenses = [(c) x St%] + [(f) x Fed%]	1.285	1.193	1.245

Current:

STATE ACT			
	Indemnity	Medical	Total
(h) Loss Adjustment Expense	1.187	1.187	1.187
(i) Loss-Based Assessment	1.000	1.000	1.000
(j) Total = (h) + (i) - 1	1.187	1.187	1.187

FEDERAL ACT			
	Indemnity	Medical	Total
(k) Loss Adjustment Expense	1.187	1.187	1.187
(l) Loss-Based Assessment	1.113	1.000	1.065
(m) Total = (k) + (l) - 1	1.300	1.187	1.252

	Indemnity	Medical	Total
(n) Weighted Current Expenses = [(j) x St%] + [(m) x Fed%]	1.273	1.187	1.237

Change:

	Indemnity	Medical	Total
Weighted Expense Change in Loss-Based Expenses = [(g) / (n)]	1.009	1.005	1.006

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

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

Indemnity	Medical
0.989	0.995





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**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: \$110,042,700 for indemnity and \$53,620,800 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** **1.241**  
(determined on a countrywide basis)

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



**MISSOURI  
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
01/01/13 - 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
01/01/16 - 12/31/16	0	0	0	0	0	0	0	0	0
01/01/17 - 12/31/17	0	0	0	0	36,164	0	0	0	18,300

**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
01/01/13 - 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	36,180	0	0	0	16,730
01/01/16 - 12/31/16	0	0	0	0	0	0	0	0	613
01/01/17 - 12/31/17	0	0	0	0	50,295	0	0	0	48,242

**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
01/01/13 - 12/31/13	0.927	0.889	0.927	0.927	0.889	0.927	0.889	1.093	0.950
01/01/14 - 12/31/14	0.963	0.916	0.963	0.963	0.916	0.963	0.916	1.144	0.958
01/01/15 - 12/31/15	1.132	0.983	1.132	1.132	0.983	1.132	0.983	1.228	0.968
01/01/16 - 12/31/16	1.335	1.135	1.335	1.335	1.135	1.335	1.135	1.307	1.013
01/01/17 - 12/31/17	2.138	1.670	2.138	2.138	1.670	2.138	1.670	1.532	1.097

**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
01/01/13 - 12/31/13	0.923	0.886	0.923	0.923	0.886	0.923	0.886	1.093	0.950
01/01/14 - 12/31/14	0.963	0.916	0.963	0.963	0.916	0.963	0.916	1.144	0.958
01/01/15 - 12/31/15	1.132	0.983	1.132	1.132	0.983	1.132	0.983	1.228	0.968
01/01/16 - 12/31/16	1.335	1.135	1.335	1.335	1.135	1.335	1.135	1.307	1.013
01/01/17 - 12/31/17	2.138	1.670	2.138	2.138	1.670	2.138	1.670	1.532	1.097



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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	1.364

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%
------------------	-----

**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
01/01/13 - 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
01/01/16 - 12/31/16	0	0	0	0	0	0	0	0	0
01/01/17 - 12/31/17	0	0	0	0	73,593	0	0	0	36,187

**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
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0
01/01/14 - 12/31/14	0	0	0	0	250,236	0	0	0	195,568
01/01/15 - 12/31/15	0	0	0	0	43,338	0	0	0	27,276
01/01/16 - 12/31/16	0	0	0	0	0	0	0	0	847
01/01/17 - 12/31/17	0	0	0	0	102,350	0	0	0	84,436

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

	INDUSTRY GROUP: F-Class
Policy Period	
01/01/13 - 12/31/13	1.193
01/01/14 - 12/31/14	1.193
01/01/15 - 12/31/15	1.193
01/01/16 - 12/31/16	1.193
01/01/17 - 12/31/17	1.193

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

	INDUSTRY GROUP: F-Class
Policy Period	
01/01/13 - 12/31/13	1.210
01/01/14 - 12/31/14	1.260
01/01/15 - 12/31/15	1.267
01/01/16 - 12/31/16	1.193
01/01/17 - 12/31/17	1.259



**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
01/01/13 - 12/31/13	2,564,420	0	0	0	0	0	0	0
01/01/14 - 12/31/14	1,211,490	0	315,297	0	246,416	315,297	246,416	561,713
01/01/15 - 12/31/15	1,652,562	0	54,909	0	34,559	54,909	34,559	89,468
01/01/16 - 12/31/16	1,310,313	0	0	0	1,010	0	1,010	1,010
01/01/17 - 12/31/17	1,019,973	0	216,655	0	149,476	216,655	149,476	366,131
<b>Total</b>	<b>7,758,758</b>	<b>0</b>	<b>586,861</b>	<b>0</b>	<b>431,461</b>	<b>586,861</b>	<b>431,461</b>	<b>1,018,322</b>
<b>INDICATED PURE PREMIUM</b>						<b>7.564</b>	<b>5.561</b>	<b>13.13</b>

The pure premiums shown were calculated using unrounded losses, while the converted losses have been rounded for display purposes.

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	3.481	3.039	6.52
Conversion Factors (Section B)	0.989	0.995	xxx
<b>PURE PREMIUMS PRESENT ON RATE LEVEL</b> <b>(Underlying Pure Premiums) x (Conversion Factor)</b>	<b>3.443</b>	<b>3.024</b>	<b>6.47</b>



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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	7.564	5.561	13.13
2. Pure Premium Indicated by National Relativity	1.810	2.311	4.12
3. Pure Premium Present on Rate Level	3.443	3.024	6.47
4. State Credibilities	5%	7%	xxx
5. National Credibilities	17%	18%	xxx
6. Residual Credibilities = 100% - (4) - (5)	78%	75%	xxx
7. Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	3.371	3.073	6.44
8. Test Correction Factor	1.0000	1.0000	xxx
9. Underlying Pure Premiums = (7) x (8) *	3.367	3.073	6.44
10. Ratio of Manual to Standard Premium			1.241
11. Loss Cost = (9) x (10)			7.99
12. Loss Cost Within Swing Limits			7.99
Current Loss Cost x Swing Limits			
a) Lower bound = 8.02 x 0.800 = 6.42			
b) Upper bound = 8.02 x 1.200 = 9.62			
13. Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	3.367	3.073	6.44
14. Disease, Catastrophe and/or Miscellaneous Loadings			0.00
15. Final Loaded Loss Cost			7.99

\* 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
07/01/13 - 06/30/14	0	0	0	0	0	0	0	0	0
07/01/14 - 06/30/15	0	0	0	0	0	0	0	0	7,277
07/01/15 - 06/30/16	0	0	0	0	0	0	0	0	0
07/01/16 - 06/30/17	0	0	0	0	0	0	38,768	0	29,472
07/01/17 - 06/30/18	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
07/01/13 - 06/30/14	0.974	0.880	0.974	0.974	0.880	0.974	0.880	0.984	0.934
07/01/14 - 06/30/15	1.052	0.908	1.052	1.052	0.908	1.052	0.908	0.997	0.943
07/01/15 - 06/30/16	1.158	0.950	1.158	1.158	0.950	1.158	0.950	1.010	0.951
07/01/16 - 06/30/17	1.348	1.025	1.348	1.348	1.025	1.348	1.025	1.043	0.963
07/01/17 - 06/30/18	1.752	1.158	1.752	1.752	1.158	1.752	1.158	1.139	0.979

**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:

HAZARD GROUP: G	
Excess Factor	1.364

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%
------------------	-----



**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
07/01/13 - 06/30/14	0	0	0	0	0	0	0	0	0
07/01/14 - 06/30/15	0	0	0	0	0	0	0	0	9,362
07/01/15 - 06/30/16	0	0	0	0	0	0	0	0	0
07/01/16 - 06/30/17	0	0	0	0	0	0	48,421	0	44,510
07/01/17 - 06/30/18	0	0	0	0	0	0	0	0	0

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

	Indemnity	Medical
Loss Based Expense	1.193	1.193

**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
07/01/13 - 06/30/14	0	0	0	0	0	0	0	0
07/01/14 - 06/30/15	10,773	0	0	0	11,169	0	11,169	11,169
07/01/15 - 06/30/16	0	0	0	0	0	0	0	0
07/01/16 - 06/30/17	46,646	0	57,766	0	53,100	57,766	53,100	110,867
07/01/17 - 06/30/18	3,084	0	0	0	0	0	0	0
Total	60,503	0	57,766	0	64,269	57,766	64,269	122,036
<b>INDICATED PURE PREMIUM</b>						<b>95,477</b>	<b>106,225</b>	<b>201.70</b>

The pure premiums shown were calculated using unrounded losses, while the converted losses have been rounded for display purposes.

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	5.150	4.670	9.82
Conversion Factors *	1.005	1.005	xxx
<b>PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)</b>	<b>5.176</b>	<b>4.693</b>	<b>9.87</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	95.477	106.225	201.70
2. Pure Premium Indicated by National Relativity	5.929	5.457	11.39
3. Pure Premium Present on Rate Level	5.176	4.693	9.87
4. State Credibilities†	1%	1%	xxx
5. National Credibilities	49%	49%	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)	6.448	6.083	12.53
8. Voluntary Offset	1.000	1.000	xxx
9. Underlying Pure Premiums = (7) x (8) *	6.447	6.083	12.53
10. Ratio of Manual to Standard Premium			1.072
11. Loss Cost = (9) x (10)			13.43
12. Loss Cost Within Swing Limits			12.67
Current Loss Cost x Swing Limits			
a) Lower bound = 10.56 x 0.80 = 8.45			
b) Upper bound = 10.56 x 1.20 = 12.67			
13. Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	6.082	5.738	11.82
14. Proposed Traumatic Loss Cost			12.67

† To achieve full state credibility, the classification must have expected losses of at least: \$120,900,274 for indemnity, and \$52,367,925 for medical.

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

Indemnity Pure Premium = Total Pure Premium - Medical Pure Premium





## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Appendix C – Memorandum for Assessment

Appendix C includes detail on the most recent Longshore and Harbor Workers' Compensation Act assessment.



## MISSOURI

### APPENDIX C-I

#### 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 2019 *	100,000,000
2.) Compensation Payments Reported (on indemnity only) in 2018 *	832,150,055
3.) Assessment Rate on Indemnity Losses (1) / (2)	12.0%

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

4.) Indemnity Losses (Combination of 1st through 3rd reports) #	38,993,048
5.) Medical Losses (Combination of 1st through 3rd reports) #	30,237,088
6.) Total Losses (4) + (5)	69,230,136
7.) Assessment Rate on Total Losses { (3) x (4) } / (6)	6.8%

\* 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, 2021

#### Part 4 Additional Information

- Definitions
- NCCI Affiliate List
- Key Contacts



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### 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):**

- The 12-month period beginning January 1 and ending December 31.
- 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.



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### Definitions

**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.

**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, 2021

#### NCCI Affiliate List

7710 INSURANCE COMPANY  
AMCO 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  
ACCREDITED SURETY AND CASUALTY CO 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  
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 PA  
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 LIBERTY INSURANCE 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  
ARCH INDEMNITY INSURANCE COMPANY  
ARCH INSURANCE COMPANY  
ARCH PROPERTY CASUALTY INS CO  
ARGONAUT GREAT CENTRAL INS CO  
ARGONAUT INS CO  
ARGONAUT MIDWEST INS CO  
ASHMERE INSURANCE COMPANY  
ASSOCIATED INDEMNITY CORP  
ASSOCIATION CASUALTY 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 CASUALTY 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, S.I.  
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  
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 INSURANCE COMPANY OF NEVADA  
EMPLOYERS MUTUAL CASUALTY CO  
EMPLOYERS PREFERRED INS CO  
ENDURANCE AMERICAN INS CO  
ENDURANCE ASSURANCE CORPORATION  
EVEREST DENALI INSURANCE COMPANY



## MISSOURI

### Advisory Loss Costs and Rating Values Filing – January 1, 2021

#### NCCI Affiliate List

EVEREST NATIONAL INS CO  
EVEREST PREMIER INSURANCE COMPANY  
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  
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  
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  
GUIDEONE ELITE INS CO  
GUIDEONE MUTUAL INS CO  
GUIDEONE SPECIALTY 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  
INCLINE CASUALTY 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  
KEY RISK INS CO  
LACKAWANNA AMERICAN INS CO  
LACKAWANNA CASUALTY CO  
LACKAWANNA NATIONAL INS CO  
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 ADVANTAGE INSURANCE 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 SPECIALTY INS 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



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NATIONWIDE MUTUAL FIRE INS CO  
NATIONWIDE MUTUAL INS CO  
NATIONWIDE PROPERTY AND CASUALTY INS CO  
NETHERLANDS INSURANCE COMPANY  
NEW HAMPSHIRE INSURANCE COMPANY  
NEW YORK MARINE AND GENERAL INSURANCE CO  
NHRMA MUTUAL INSURANCE COMPANY  
NORGUARD INS CO  
NORMANDY INSURANCE COMPANY  
NORTH AMERICAN ELITE INSURANCE CO  
NORTH AMERICAN SPECIALTY INS CO  
NORTH POINTE INS CO  
NORTH RIVER INS CO  
NORTHSTONE INSURANCE COMPANY  
NOVA CASUALTY COMPANY  
NUTMEG INS CO  
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 GUARD INSURANCE COMPANY  
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 EMPLOYERS INS CO  
PREFERRED PROFESSIONAL INSURANCE COMPANY  
PREMIER GROUP INS CO  
PRIVILEGE UNDERWRITERS RECIPROCAL EXCHANGE  
PROPERTY AND CASUALTY INS CO OF HARTFORD  
PROTECTIVE INS CO  
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  
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  
SENTINEL INS CO  
SENTRY CASUALTY CO  
SENTRY INSURANCE A MUTUAL CO  
SENTRY SELECT INSURANCE COMPANY  
SERVICE AMERICAN INDEMNITY COMPANY  
SFM MUTUAL INS CO  
SIRIUS AMERICA INSURANCE COMPANY  
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  
STONETRUST PREMIER CASUALTY INSURANCE 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





## MISSOURI

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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  
US FIRE INS CO  
UTAH BUSINESS INSURANCE COMPANY INC  
UTICA MUTUAL INS CO  
VALLEY FORGE INS CO  
VANLINER INS CO  
VANTAPRO SPECIALTY INS CO  
VICTORIA FIRE & CASUALTY COMPANY  
VIGILANT INS CO  
WASHINGTON INTERNATIONAL INSURANCE COMPANY  
WCF NATIONAL INSURANCE COMPANY  
WELLFLEET INSURANCE COMPANY  
WELLFLEET NEW YORK INSURANCE COMPANY  
WESCO INSURANCE COMPANY (AMTRUST GROUP)  
WEST AMERICAN INS CO  
WEST BEND MUTUAL INS CO  
WESTCHESTER FIRE INSURANCE COMPANY  
WESTFIELD CHAMPION INSURANCE COMPANY  
WESTFIELD INS CO  
WESTFIELD NATIONAL INS CO  
WESTFIELD PREMIER INSURANCE COMPANY  
WESTFIELD SUPERIOR INSURANCE COMPANY  
WESTFIELD TOUCHSTONE INSURANCE COMPANY  
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, 2021

#### Key Contacts

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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  
**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, 2021  
**Project Name/Number:** /

**Filing Company:** NCCI Inc

## 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>	11/04/2020

<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>	11/04/2020

<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>	11/04/2020

<b>Satisfied - Item:</b>	Filing Memorandum
<b>Comments:</b>	
<b>Attachment(s):</b>	MO_010121_Filing_Cover_Letter.pdf
<b>Item Status:</b>	REVIEWED
<b>Status Date:</b>	11/04/2020

<b>Satisfied - Item:</b>	Narrative
<b>Comments:</b>	
<b>Attachment(s):</b>	NCCI_MO_Filing_010121_Informational_Narrative.pdf
<b>Item Status:</b>	REVIEWED
<b>Status Date:</b>	11/04/2020

<b>Satisfied - Item:</b>	Response to Objection
<b>Comments:</b>	
<b>Attachment(s):</b>	NCCI Responses to the Missouri DCI Requests dated 092820.pdf NCCI_Responses_to_the_Missouri_DCI_Requests_dated_092820_Attachments.zip
<b>Item Status:</b>	REVIEWED

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, 2021  
Project Name/Number: /

Status Date:	11/04/2020
Satisfied - Item:	Response to Objection
Comments:	
Attachment(s):	NCCI_Responses_to_the_Missouri_DCI_Requests_dated_101320.pdf
Item Status:	REVIEWED
Status Date:	11/04/2020
Satisfied - Item:	Response to Objection
Comments:	
Attachment(s):	NCCI_Response_to_the_Missouri_DCI_Request_dated_102020.pdf
Item Status:	REVIEWED
Status Date:	11/04/2020

**SERFF Tracking #:**

NCCI-132488376

**State Tracking #:**

342

**Company Tracking #:**

MISSOURI LC 01012021

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**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, 2021

**Project Name/Number:**

/

***Attachment NCCI\_Responses\_to\_the\_Missouri\_DCI\_Requests\_dated\_092820\_Attachments.zip is not a PDF document and cannot be reproduced here.***



**Carla Townsend**  
Regulatory Division

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Email: [Carla\\_Townsend@ncci.com](mailto:Carla_Townsend@ncci.com)

August 17, 2020

The Honorable Chlora Lindley-Myers  
Director  
Missouri Department of Commerce and Insurance  
Harry S. Truman Building, Room 530  
P.O. Box 690  
Jefferson City, Missouri 65102

**Re: Missouri Advisory Loss Costs and Rating Values Filing Proposed Effective January 1, 2021**

Dear Director Lindley-Myers:

In accordance with the applicable statutes and regulations of the state of Missouri, we are filing advisory voluntary loss costs and rating values to be effective January 1, 2021 for new and renewal policies.

Enclosed are NCCI's Voluntary Loss Costs Including Trend proposed to be effective January 1, 2021. The proposed loss costs represent an overall average change of +1.0% from the current, similar set of loss costs that have been in effect since January 1, 2020.

Please note the following regarding this filing:

- Although considered, since the combined impact and direction of all direct and indirect COVID-19-related forces is unknown, no explicit adjustment has been made in this year's analysis at an overall or individual classification code level.
- 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-1437, effective January 1, 2020:
  - Class Codes 2286 and 2220 are combined to reflect the final year of a two-year transition program, and Class Code 2286 is discontinued.
  - Class Codes 2670 and 2688 are combined to reflect the final year of a two-year transition program, and Class Code 2670 is discontinued.

- As a result of Item B-1439, effective January 1, 2021:
  - Class Codes 2683 and 2501 are combined to reflect the first year of a two-year transition program. In the second year of the transition, Class Code 2683 will be discontinued.
  - Class Codes 3240 and 3257 are combined to reflect the first year of a two-year transition program. In the second year of the transition, Class Code 3240 will be discontinued.
  
- As a result of Item R-1418, the retrospective rating plan parameters were updated.

I hereby certify that I am familiar with Missouri's insurance laws, rules, and regulations, 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 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 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 if you have any questions or need further information.

Sincerely,

National Council on Compensation Insurance, Inc.



Carla Townsend  
State Relations Executive



## **Overview of the Proposed Missouri Workers Compensation Loss Cost Filing** **Effective January 1, 2021**

### **I. Summary of Filing**

The purpose of this overview is to provide context and further explanation for the accompanying proposed workers compensation insurance loss cost filing that was filed under separate cover by the National Council on Compensation Insurance (NCCI) on August 17, 2020, with the Missouri Department of Commerce and Insurance for its review and approval. NCCI is a licensed advisory organization authorized to make recommended loss cost<sup>1</sup> filings on behalf of workers compensation insurance companies in Missouri. NCCI's filing is objectively prepared, in compliance with actuarial standards. The filing proposes a +1% loss cost increase in the voluntary market, effective January 1, 2021.

This filing comes at a time when, nationally, the workers compensation system is experiencing unprecedented results. The combination of underwriting discipline, moderating severity, declining frequency, and adequate reserves has resulted in six straight years of combined ratios under 100% (below 100% is indicative of an underwriting profit). For decades, with few annual exceptions, frequency has continued on a clear downward path driven by technology, safer workplaces, improved risk management, and a long-term shift from manufacturing to service sectors. NCCI has no expectation that this trend will change course. For the last several years, severity trends have remained fairly moderate, tracking very closely with wage inflation. For these reasons, NCCI's analysis has indicated decreases across most of its jurisdictions in recent years.

The filing is based on premium and loss experience for Policy Years 2017 and 2018. Policy Year 2017's experience is comparatively more favorable than that for Policy Year 2018. Missouri's lost time claim frequency has declined over the most recent eight years. The state's average indemnity cost per case figures have been relatively consistent over time, while average medical cost per case figures have increased in recent years. Note that average cost per case values were adjusted to the Policy Year 2018 wage level to remove the effects of wage inflation. The final proposed loss cost level change results after incorporating a change to the claim settlement expense component.

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<sup>1</sup> Loss cost refers to the portion of workers compensation rates filed by the advisory organization that are allocated to pay losses and not for carrier expenses. Some states include certain carrier expenses and assessments in the definition of advisory loss costs. Carriers can use the approved loss costs as the basis for their rates, typically adjusting them for expenses with a loss cost multiplier.



## **II. Overview of Ratemaking Methodology**

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

- Premium and loss information is adjusted to the latest approved loss cost and benefit levels
- These adjusted losses and premiums are used to calculate a loss ratio for each historical year (loss ratio = losses / premium)
- Loss ratios, along with other information, are analyzed in order to determine trend factors. Trend factors are applied to historical loss ratios to estimate loss ratios for the effective period in this filing.
- As a final step, any proposed benefit and/or expense changes are applied to the projected loss ratios

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

Once the proposed voluntary loss cost level change is determined, NCCI separately determines loss costs/rates for each workers compensation job classification (class); the loss costs and year-over-year changes vary by class and are based on the available data for each job class.

## **III. COVID-19**

The COVID-19 virus (coronavirus) is the latest in a series of infectious diseases that have emerged over the last 20 years. Since 2003, the world has seen the emergence of SARS, H1N1, Ebola, and Zika viruses. While the overall impact of each of those diseases has been well documented, potential impact of COVID-19 to the workers compensation system is in the very beginning stages of being understood; therefore, the data underlying this filing does not include claims from COVID-19. Due to the lack of this COVID-19-related ratemaking data and the current level of uncertainty, NCCI has not yet assessed the potential impact on future loss cost levels. As such, no explicit adjustments have been made in this filing for COVID-19. While it is possible that COVID-19 may result in significant adverse loss development and deteriorating loss ratios, the impact on overall system costs could be small.

It is reasonable to believe COVID-19 will give rise to component changes that may, to some extent, have offsetting impacts on system costs. For example:

- There could be an increase in the number of compensable workers compensation claims arising in frontline, COVID-19-related occupations
- There could be a decrease in workers compensation claims due to the increased number of employees who are teleworking

Short- and long-term COVID-19-related impacts may also differ. For example:

- In the short term, during the COVID-19 pandemic, there may be a reduction in the number of physical therapy sessions attended by injured employees and/or a deferral in the number of workers compensation-related surgeries that are not deemed to be immediately critical
- Over the longer term, an increase in these types of services may be expected as the current burden on medical-related personnel and facilities is lessened
- In economic downturns, workers may forego filing claims for relatively minor injuries to maintain active employment as the economy navigates these uncertain times—leading to temporary downward pressure on claim frequency

NCCI has begun researching and gathering information to preliminarily gauge the pandemic’s direct and indirect impacts on claim frequency, severity, and durations. More in-depth analyses related to COVID-19’s impact on frequency and severity will be conducted over time as additional aggregate data becomes available. It is anticipated that assessing the impact of the pandemic on claim durations will likely take longer, as claim-specific data would be required.

NCCI has also started accumulating pre-COVID-19-level benchmarks that will help facilitate pre- to post-COVID-19 comparisons in the future. For example, detailed medical reports along with associated metrics are being developed to analyze both the direct impacts (e.g., claim costs) and indirect impacts (e.g., whether the slowdown of medical treatments has returned to normal) of the COVID-19 pandemic.

In April 2020, NCCI published a white paper, “COVID-19 and Workers Compensation: Modeling Potential Impacts,” which provides estimates of workers compensation system cost impacts under various hypothetical scenarios. NCCI also released an interactive tool that allows users to choose their own assumptions and model the potential impact to expected losses for the associated jurisdiction and workforce under the scenario framework described in the research brief. These and other related materials are available on NCCI’s website at [www.ncci.com](http://www.ncci.com).

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI ADVISORY LOSS COSTS AND RATING VALUES FILING—JANUARY 1, 2021

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S REQUESTS  
DATED SEPTEMBER 28, 2020

- 1. Have any of the data sources used in determining the Missouri Advisory Loss Costs and Rating Values Filing changed since the previous filing? For example, using data from a different data call to develop expenses.**

There have not been any changes in the underlying data sources between this and last year's filings.

- 2. Please provide the estimated overall impact for each change in methodology from the previous filing.**

Two changes to Missouri's aggregate ratemaking methodology have been included in this year's filing.

- In last year's filing, the most recent three-year average of historical paid loss development factors through a 19th report was utilized. In this year's filing, a two-year average of paid loss development factors was incorporated—lowering the otherwise-calculated overall average loss cost level change by 0.3%.
- The change to the current AOE provision in this year's filing (+0.7%) is primarily driven by the proposed update to the AOE methodology, as described on page 19 of the filing.

- 3. Page 27 of 98: Please provide the updated calculation for the terrorism advisory lost cost if any of the underlying assumptions and/or data have changed.**

There have not been any changes to the methodology or assumptions used in determining the terrorism advisory loss cost between this and last year's filings.

- 4. Please provide loss development triangles with at least 10 diagonals for both the voluntary and assigned risk markets separated by indemnity, medical, and DCCE for the past 19 years. In the prior year, this was submitted as NCCI response to ATSI Interrogatories for MO 1-1-2020.xlsx. An updated version of this file will suffice for these purposes.**

Please see the attached Exhibit 4 for the available loss development triangles.

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

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**5. Please explain your reasoning and provide detailed support for using a 2-year average of the paid LDFs in this filing when last year a 3-year average was used.**

Prior to the January 1, 2018 filing, the most recent two-year average of historical paid loss development factors through a 19th report was utilized in Missouri's annual loss cost filings. In response to atypical indemnity paid link ratios observed at early maturities (1:2 and 2:3) on the @12/16 diagonal, a temporary shift to a three-year average was incorporated into the January 1, 2018 Missouri filing to temper the influence that these link ratios would otherwise have on the overall aggregate loss cost level indication. In this year's filing, reliance on two-year average paid loss development (unimpacted by suspected outlier link ratios) was once again incorporated as being both actuarially appropriate and responsive to Missouri's workers compensation environment.

**6. Please provide an Excel file with the specific calculations used to determine Appendix A-II, Section G, column (6).**

Please see the attached Exhibit 6 for the requested information. The calculations are provided for the most recent two valuations separately for indemnity and medical.

**7. Please provide an excel file spreadsheet with the specific calculations that provide the derivation of the 0.859 factor in Appendix A-II, Section H, line 2.**

A countrywide unlimited tail factor (ULDF) is determined based on financial data for NCCI states. Then a countrywide limited tail factor (CLDF<sub>T</sub>) is calculated based on Missouri's large loss threshold, T.

$$CLDF_T = (1 - XS_T) / (1/ULDF - XS_T/ELDF_T), \text{ where}$$

XS<sub>T</sub> is the excess loss ratio for threshold T

ELDF<sub>T</sub> is the excess loss development factor for threshold T

F<sub>T</sub>, the factor to adjust the loss development factor to a limited basis, is then calculated. This is the ratio of limited-to-unlimited countrywide tail factors.

$$F_T = (CLDF_T - 1.0) / (ULDF - 1.0)$$

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Appendix A-II, Section K, Line 1 shows the large loss threshold used in this year's Missouri filing (\$9,919,089). Using the terminology above, the ULDF is 1.025, the  $CLDF_T$  at a threshold of \$9M is 1.0210, and the  $CLDF_T$  at a threshold of \$10M is 1.0215. Using the above-referenced formula for  $F_T$  at each of the \$9M and \$10M thresholds and then interpolating between those results produces the 0.859 factor corresponding to Missouri's large loss threshold.

**8. Exhibit II Section B Page 43 of 98:**

- a) Please provide in excel an additional 5 years of Countrywide AOE Ultimate AOE Ratios.**
- b) Please provide the underlying data and calculations to bring AOE to an ultimate level including the development factors, AOE, losses, and any other values used to determine the Ultimate AOE ratios.**
- c) Please provide the Ultimate AOE Ratios for MO only data.**
- d) Please provide your reasoning and support for the selected Countrywide AOE ratio of 8.9% when all other accident years aside from 2019 are below 8.9%.**
- e) Please provide the underlying data and calculations for the MO Selected AOE ratio.**

As a result of Third-Party Administrator (TPA) agreements, some carriers report losses on Financial Call 19 without associated AOE. Beginning with this filing, for policies associated with TPA agreements where the AOE is not reported to NCCI, the associated losses were excluded from the AOE analysis so that they did not impact the ultimate AOE ratios. The detailed data required to make this adjustment was only collected from the carriers for the most recent five experience years in response to an NCCI data request. As the AOE ratios are based on data collected on countrywide Financial Call 19, ultimate AOE ratios by individual state are not available.

It should be noted that only the losses without associated AOE were removed from this year's AOE analysis, rather than entire carrier Call 19 data submissions.

Please see the attached Exhibit 8 for the requested calculations underlying the new AOE methodology proposed with this year's filing. Note that the historical countrywide AOE values shown for years 2015 through 2018 on page 43 of the filing are based on the current AOE methodology. The countrywide selected AOE provision of 8.9% shown on page 43 of the filing is based on the five years of AOE indications shown in Exhibit 8.

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The Missouri selected AOE provision is based on a weighted average (71% / 29%, respectively) of the countrywide private carrier AOE provision and the indicated provision for the Missouri state fund.

- 9. Page 45 of 98: Exhibit II Section E: Please explain the rationale of only using the average of 2 years to select the DCCE loss development factor. Why weren’t more years considered or a geometric average?**

A two-year average was selected as a balance between stability and responsiveness as well as consistency with the two-year average paid loss development factors utilized in the determination of the overall average loss cost level change.

- 10. Page 44 of 98: Exhibit II Section C: Please provide an excel file that expands this section to include years 2009 through 2013.**

The requested information is as follows:

Policy Year	(1) Reported Ratio of Paid DCCE to Paid Losses	(2) Age to Ultimate Development Factor	(3) = (1)x(2) Ultimate DCCE Ratio
2009	0.111	0.985	0.109
2010	0.110	0.979	0.108
2011	0.109	0.976	0.106
2012	0.109	0.972	0.106
2013	0.109	0.966	0.105

- 11. Page 44 of 98: Companies that did not report AOE may be including expenses typically considered to be AOE in DCCE expenses, potentially inflating the DCCE provision for the same reasons that this error would reduce the AOE provision. Were companies that did not report AOE excluded from the calculation of the DCCE provision as well? If not, please provide a revised DCCE provision excluding DCCE and losses from companies that did not report AOE.**

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI ADVISORY LOSS COSTS AND RATING VALUES FILING—JANUARY 1, 2021

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Instances of carriers reporting losses on Call 19 without associated AOE is unlikely to affect DCCE reporting. As a result of TPA agreements, some carriers report losses on Call 19 without associated AOE. These TPA contracts typically involve AOE payments only—and exclude the handling of DCCE costs. As such, carriers are able to account for and fully report their DCCE payments to NCCI.

It should be noted that only the losses without associated AOE were removed from this year's AOE analysis, rather than entire carrier Call 19 data submissions.

**12. Appendix A-IV Section I Page 62 of 98: Please show the calculations underlying the factors in Col (4) and Col (5).**

Please see the attached Exhibit 12 for the requested information.

**13. Appendix B-I Section I Page 65 of 98: Please provide underlying data and calculations for how the Likely-to-Develop and Not-Likely-to-Develop columns are calculated.**

Please see the attached Exhibit 13 for the requested information.

**14. Page 61 of 98 (Appendix A-III). Provide the underlying data, fits, assumptions, calculations, selections, and rationale of the selection of the indemnity and medical trend factors. Please include an update of the excel file provided last year entitled Supplemental Loss Development and Trend Information. Please include fifteen years of information including Lost-Time claim frequency and severity based on data in excess of wage inflation, claim counts, premium, limited indemnity losses, and limited medical losses.**

Please see the attached Exhibit 14 for the requested trend information.

The filing proposes no changes to the annual loss ratio trend factors that have been in effect since January 1, 2020. Underlying the proposed loss ratio trend factors in this year's filing are historically observed declines in lost-time claim frequency, relatively flat year-to-year changes in indemnity claim severity, and a moderately increasing pattern of medical lost-time claim severities.

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Consideration of the trend component in this year’s filing included a review of loss ratio patterns observed over an extended period of time. This allows one to review trends over an entire underwriting cycle and smooth out year-to-year fluctuations. The proposed annual loss ratio trend factors utilized in this filing were selected based on actuarial judgment. Results of exponential trends fit to a varying number of policy year loss ratios are provided below.

Policy Year Loss Ratio Exponential Trend Fits

	<u>Indemnity</u>	<u>Medical</u>
8-point	-2.6%	-1.3%
10-point	-2.0%	-1.1%
12-point	-2.0%	-1.0%
15-point	-2.1%	-1.0%

- 15. Please provide the indication as of 1/1/2021 if all assigned risk experience was excluded. Please provide these calculations in an excel file and include all the underlying components that will change because they are based on only voluntary experience, such as loss development, trend, LAE, etc.**

All else equal, an overall average loss cost level indication of -0.7% results after excluding the assigned risk premium and loss experience reported to NCCI by Missouri’s designated assigned risk plan administrator from the filing’s experience period. Please see the attached Exhibit 15 for additional detail.

- 16. Page 72 of 98 (Appendix B-II). Please explain how these impacts are not having a disparate effect on classes with low loss costs. For example, a company with a loss cost of \$0.05 would never decrease for several of the industry groups since the cap from below is less than 20%.**

NCCI recently analyzed the impact of the swing limit bound calculations for classifications with significantly low loss costs. In these cases, the multiplicative bound calculation may result in the upper and lower bounds for a classification being equal to the current loss cost for that classification. Prior to the January 1, 2020 Missouri filing, this may have restricted a classification’s proposed loss cost to its present value, eliminating any possible responsiveness to a change indicated by the underlying data.



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In last year's Missouri filing, NCCI implemented a modification to the calculation of the loss cost bounds by classification when both the upper and lower bounds are equal to the current loss cost. In these cases, NCCI reviews the change indicated by the classification and the corresponding industry group. If the direction of these two indications are aligned, NCCI adjusts the upper or lower bound so that the proposed loss cost may change by one cent from its current value in the direction of the change indicated for the classification.

**17. Please provide any updates on class ratemaking research, status and results, or stability performance results on tests of the performance of the recently implemented small class ratemaking project intended to address the stability of the small classes.**

Please see the attached Exhibit 17 which contains the most recent NCCI research related to the stability of small classes in NCCI ratemaking. The following NCCI Actuarial Committee presentations are contained in Exhibit 17:

- "Class Ratemaking Research: Status and Results" presented February 23, 2017
- "Class Ratemaking Research: Final Wrap-Up" presented February 22, 2018

**18. Please provide an Excel file with seven columns of information. The first column should be the class code, the second column should be the exposures by class code, the third column should be the current advisory loss cost, the fourth column should be the proposed advisory loss cost by class code and the last three columns should be the percentage loss cost changes effective 2021, 2020, and 2019 by class code. Include totals in columns 5, 6, and 7 and please exclude discontinued classes.**

Please see the attached Exhibit 18 for the requested information.

**19. Please confirm that the indication provided in Exhibit I is an indication for the voluntary market but that the data upon which it is based is on combined voluntary and assigned risk plan losses. If not, please explain. Please confirm that although the voluntary indications are based on combined voluntary and assigned risk plan data, that you are not providing loss costs or rates for the assigned risk market.**

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI ADVISORY LOSS COSTS AND RATING VALUES FILING—JANUARY 1, 2021

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The voluntary market advisory loss cost level indication determined in the filing's Exhibit I is based on combined voluntary and assigned risk premium and loss experience reported to NCCI. NCCI's role in Missouri does not include the filing of loss costs or rates for the state's assigned risk market.

## NATIONAL COUNCIL ON COMPENSATION INSURANCE 2020 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW

Each year, NCCI calculates a countrywide (CW) adjusting and other expense (AOE) provision. This file provides the CW AOE provision that will be filed as applicable during the 2020–2021 filing season.

NCCI calculates ultimate AOE ratios by accident year, separately for both paid and incurred data (paid plus unpaid). The selected AOE ratio for an individual year is calculated as the average of the paid and incurred AOE ratio indications. The AOE ratios by year as well as the selected provision is shown in Exhibit 1.

### Exhibit 1: Ultimate AOE Ratios and Countrywide Selection

Accident Year	Ultimate AOE Ratio Based on Paid Data	Ultimate AOE Ratio Based on Incurred Data	Ultimate AOE Ratio Based on Avg. of Paid and Incurred Data
2015	7.8%	7.8%	7.8%
2016	8.3%	8.2%	8.3%
2017	8.9%	8.8%	8.9%
2018	8.8%	8.8%	8.8%
2019	9.0%	8.8%	8.9%
		<b>Selected AOE Provision</b>	<b>8.9%</b>

## NATIONAL COUNCIL ON COMPENSATION INSURANCE 2020 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW

### Data Used

NCCI uses private carrier data reported on NCCI Call 19 to calculate the ultimate AOE ratios. Call 19 is a CW Call in which data is reported for the most recent 10 individual accident years, in addition to an aggregated “prior line” in which data is reported for all years older than the most recent 10. The data reported includes losses and AOE on both a paid and unpaid (i.e., case plus IBNR reserves) basis. Further, the Call 19 data is reported for all policy types—including that for large deductible policies.

### Methodology Overview

To determine the ultimate AOE ratios, NCCI uses the following methodology for each accident year:

- After developing AOE and losses separately to a 10th report, calculate the ratio of AOE-to-losses at that age of maturity
- Apply a 10th-to-ultimate (tail) factor to the AOE ratios at a 10th report
- Apply the adjustment for AOE below the deductible limit
  - The purpose of this adjustment is to account for carriers that treat reimbursements of AOE below a deductible limit as a credit to their total AOE. The adjustment reverses this credit, increasing the AOE dollars as a percentage of losses.
- Apply the adjustment for losses associated with Third-Party Administrator (TPA) Agreements (new for the 2020 Annual CW AOE Review):
  - As a result of TPA agreements, some carriers report losses on Call #19 without associated AOE. The purpose of this adjustment is to remove these losses from the analysis.
- Apply the adjustment to convert losses from a net-of-deductible to a gross-of-deductible basis
  - Up to this point in the calculation, the data used includes losses from large deductible policies, net of the deductible. The purpose of this adjustment is to convert the data to a full coverage basis, allowing the AOE provision to be on the same basis as the losses used in individual state experience filings.

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**Exhibit 2: Calculation of Ultimate AOE Ratios—Paid Data**

Accident Year	(1)	(2)	(3)=(1)x(2)	(4)	(5)	(6)=(4)x(5)
	Paid AOE at Current Report	Cumulative Paid AOE Development Factors	Estimated Paid AOE Developed to a 10th Report	Paid Losses at Current Report	Cumulative Paid Loss Development Factors	Estimated Paid Losses Developed to a 10th Report
2015	1,762,405,982	1.088	1,917,497,708	15,877,014,233	1.141	18,115,673,240
2016	1,798,537,405	1.137	2,044,937,029	14,769,511,806	1.223	18,063,112,939
2017	1,796,408,238	1.221	2,193,414,459	13,260,201,068	1.391	18,444,939,686
2018	1,647,154,595	1.393	2,294,486,351	10,872,410,528	1.800	19,570,338,950
2019	1,181,971,666	2.069	2,445,499,377	5,088,736,249	3.956	20,131,040,601

Accident Year	(7)	(8)=(3)/(6)x(7)	(9)	(10)	(11)	(12)= [(8)+(9)]x(10)x(11)
	10th Report- to-Ultimate Paid AOE Tail Factor	Estimated Ultimate AOE Ratio Before Adjustments	Adjustment for AOE Below the Deductible Limit	Adjustment for Losses Associated with TPA Agreements	Adjustment to Convert From Net to Gross of Deductible	Estimated Ultimate AOE Ratio After Adjustments
2015	0.910	9.6%	0.009	1.059	0.70	7.8%
2016	0.910	10.3%	0.010	1.057	0.70	8.3%
2017	0.910	10.8%	0.011	1.065	0.70	8.9%
2018	0.910	10.6%	0.011	1.067	0.70	8.8%
2019	0.910	11.0%	0.009	1.078	0.70	9.0%

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**Exhibit 3: Calculation of Ultimate AOE Ratios—Incurred Data**

Accident Year	(1)	(2)	(3)=(1)x(2)	(4)	(5)	(6)=(4)x(5)
	Incurring AOE at Current Report	Cumulative Incurred AOE Development Factors	Estimated Incurred AOE Developed to a 10th Report	Incurred Losses at Current Report	Cumulative Incurred Loss Development Factors	Estimated Incurred Losses Developed to a 10th Report
2015	2,096,541,259	1.018	2,134,279,002	22,876,301,959	0.976	22,327,270,712
2016	2,232,668,241	1.014	2,263,925,596	23,387,611,726	0.956	22,358,556,810
2017	2,389,604,132	1.008	2,408,720,965	24,148,808,712	0.933	22,530,838,528
2018	2,474,282,050	0.989	2,447,064,947	25,582,304,982	0.906	23,177,568,314
2019	2,515,285,647	0.967	2,432,281,221	25,457,147,440	0.886	22,555,032,632

Accident Year	(7)	(8)=(3)/(6)x(7)	(9)	(10)	(11)	(12)= [(8)+(9)]x(10)x(11)
	10th Report- to-Ultimate Incurred AOE Tail Factor	Estimated Ultimate AOE Ratio Before Adjustments	Adjustment for AOE Below the Deductible Limit	Adjustment for Losses Associated with TPA Agreements	Adjustment to Convert From Net to Gross of Deductible	Estimated Ultimate AOE Ratio After Adjustments
2015	1.000	9.6%	0.009	1.059	0.70	7.8%
2016	1.000	10.1%	0.010	1.057	0.70	8.2%
2017	1.000	10.7%	0.011	1.065	0.70	8.8%
2018	1.000	10.6%	0.011	1.067	0.70	8.8%
2019	1.000	10.8%	0.009	1.078	0.70	8.8%

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**Exhibit 4: AOE Tail Factor Selection—Paid**

	(1)	(2)	(3) = (1)/(2)
	Paid AOE	Paid Losses	Paid AOE-to-Losses
Valuation Date	10th-to-Ultimate	10th-to-Ultimate	10th-to-Ultimate Tail Factor
12/31/2014	1.089	1.233	0.883
12/31/2015	1.057	1.214	0.871
12/31/2016	1.081	1.198	0.902
12/31/2017	1.073	1.192	0.900
12/31/2018	1.115	1.138	0.980
12/31/2019	1.060	1.158	0.915
		<b>Selected Paid AOE Tail Factor</b>	<b>0.910</b>

**Exhibit 5: AOE Tail Factor Selection—Incurred**

	(1)	(2)	(3) = (1)/(2)
	Incurred AOE	Incurred Losses	Incurred AOE-to-Losses
Valuation Date	10th-to-Ultimate	10th-to-Ultimate	10th-to-Ultimate Tail Factor
12/31/2014	1.027	1.033	0.994
12/31/2015	0.999	1.017	0.982
12/31/2016	1.004	0.995	1.009
12/31/2017	1.000	0.997	1.003
12/31/2018	1.041	0.960	1.084
12/31/2019	1.008	0.976	1.033
		<b>Selected Incurred AOE Tail Factor</b>	<b>1.000</b>

## Missouri

1/1/2021

		(1)	(2)	Current Manual to Standard Ratio (2)/(1)		(3)	(4)	Proposed Manual to Standard Ratio (4)/(3)
	Policy Period	PY Standard Earned Premiums	Premiums @ PY Manual Rates		Policy Period	PY Standard Earned Premiums	Premiums @ PY Manual Rates	
<b>Manufacturing</b>	7/12-6/13	206,101,988	254,604,484		7/13-6/14	222,009,841	279,735,283	
	7/13-6/14	221,660,970	279,320,440		7/14-6/15	232,439,158	293,702,567	
	7/14-6/15	231,180,027	292,524,702		7/15-6/16	230,982,906	290,874,238	
	7/15-6/16	230,471,772	290,774,960		7/16-6/17	232,289,469	292,288,442	
	7/16-6/17	227,348,695	285,543,962		7/17-6/18	243,593,444	304,607,697	
	5 Yr Totals	1,116,763,452	1,402,768,548	1.256	5 Yr Totals	1,161,314,818	1,461,208,227	1.258
<b>Contracting</b>	7/12-6/13	257,822,601	284,485,780		7/13-6/14	289,061,775	322,364,855	
	7/13-6/14	289,087,844	322,391,681		7/14-6/15	320,850,952	361,899,314	
	7/14-6/15	320,915,832	362,043,612		7/15-6/16	340,894,092	385,033,841	
	7/15-6/16	341,109,948	385,286,524		7/16-6/17	332,663,066	374,203,093	
	7/16-6/17	332,575,463	373,772,569		7/17-6/18	326,282,342	366,416,407	
	5 Yr Totals	1,541,511,688	1,727,980,166	1.121	5 Yr Totals	1,609,752,227	1,809,917,510	1.124
<b>Office &amp; Clerical</b>	7/12-6/13	149,427,073	167,176,402		7/13-6/14	160,292,725	181,260,989	
	7/13-6/14	160,250,256	181,216,993		7/14-6/15	164,879,374	187,499,859	
	7/14-6/15	165,260,213	188,839,126		7/15-6/16	164,730,413	188,779,696	
	7/15-6/16	164,472,196	188,480,244		7/16-6/17	163,704,664	188,456,926	
	7/16-6/17	163,568,438	188,609,954		7/17-6/18	162,731,149	184,635,343	
	5 Yr Totals	802,978,176	914,322,719	1.139	5 Yr Totals	816,338,325	930,632,813	1.140
<b>Goods &amp; Services</b>	7/12-6/13	355,977,622	372,368,517		7/13-6/14	380,262,527	406,138,517	
	7/13-6/14	380,249,298	406,142,870		7/14-6/15	399,768,337	431,570,412	
	7/14-6/15	399,754,655	432,366,639		7/15-6/16	406,789,502	442,937,456	
	7/15-6/16	405,888,700	442,100,791		7/16-6/17	405,376,712	441,612,061	
	7/16-6/17	405,924,012	441,449,336		7/17-6/18	415,150,286	451,003,468	
	5 Yr Totals	1,947,794,287	2,094,428,153	1.075	5 Yr Totals	2,007,347,364	2,173,261,914	1.083
<b>Miscellaneous</b>	7/12-6/13	203,332,899	217,506,139		7/13-6/14	236,942,977	255,230,302	
	7/13-6/14	237,457,616	255,850,336		7/14-6/15	252,433,172	274,166,456	
	7/14-6/15	252,765,195	274,496,554		7/15-6/16	264,304,824	282,728,323	
	7/15-6/16	262,692,469	281,034,443		7/16-6/17	267,650,506	286,788,896	
	7/16-6/17	265,871,319	284,632,274		7/17-6/18	277,589,330	293,160,800	
	5 Yr Totals	1,222,119,498	1,313,519,746	1.075	5 Yr Totals	1,298,920,809	1,392,074,777	1.072



**LIMITED INDEMNITY LOSS  
DEVELOPMENT**

**Missouri**

01/01/21

*Likely*

1st Report Start: 7/1/2017  
1st Report End: 6/30/2018

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/04-6/05	85,873,459	99,509,003	107,909,762	115,044,355	118,736,234	121,084,306	123,258,576	125,144,384	124,601,154	125,313,571
7/05-6/06	76,947,671	91,690,283	101,288,877	107,913,115	112,385,948	114,492,756	116,431,008	117,483,461	118,047,324	119,013,915
7/06-6/07	76,140,429	88,429,315	97,122,490	102,414,309	106,329,085	108,223,440	110,895,382	111,665,771	112,488,047	113,668,298
7/07-6/08	77,323,191	93,390,680	101,811,778	107,897,799	111,698,789	116,127,037	117,726,530	118,428,820	119,979,745	120,041,004
7/08-6/09	60,056,111	72,230,419	81,623,268	86,439,771	91,063,778	93,644,828	95,068,921	96,622,964	96,975,915	97,418,302
7/09-6/10	62,432,683	75,716,217	83,041,098	89,872,100	96,755,700	100,059,558	101,365,950	103,351,929	103,561,726	
7/10-6/11	59,888,929	74,026,989	84,952,779	90,496,513	96,111,776	98,305,247	100,992,857	100,757,698		
7/11-6/12	58,046,953	71,695,986	80,407,538	86,924,668	91,885,132	95,617,340	96,634,807			
7/12-6/13	54,691,428	69,112,366	80,098,174	87,268,920	90,842,514	94,194,212				
7/13-6/14	57,664,827	75,172,794	87,427,261	94,363,108	100,107,214					
7/14-6/15	64,412,870	81,164,415	92,404,595	99,602,937						
7/15-6/16	62,621,184	79,331,522	89,100,650							
7/16-6/17	61,505,210	78,362,395								
7/17-6/18	63,426,320									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/04-6/05	1.159	1.084	1.066	1.032	1.020	1.018	1.015	0.996	1.006	
7/05-6/06	1.192	1.105	1.065	1.041	1.019	1.017	1.009	1.005	1.008	
7/06-6/07	1.161	1.098	1.054	1.038	1.018	1.025	1.007	1.007	1.010	
7/07-6/08	1.208	1.090	1.060	1.035	1.040	1.014	1.006	1.013	1.001	
7/08-6/09	1.203	1.130	1.059	1.053	1.028	1.015	1.016	1.004	1.005	
7/09-6/10	1.213	1.097	1.082	1.077	1.034	1.013	1.020	1.002		
7/10-6/11	1.236	1.148	1.065	1.062	1.023	1.027	0.998			
7/11-6/12	1.235	1.122	1.081	1.057	1.041	1.011				
7/12-6/13	1.264	1.159	1.090	1.041	1.037					
7/13-6/14	1.304	1.163	1.079	1.061						
7/14-6/15	1.260	1.138	1.078							
7/15-6/16	1.267	1.123								
7/16-6/17	1.274									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.274	1.141	1.079	1.060	1.033	1.016	1.009	1.006	1.006	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.880	1.476	1.294	1.199	1.131	1.095	1.078	1.068	1.062	1.056

**LIMITED INDEMNITY LOSS  
DEVELOPMENT  
Not-Likely**

**Missouri**

01/01/21

1st Report Start: 7/1/2017  
1st Report End: 6/30/2018

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/04-6/05	153,963,719	162,850,099	168,125,804	170,244,621	171,229,670	171,878,571	172,360,979	173,273,486	173,472,044	173,113,149
7/05-6/06	147,478,853	157,943,608	164,060,221	166,495,078	169,362,459	169,315,079	170,012,167	169,695,199	169,884,450	169,487,780
7/06-6/07	151,819,694	164,230,930	169,498,764	173,131,217	174,361,556	175,769,718	175,355,137	175,604,930	175,916,976	175,564,477
7/07-6/08	147,714,143	159,379,477	167,941,265	172,880,371	173,571,859	174,182,814	175,146,585	175,184,872	175,009,255	175,171,636
7/08-6/09	139,687,182	154,274,723	162,009,873	164,259,555	164,639,976	166,277,817	167,130,375	167,879,518	167,598,132	167,979,672
7/09-6/10	134,849,777	146,367,706	154,581,843	157,837,138	159,961,330	159,773,503	160,005,401	162,026,809	162,057,075	
7/10-6/11	140,932,549	156,264,774	164,524,689	167,377,524	170,170,342	172,853,654	173,049,123	172,496,364		
7/11-6/12	140,534,996	153,244,036	163,114,120	166,105,999	168,444,626	169,151,181	170,515,393			
7/12-6/13	154,144,594	169,409,769	178,194,006	183,150,705	185,249,028	187,776,460				
7/13-6/14	155,583,072	172,095,640	181,798,724	187,657,938	189,659,306					
7/14-6/15	161,357,202	180,964,323	191,666,936	198,343,835						
7/15-6/16	164,852,431	182,224,185	192,427,327							
7/16-6/17	166,631,144	183,620,053								
7/17-6/18	177,311,890									

Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
7/04-6/05	1.058	1.032	1.013	1.006	1.004	1.003	1.005	1.001	0.998
7/05-6/06	1.071	1.039	1.015	1.017	1.000	1.004	0.998	1.001	0.998
7/06-6/07	1.082	1.032	1.021	1.007	1.008	0.998	1.001	1.002	0.998
7/07-6/08	1.079	1.054	1.029	1.004	1.004	1.006	1.000	0.999	1.001
7/08-6/09	1.104	1.050	1.014	1.002	1.010	1.005	1.004	0.998	1.002
7/09-6/10	1.085	1.056	1.021	1.013	0.999	1.001	1.013	1.000	
7/10-6/11	1.109	1.053	1.017	1.017	1.016	1.001	0.997		
7/11-6/12	1.090	1.064	1.018	1.014	1.004	1.008			
7/12-6/13	1.099	1.052	1.028	1.011	1.014				
7/13-6/14	1.106	1.056	1.032	1.011					
7/14-6/15	1.122	1.059	1.035						
7/15-6/16	1.105	1.056							
7/16-6/17	1.102								

AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
5 Year Averages	1.107	1.057	1.026	1.013	1.009	1.004	1.003	1.000	0.999

AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.243	1.123	1.062	1.035	1.022	1.013	1.009	1.006	1.006	1.007

**LIMITED MEDICAL LOSS DEVELOPMENT**

**Missouri**

01/01/21

*Likely*

1st Report Start: 7/1/2017  
1st Report End: 6/30/2018

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/04-6/05	102,901,807	109,548,383	112,018,719	113,313,720	115,348,918	115,484,370	114,888,543	116,326,595	116,168,539	115,965,251
7/05-6/06	99,323,294	106,494,451	110,979,108	114,405,386	114,845,328	114,274,953	114,483,824	115,053,323	114,218,196	114,214,813
7/06-6/07	100,854,536	105,262,138	108,886,106	110,393,045	111,390,966	111,011,418	112,211,487	113,066,299	113,408,269	114,173,457
7/07-6/08	100,533,090	106,442,753	110,879,923	114,192,455	114,978,382	114,979,764	115,149,833	115,033,467	114,769,376	114,524,663
7/08-6/09	81,308,701	88,082,227	89,043,099	90,604,958	91,445,358	90,922,546	90,663,811	90,810,422	90,696,941	90,496,918
7/09-6/10	88,550,954	96,355,353	96,689,851	97,648,134	97,963,684	97,419,312	97,202,420	97,107,599	96,812,573	
7/10-6/11	88,012,598	94,354,748	98,107,243	98,594,642	98,566,068	98,666,248	98,597,511	98,322,752		
7/11-6/12	87,546,132	92,904,216	95,374,686	95,879,380	96,297,478	96,713,871	96,114,484			
7/12-6/13	80,516,677	89,567,460	91,821,694	92,549,749	92,021,619	91,856,696				
7/13-6/14	85,660,592	92,602,473	95,520,106	95,957,001	97,743,978					
7/14-6/15	91,353,233	98,679,653	100,438,313	100,156,100						
7/15-6/16	92,766,074	97,522,946	98,512,254							
7/16-6/17	90,990,246	98,233,688								
7/17-6/18	92,887,496									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/04-6/05	1.065	1.023	1.012	1.018	1.001	0.995	1.013	0.999	0.998	
7/05-6/06	1.072	1.042	1.031	1.004	0.995	1.002	1.005	0.993	1.000	
7/06-6/07	1.044	1.034	1.014	1.009	0.997	1.011	1.008	1.003	1.007	
7/07-6/08	1.059	1.042	1.030	1.007	1.000	1.001	0.999	0.998	0.998	
7/08-6/09	1.083	1.011	1.018	1.009	0.994	0.997	1.002	0.999	0.998	
7/09-6/10	1.088	1.003	1.010	1.003	0.994	0.998	0.999	0.997		
7/10-6/11	1.072	1.040	1.005	1.000	1.001	0.999	0.997			
7/11-6/12	1.061	1.027	1.005	1.004	1.004	0.994				
7/12-6/13	1.112	1.025	1.008	0.994	0.998					
7/13-6/14	1.081	1.032	1.005	1.019						
7/14-6/15	1.080	1.018	0.997							
7/15-6/16	1.051	1.010								
7/16-6/17	1.080									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.081	1.022	1.004	1.004	0.998	0.998	1.001	0.998	1.000	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.179	1.091	1.068	1.064	1.060	1.062	1.064	1.063	1.065	1.065

**LIMITED MEDICAL LOSS  
DEVELOPMENT  
Not-Likely**

**Missouri**

01/01/21

1st Report Start: 7/1/2017  
1st Report End: 6/30/2018

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/04-6/05	220,323,177	222,181,247	224,103,020	223,283,193	223,427,182	223,859,953	223,269,624	223,246,842	222,765,592	222,809,420
7/05-6/06	229,660,457	231,894,531	232,046,284	231,763,368	231,264,814	231,053,325	231,442,581	231,216,653	231,009,339	231,007,234
7/06-6/07	241,306,088	243,502,966	245,021,830	246,691,026	245,444,289	245,542,135	244,872,395	244,090,067	244,259,979	243,719,247
7/07-6/08	243,699,208	247,359,165	249,999,730	249,947,774	249,328,811	248,757,192	248,888,610	249,613,161	249,912,879	249,675,120
7/08-6/09	235,382,638	240,558,389	243,160,990	242,547,891	241,434,652	241,906,796	241,753,544	241,726,384	241,760,628	242,002,224
7/09-6/10	240,958,854	244,822,641	245,982,044	244,390,674	243,563,947	243,158,152	243,611,923	243,554,766	244,123,607	
7/10-6/11	259,480,693	263,990,360	264,036,079	264,425,414	265,265,677	265,048,153	265,180,263	265,337,372		
7/11-6/12	258,173,684	259,475,257	259,957,587	260,239,592	260,515,446	260,597,290	260,692,346			
7/12-6/13	280,870,657	282,209,512	280,674,474	279,690,603	279,146,571	278,920,375				
7/13-6/14	288,917,634	290,063,212	290,890,174	290,762,417	290,331,292					
7/14-6/15	295,580,762	298,382,730	298,753,651	298,112,255						
7/15-6/16	314,385,521	316,836,577	319,445,775							
7/16-6/17	319,226,767	320,749,188								
7/17-6/18	342,270,269									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/04-6/05	1.008	1.009	0.996	1.001	1.002	0.997	1.000	0.998	1.000	
7/05-6/06	1.010	1.001	0.999	0.998	0.999	1.002	0.999	0.999	1.000	
7/06-6/07	1.009	1.006	1.007	0.995	1.000	0.997	0.997	1.001	0.998	
7/07-6/08	1.015	1.011	1.000	0.998	0.998	1.001	1.003	1.001	0.999	
7/08-6/09	1.022	1.011	0.997	0.995	1.002	0.999	1.000	1.000	1.001	
7/09-6/10	1.016	1.005	0.994	0.997	0.998	1.002	1.000	1.002		
7/10-6/11	1.017	1.000	1.001	1.003	0.999	1.000	1.001			
7/11-6/12	1.005	1.002	1.001	1.001	1.000	1.000				
7/12-6/13	1.005	0.995	0.996	0.998	0.999					
7/13-6/14	1.004	1.003	1.000	0.999						
7/14-6/15	1.009	1.001	0.998							
7/15-6/16	1.008	1.008								
7/16-6/17	1.005									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.006	1.002	0.999	1.000	1.000	1.000	1.000	1.001	1.000	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.013	1.007	1.005	1.006	1.006	1.006	1.006	1.006	1.005	1.005



**Class Ratemaking Research:  
Status and Results**

Presented by:  
**Tony DiDonato, FCAS, MAAA**  
Director & Senior Actuary

NCCI Actuarial Committee Meeting  
February 23, 2017  
Boca Raton, Florida

## Agenda

- Background
- Decisions to Date
- Methodology
- Stability Performance Results
- Accuracy Performance Results
- Remaining Work
- Timeline
- Appendix

Committee members and meeting participants are prohibited from discussing any matter pertaining specifically and directly to rates or loss costs in any particular state or states.



## Background

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## Background

- The new class ratemaking methodology was implemented with loss cost/rate filings effective October 1, 2009 and subsequent
- As reported at recent Actuarial Committee (AC) meetings, staff is in the process of reviewing class ratemaking, with particular emphasis on credibility and small classes
- This is a large multi-year project that is nearing completion

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## Background

- We've presented analysis over the past two years, including a summary at the last meeting
- Feedback has been received and considered
- Some final decisions have been made
- Some additional items are still being studied

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## Decisions to Date

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## Decisions to Date

- Decisions that have been made:
  - Keep National Pure Premiums (NPPs) rather than adopting Group Pure Premiums (GPPs)
  - Update credibility for Indicated Pure Premiums (IPPs) and NPPs with the following parameters:
    - Exponent of 0.5
    - Double today's Full Standards
    - Continue separate computations for indemnity and medical
- Performance results have been updated to reflect the proposed credibility selections

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## Decisions to Date

### Rationale for favoring NPP component over GPP:

- Performance results show NPP in combination with updated credibility is much improved over current
- While additional stability can be achieved using GPPs, updated credibility alone captures the majority of the potential improvement\*
- There would be significant changes in Formula Pure Premiums (FPPs) for the first two years+ if GPPs were implemented
- Testing shows that even if swing limits were removed in the initial year of implementation, more than twice as many classes would hit swings in Year 2 under GPPs than under NPPs

\* as measured by the number of classes exceeding 10%, 15%, 20% or 25%

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## Decisions to Date

Continued ...

### Rationale for favoring NPP component over GPP:

- In addition, there would likely be periodic, ongoing changes whenever the GPP groupings are reviewed (e.g. if groups are reviewed every 5-10 years, some classes may then shift into a different group)
- Testing shows significant GPP annual changes may occur in the highest cluster in small states
- While fewer clusters would likely be used in small states, it may then be difficult to precisely span the wide range of FPPs
- Preference for fewer changes over more: less disruption, less costly, etc.

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## Decisions to Date

### Rationale for Credibility parameters:

- The revised '93 method indicates an increased exponent, but the exact value is less clear\*
  - Difficult to determine the exact coefficient of variation (CV) since it is greatly impacted by the assumed (unknowable) distribution of FPPs
  - The slope of the fitted line used in deriving the exponent is significantly impacted by the exclusion of the smallest classes and to a lesser extent by the exclusion of the largest classes
  - The choice of fitting a single line, rather than a more complex shape, also impacts the results
- Assuming an underlying lognormal distribution for the FPPs, analysis was presented showing exponents of 0.79 with no exclusions, 0.48 with some small class exclusions, and 0.53 when small and large classes are removed
- An exponent of 0.5 (square root rule) has significant historical precedence\*\* and seems to be a reasonable selection given the range of results

\* See "Class Ratemaking Research: Credibility, Part 2" from Nov 2, 2016 AC meeting

\*\* See Longley-Cook, L.H., "An Introduction to Credibility Theory", PCAS XLIX, 1962

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## Decisions to Date

Continued ...

### Rationale for Credibility parameters:

- Determination of the Full Standard (FS) also requires judgment
  - Selecting the point where the slope of the fitted line flattens seems reasonable since that indicates further increases in class size does not significantly reduce the CV
  - As already noted, the CV is heavily dependent on the assumed (unknowable) distribution of FPPs
  - In addition, defining a "flat" slope requires judgment (slope <0.05?, <0.01?, etc.)
- Using performance results can aid in the selection of the FS:
  - While increasing the FS will increase stability, the law of diminishing returns applies
  - Accuracy results using an exponent of 0.5 show 2xCurFS does as well or better than other multiples of the CurFS
- The overwhelming majority of analyses indicated increases in the FS, and generally for at least double the current amounts

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## Decisions to Date

Continued ...

### Rationale for Credibility parameters:

- Increasing the exponent and FS achieve the project goal of stabilizing small classes
- Excellent performance results were achieved with the selected values
- Complicating the credibility formula with a "dual slope" approach added only marginal improvements
- Combined (indemnity+medical) credibility did not have a significant impact on performance and might be less precise under significant law changes

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## Methodology

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### Methodology: Yr1-to-Yr1 vs YrX-to-YrX+1

- At the October 2015 AC meeting, staff discussed the use of two different methodologies to compute current and alternative FPPs:
  - Yr1-to-Yr1
  - Yr1-to-Yr2 ... generalized as YrX-to-YrX+1
- A recap of these two approaches will be provided on the next two slides

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### Methodology: Yr1-to-Yr1

- Due to testing constraints, the Present on Rate Level (PORL) components initially underlying the alternatives for each year use the *current methodology*
- Because the PORL components underlying all alternatives for every year use the current methodology, this produces FPPs that are similar to what would be expected under *Year 1* of a new alternative, including the swing limits
- Directly comparing an alternative FPP from one year to the next year could then be viewed as comparing a "Year 1" value to a "Year 1" value; this is the Yr1-to-Yr1 approach

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### Methodology: YrX-to-YrX+1

- The YrX-to-YrX+1 approach simulates changes in the PORL by *replacing* the current-method PORLs with the alternative's FPPs from the prior year, to mimic the production process
- Unlike the actual production process, the FPPs used in this approach are *prior to* the application of swing limits ... so this removes the impact of swing limits from our testing (for both Cur and Alts)
- This approach is referred to as YrX-to-YrX+1

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## Stability Performance Results

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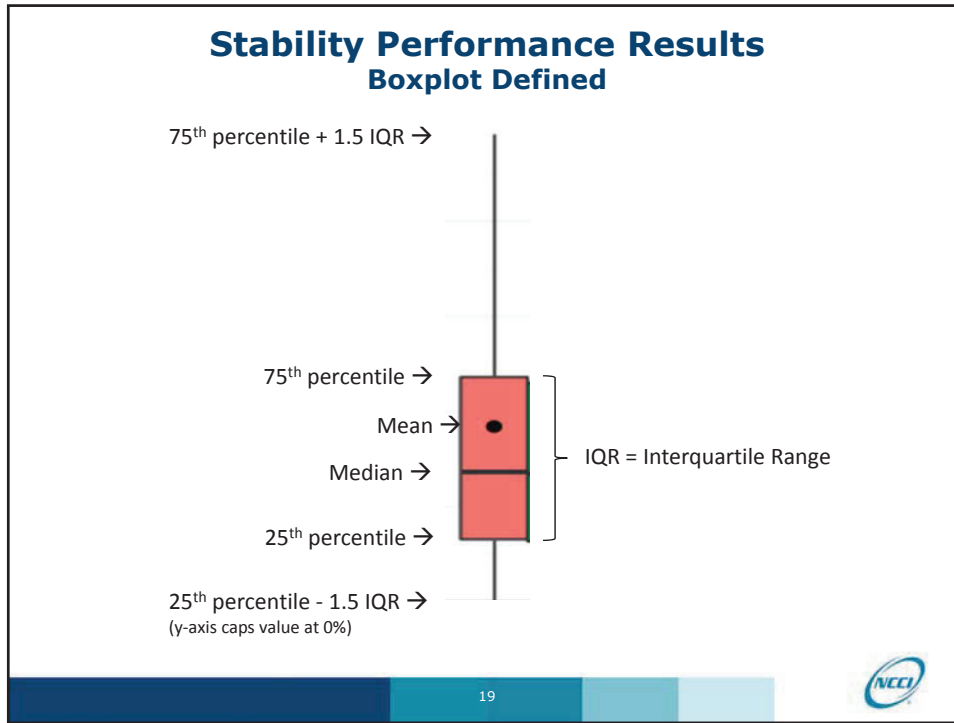
## Stability Performance Results

- New stability results have been produced using the YrX-to-YrX+1 approach\*
- Several FPPs are shown:
  - Current
  - Alts that use NPPs with a 0.5 exponent and various multiples of the CurFS
  - GPPs (7 clusters) with a 0.5 exponent and 2xCurFS
- Using 2010 as the year of initial implementation, the change from 2014 to 2015 (Yr5-to-Yr6) is shown because it is closer to a steady state result than earlier years
- While average changes and other metrics are of interest, large changes are the primary focus

\* The Appendix provides the rationale for this methodology

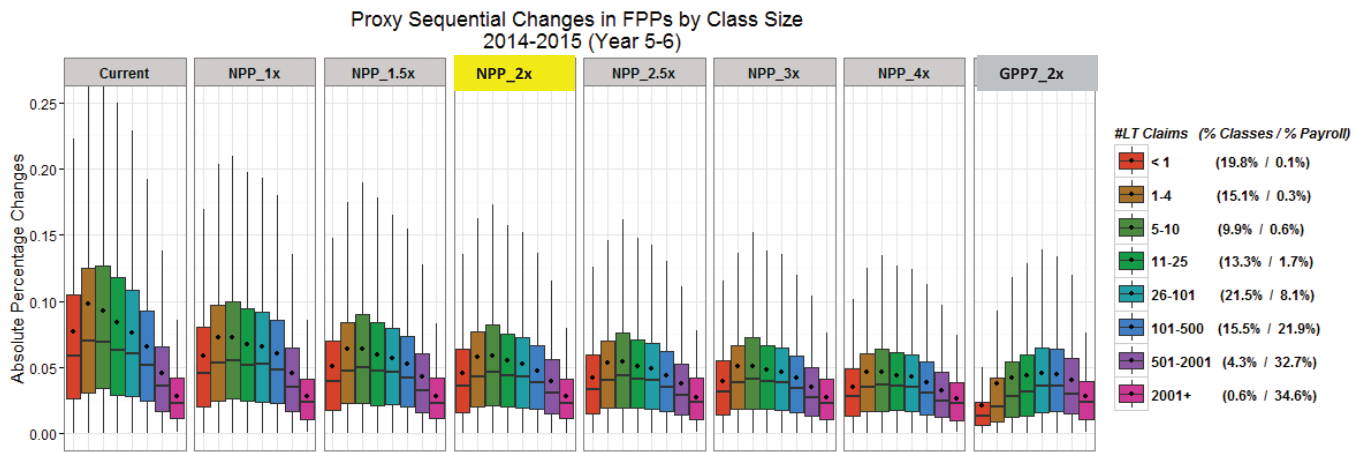
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# Stability Tests – Cur vs Various Alts

## Absolute % Changes



All of the Alts use an exponent of 0.5 and a multiple of the CurFS as labeled



## Stability Tests – Cur vs Various Alts

### Number of Codes Exceeding % Threshold (2014-2015 / Year 5-6)

	+5%	-5%	+10%	-10%	+15%	-15%	+20%	-20%	+25%	-25%	Total
<i>Current</i>	3,889	4,482	2,056	2,140	1,036	869	564	352	327	144	14,915
<i>NPP_1x</i>	3,489	3,930	1,520	1,496	632	466	293	149	127	58	14,915
<i>NPP_1.5x</i>	3,117	3,522	1,150	1,137	426	296	171	83	75	30	14,915
<i>NPP_2x</i>	2,838	3,220	932	900	305	205	110	68	57	14	14,915
<i>NPP_2.5x</i>	2,600	2,995	761	754	235	147	82	46	38	6	14,915
<i>NPP_3x</i>	2,393	2,777	650	636	183	123	65	33	33	4	14,915
<i>NPP_4x</i>	2,112	2,442	503	469	122	88	49	24	23	3	14,915
<i>GPP7_2x</i>	1,922	2,005	565	567	198	196	74	66	39	19	14,915

### Percentage of Codes within +/-X% (2014-2015 / Year 5-6)

	+/- 5%	+/-10%	+/-15%	+/-20%	+/-25%
<i>Current</i>	43.9%	71.9%	87.2%	93.9%	96.8%
<i>NPP_1x</i>	50.3%	79.8%	92.6%	97.0%	98.8%
<i>NPP_1.5x</i>	55.5%	84.7%	95.2%	98.3%	99.3%
<i>NPP_2x</i>	59.4%	87.7%	96.6%	98.8%	99.5%
<i>NPP_2.5x</i>	62.5%	89.8%	97.4%	99.1%	99.7%
<i>NPP_3x</i>	65.3%	91.4%	97.9%	99.3%	99.8%
<i>NPP_4x</i>	69.5%	93.5%	98.6%	99.5%	99.8%
<i>GPP7_2x</i>	73.7%	92.4%	97.4%	99.1%	99.6%

All of the Alts use an exponent of 0.5 and a multiple of the CurFS as labeled





## Stability Performance Results

- Stability performance results show that NPP with updated (2x) credibility is much improved over current
- The number of classes with annual changes of 10%, 15%, 20% and 25% is reduced significantly with updated (2x) credibility
- While additional stability can be achieved using GPPs, updated (2x) credibility alone captures the majority of the potential improvement

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## Accuracy Performance Results

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### Focus on Underwriting Test Results

- Consistent with prior meetings, the focus of our accuracy testing is on the Underwriting (U/W) test
- Because the U/W test divides the data into the fewest possible groups (two), it mitigates some of the “noise” inherent in the actual data underlying all of our statistical tests
- The following slides provide a refresher of the U/W test methodology

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### Recap: The Underwriting Test

- Cur and Alt FPPs are balanced (in total) to actual emerged experience
- The test divides classes into two groups\*:
  - Group 1: Cur FPPs < Alt FPPs
  - Group 2: Cur FPPs > Alt FPPs
- Loss ratios (ratios of actual losses to FPPs) are then computed for Cur and Alt for each group
  - Loss ratios close to 1.00 indicate FPPs that are appropriate (in total) for that group
  - If Alt yields loss ratios that are closer to 1.00 for each group than does Cur, it suggests Alt is more accurate than Cur

\* Due to the precision of the calculation, Cur FPPs = Alt FPPs does not occur

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### Recap: The Underwriting Test

- Note that the two groups used in the U/W test are far from random
- Random groups would typically yield loss ratios near 1.00 for any set of reasonable FPPs
- It is the construction of the groups that gives the test its power
- Note that Group 1 could be interpreted as a head-to-head matchup of Cur and Alt, where:
  - The Cur set of FPPs are indicating that the Alt set of FPPs are too high for that set of classes
  - The Alt set of FPPs are indicating that the Cur set of FPPs are too low for that set of classes
- And vice versa for Group 2

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### Recap: The Underwriting Test

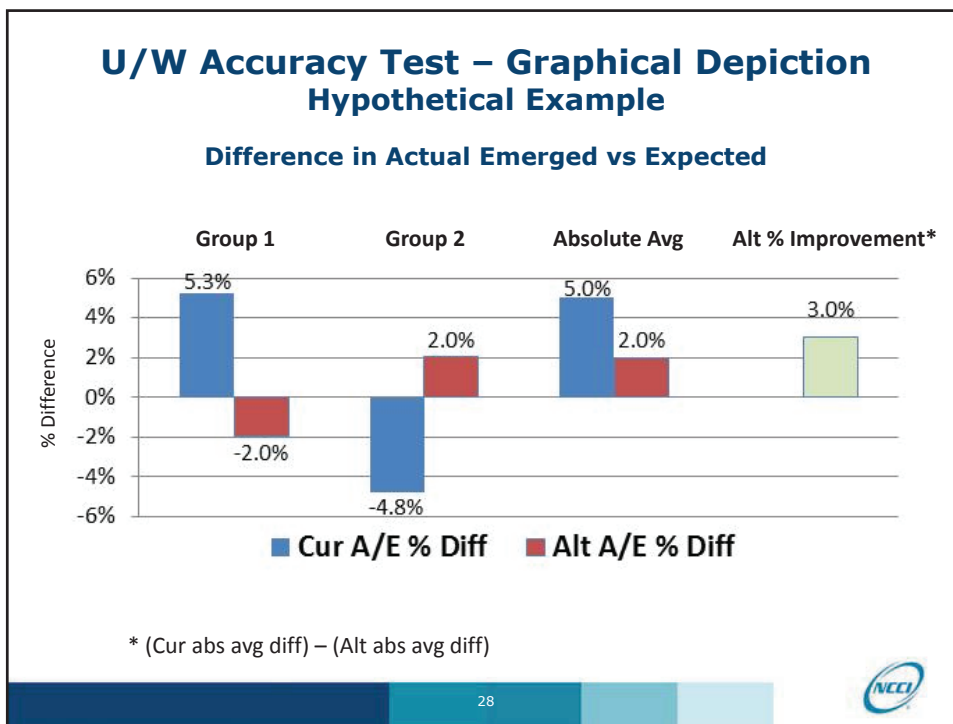
- Assume we have the following hypothetical U/W test results:

		Group 1	Group 2	Total
1	# of Classes	500	500	1,000
2	Actual Loss	10,000,000	10,000,000	20,000,000
3	Cur Loss Costs: Expected Loss	9,500,000	10,500,000	20,000,000
4	Alt Loss Costs: Expected Loss	10,200,000	9,800,000	20,000,000
5	Cur Loss Ratio = (2) / (3)	1.053	0.952	1.000
6	Alt Loss Ratio = (2) / (4)	0.980	1.020	1.000

- These results suggest that:
  - Cur is off by approximately 5% for each group
  - Alt is off by approximately 2% for each group
  - Thus, Alt is more accurate than Cur by approximately 3%

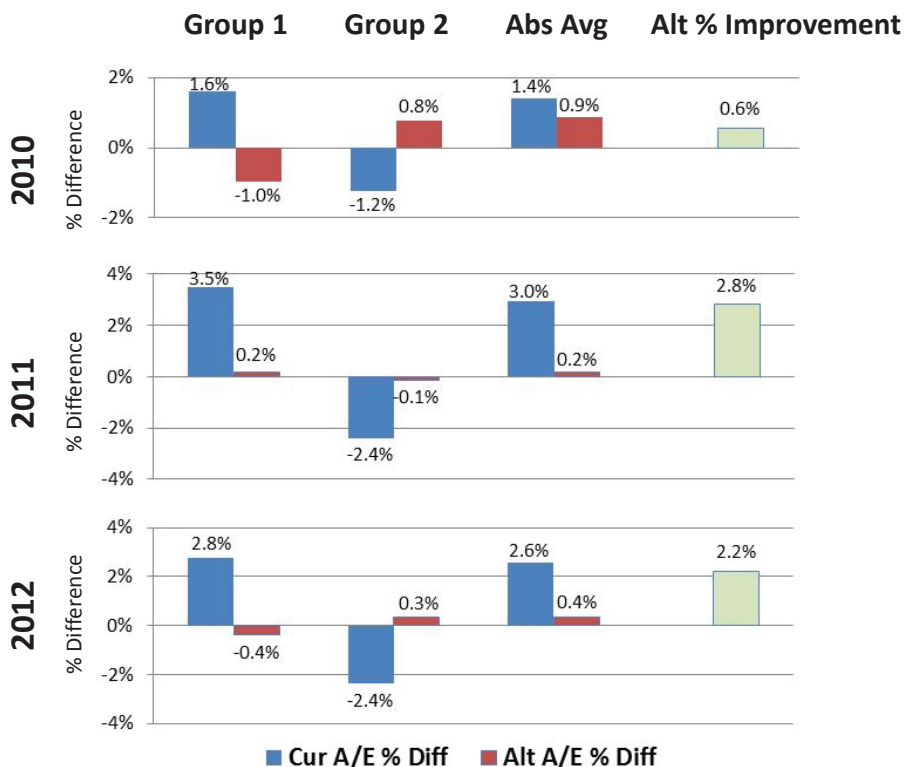
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- ### New Underwriting Test Results
- New U/W test results have also been produced using the YrX-to-YrX+1 approach
  - The same FPPs used in the stability testing are shown:
    - Current
    - Alts that use NPPs with a 0.5 exponent and various multiples of the CurFS
    - GPPs (7 clusters) with a 0.5 exponent and 2xCurFS
  - In addition, U/W results have been produced for the following subsets:
    - Select small states
    - Large classes
  - The new U/W results have been computed on a countrywide (all-states combined) basis
  - Policy Years 2010, 2011 and 2012 are included
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-

## U/W Accuracy Test – Current vs Proposed (2x) Difference in Actual Emerged vs Expected



■ Cur A/E % Diff ■ Alt A/E % Diff



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## U/W Accuracy Test – Current vs Proposed (2x)

### Difference in Actual Emerged vs Expected

		<u>Group 1</u>	<u>Group 2</u>	<u>Total</u>
2010	1 # of State-Classes	7,483	5,770	13,253
	2 Actual Losses	\$7,731,220,430	\$9,743,716,161	\$17,474,936,591
	3 Current FPPs: Expected Losses	\$7,609,319,770	\$9,865,616,821	\$17,474,936,591
	4 Proposed FPPs: Expected Losses	\$7,805,856,769	\$9,669,079,822	\$17,474,936,591
	5 Current Loss Ratio = (2)/(3)	1.016	0.988	1.000
	6 Proposed Loss Ratio = (2)/(4)	0.990	1.008	1.000
		<u>Group 1</u>	<u>Group 2</u>	<u>Total</u>
2011	1 # of State-Classes	7,416	5,901	13,317
	2 Actual Losses	\$7,304,633,086	\$9,948,046,252	\$17,252,679,338
	3 Current FPPs: Expected Losses	\$7,058,416,512	\$10,194,262,826	\$17,252,679,338
	4 Proposed FPPs: Expected Losses	\$7,291,588,521	\$9,961,090,817	\$17,252,679,338
	5 Current Loss Ratio = (2)/(3)	1.035	0.976	1.000
	6 Proposed Loss Ratio = (2)/(4)	1.002	0.999	1.000
		<u>Group 1</u>	<u>Group 2</u>	<u>Total</u>
2012	1 # of State-Classes	7,401	5,895	13,296
	2 Actual Losses	\$8,184,748,532	\$9,138,176,619	\$17,322,925,151
	3 Current FPPs: Expected Losses	\$7,964,239,076	\$9,358,686,075	\$17,322,925,151
	4 Proposed FPPs: Expected Losses	\$8,216,485,708	\$9,106,439,443	\$17,322,925,151
	5 Current Loss Ratio = (2)/(3)	1.028	0.976	1.000
	6 Proposed Loss Ratio = (2)/(4)	0.996	1.003	1.000



## U/W Accuracy Test – Current vs Various Alts

### % Improvement of Alt vs Cur

Alt % Improvement  
(Cur abs avg diff) – (Alt abs avg diff)

	<u>2010</u>	<u>2011</u>	<u>2012</u>
<b>1x</b>	0.4%	0.9%	1.0%
<b>1.5x</b>	0.8%	2.0%	2.2%
<b>2x</b>	0.6%	2.8%	2.2%
<b>2.5x</b>	0.5%	2.7%	2.8%
<b>3x</b>	0.6%	2.4%	2.6%
<b>4x</b>	0.7%	2.3%	1.8%
<b>GPP7_2x</b>	3.2%	4.0%	4.3%

All of the Alts use an exponent of 0.5 and a multiple of the CurFS as labeled

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## Accuracy Performance Results: Select Small States

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**U/W Accuracy Test – Current vs Various Alts**  
**Select Small States\***  
**% Improvement of Alt vs Cur**

**Alt % Improvement**  
(Cur abs avg diff) – (Alt abs avg diff)

	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>1x</b>	-1.3%	-0.9%	0.9%
<b>1.5x</b>	-2.7%	1.1%	0.2%
<b>2x</b>	-3.6%	1.1%	1.0%
<b>2.5x</b>	-3.5%	0.4%	-0.4%
<b>3x</b>	-4.2%	-0.8%	-1.7%
<b>4x</b>	-5.2%	-1.1%	-3.2%
<b>GPP7_2x</b>	1.9%	6.0%	1.6%

All of the Alts use an exponent of 0.5 and a multiple of the CurFS as labeled

\* Small states were reviewed since they have a higher proportion of small classes



**Accuracy Performance Results:**  
**Large Class Test Sets**





### Definitions of Large Class Test Sets

Two definitions of large classes will be used:

1. 400-850 LT claims in the state class
  - 400 LT claims underlie the cur IPP medical FS (100% medical credibility and 74% indemnity credibility)
  - 850 LT claims underlie the cur IPP indemnity FS and correspond to slightly more than the proposed IPP medical FS
2. 850-1700 LT claims in the state class
  - 850 LT claims underlie the cur IPP indemnity FS
  - 1700 LT claims underlie the proposed IPP indemnity FS

Classes with more than 1700 LT claims in a state are generally fully credible at the state level (IPP) under both current and proposed



### U/W Accuracy Test – Current vs Various Alts Large Class Test Sets % Improvement of Alt vs Cur

		Alt % Improvement (Cur abs avg diff) – (Alt abs avg diff)		
		<u>2010</u>	<u>2011</u>	<u>2012</u>
400-850 LT claims in the state class	<b>1.5x</b>	1.1%	1.2%	1.1%
	<b>2x</b>	1.9%	2.1%	2.0%
	<b>2.5x</b>	2.6%	2.8%	2.7%

		Alt % Improvement (Cur abs avg diff) – (Alt abs avg diff)		
		<u>2010</u>	<u>2011</u>	<u>2012</u>
850-1700 LT claims in the state class	<b>1.5x</b>	0.5%	0.4%	0.1%
	<b>2x</b>	0.9%	0.9%	0.0%
	<b>2.5x</b>	1.2%	1.3%	0.1%

All of the Alts use an exponent of 0.5 and a multiple of the CurFS as labeled



## Accuracy Performance Results

- Improved stability with no loss of accuracy is the primary goal of this project
- The prior slides reveal significant improvement in accuracy under updated credibility: exponent of 0.5 and 2xCurFS
- 2xCurFS generally does as well or better than other multiples of the CurFS

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## Remaining Work

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## Remaining Work

Some additional class ratemaking items are still being reviewed/considered:

- Industry Group Differentials
- Harwayne factors which adjust each state to the reviewed state's level when computing NPPs
- Balancing NPPs and PORLs to IPPs
- Potentially reseeding some small classes
- F-Classes, Maritimes and other special classes
  - These classes will benefit from the updated credibility changes
  - In addition, there is a separate joint project with Regulatory Services underwriting to further explore these classes

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## Timeline

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## Timeline

Action	Time Frame
Finalize all methodology changes for industrial classes	2017
F-Class/Maritime/FELA* analysis	2017
Include updated credibility and industrial class changes in filings	Filings eff 10/1/18 - 7/1/19
Include F-Class/Maritime/FELA changes in filings	Filings eff 10/1/19 - 7/1/20

\* FELA = Federal Employers Liability Act

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## Questions?

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## Appendix

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### Methodology: Yr1-to-Yr1 vs YrX-to-YrX+1

- While the Yr1-to-Yr1 approach was shown to be very close to YrX-to-YrX+1 in prior work, this was dependent on the alts being reviewed
- It is the PORL component under Yr1-to-Yr1 that uses the old method ... and this causes the underestimation of any improvement or deterioration of an alt
- When the PORL components are assigned the same credibility under two competing alts, the amount of underestimation is approx the same for the two alts

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### Methodology: Yr1-to-Yr1 vs YrX-to-YrX+1

- When comparing alts using NPPs with alts using GPPs:
  - The residual credibility assigned to the PORL component is larger for many classes under the NPP alts than under the GPP alts
  - If IPP and NPP credibility are both small for a given class, then PORL will receive a large weight
  - GPPs are deemed to be at least 50% credible and would always receive a weight of  $(1-IPP_2)/2$
- Because of this, the improvements under NPP alts are underestimated a bit more than those under GPP alts when using Yr1-to-Yr1

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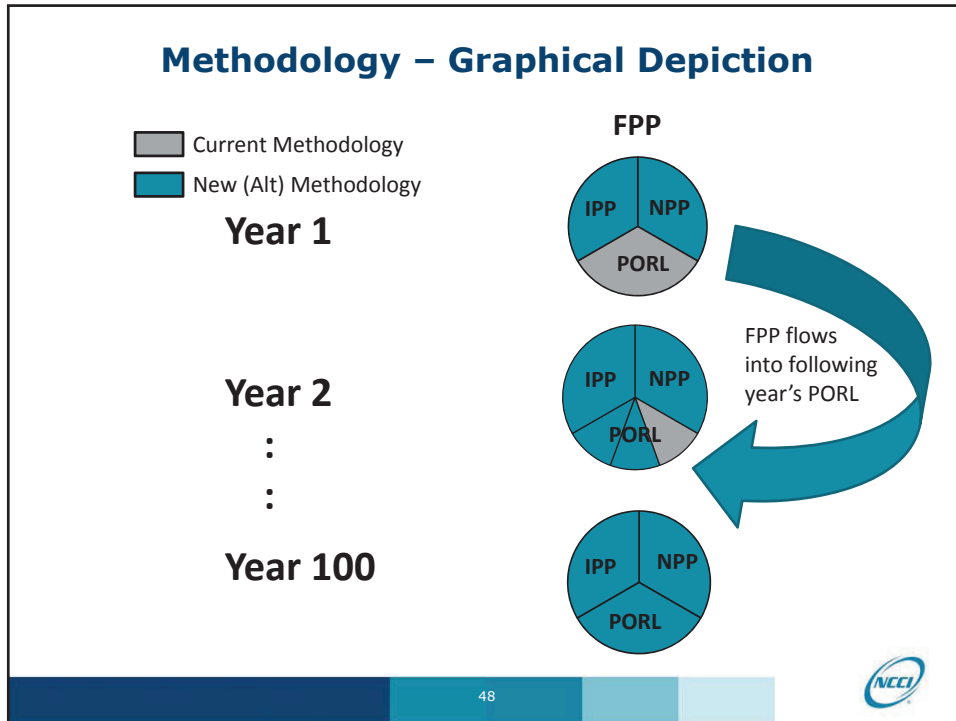



### Methodology: Yr1-to-Yr1 vs YrX-to-YrX+1

- Today's updated performance results use the YrX-to-YrX+1 approach
  - Yr1-to-Yr1 approach tends to underestimate the improved stability of alts that use NPP more so than alts that use GPP
  - YrX-to-YrX+1 approach treats both equally
- Stability results under the YrX-to-YrX+1 approach bring NPP alts closer to the GPP alts
- Consistent with prior analyses, the Industry Group changes within a state (from one year to the next) have been balanced/normalized to 0%

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## Class Ratemaking Research: Final Wrap-Up


Presented by:  
**Tony DiDonato, FCAS, MAAA**  
Director & Senior Actuary

NCCI Actuarial Committee Meeting  
February 22, 2018  
Boca Raton, Florida

### Agenda

- Background
- What's Changing
- Considered/Reviewed but Not Changing
- Federal Classes
- Summary

Committee members and meeting participants are prohibited from discussing any matter pertaining specifically and directly to rates or loss costs in any particular state or states.



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## Background

- As reported at Actuarial Committee (AC) meetings over the past three years, staff has engaged in an extensive review of class ratemaking, with particular emphasis on credibility and small classes
- The research portion of this project has been completed
- This presentation will provide a high-level wrap-up

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## Class Ratemaking Changes

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## What's Changing

- Credibility formulas for Indicated Pure Premiums (IPPs) and National Pure Premiums (NPPs) will be updated with the following parameters:
  - Exponent of 0.5
  - Double today's Full Standards
- These changes are planned for the upcoming rate filing cycle
- See Feb 2017 AC Agenda for more on this decision

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## Considered and Reviewed But Not Changing

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## Reviewed But Not Changing

Major items that were considered and reviewed but will *not* be incorporated:

- Basing credibility on indemnity and medical combined rather than separately
  - See Feb 2017 AC Agenda
- Changing the number of policy periods used for IPP and NPP
  - See Oct 2015 AC Agenda
- Implementing new pure premium components: frequency estimators, severity estimators and Group Pure Premiums (GPPs)
  - See Feb 2017 AC Agenda

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## Reviewed But Not Changing

Continued ...

Major items that were considered and reviewed but will *not* be incorporated:


- Reseeding the smallest classes
  - NCCI underwriting staff plans to eliminate/revise the classes we were considering for reseeding
- Eliminating Industry Group differentials
  - See AC Agenda for this meeting (Feb 2018)

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## Federal Classes

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## Federal Classes

- Federal classes consist of the USL&HW (F-Classes), Maritime and FELA classes\*
- These classes will benefit from the upcoming changes to credibility
- A separate project will determine whether any additional changes would be beneficial

\* USL&HW: United States Longshore and Harbor Workers Act  
FELA: Federal Employers Liability Act

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## Summary

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## Summary

- Credibility formulas for Indicated Pure Premiums (IPPs) and National Pure Premiums (NPPs) will be updated with the following parameters:
  - Exponent of 0.5
  - Double today's Full Standards
- These changes are planned for the upcoming rate filing cycle
- NCCI underwriting will be eliminating/revising approximately two dozen class codes as a result of our research
- Federal classes will be reviewed as part of a separate project

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NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI ADVISORY LOSS COSTS AND RATING VALUES FILING—JANUARY 1, 2021

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S REQUESTS  
DATED OCTOBER 13, 2020

- 1. Exhibit II, Section B, Page 43 of 98: Please provide the underlying data and analysis used to determine the Missouri Selected AOE provision of 9.1%. This would include the data and calculations used to determine the provision for the Missouri state fund that was weighted with the countrywide private carrier AOE provision.**

Please see the attached Exhibit 1 for the requested information.

State fund ultimate AOE ratios are determined based on data reported to NCCI on the financial Call for Loss Adjustment Expense (Financial Call #19). A weighted average of the state fund and private carrier AOE ratios is calculated, where the weights reflect the respective shares of ultimate projected losses for the loss cost effective period.

## Missouri

## Derivation of the Adjusting and Other Expense (AOE) Provision

	Private Carrier			State Fund		
	(1) Ultimate AOE Ratio Based on <u>Paid Data</u>	(2) Ultimate AOE Ratio Based on <u>Incurred Data</u>	(3) = [(1)+(2)]/2 Average Ultimate AOE <u>Ratio</u>	(4) Ultimate AOE Ratio Based on <u>Paid Data</u>	(5) Ultimate AOE Ratio Based on <u>Incurred Data</u>	(6) = [(4)+(5)]/2 Average Ultimate AOE <u>Ratio</u>
AY						
2015	7.8%	7.8%	7.8%	10.6%	9.9%	10.3%
2016	8.3%	8.2%	8.3%	9.7%	9.1%	9.4%
2017	8.9%	8.8%	8.9%	9.3%	8.5%	8.9%
2018	8.8%	8.8%	8.8%	9.6%	9.3%	9.5%
2019	9.0%	8.8%	<u>8.9%</u>	10.5%	10.5%	<u>10.5%</u>
(7) Selected AOE ratio			<b>8.9%</b>			<b>9.7%</b>
(8) Weights			71%			29%
(9) Weighted-average AOE ratio = (0.089 x 0.71) + (0.097 x 0.29) =				<b>9.1%</b>		

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI ADVISORY LOSS COSTS AND RATING VALUES FILING—JANUARY 1, 2021

RESPONSE TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S REQUEST  
DATED OCTOBER 20, 2020

- 1. Please explain why the Average Ultimate AOE Ratios provided in the response to the objection dated October 13, 2020 do not equal the AOE ratios in Exhibit II on page 43 of the filing.**

Please refer to Response 8 in connection with the objection letter dated September 28, 2020. Exhibit 8 provided in response to that prior request contains the calculations underlying the new AOE methodology proposed with this year's filing. Note that the historical countrywide AOE values shown for years 2015 through 2018 on page 43 of the filing are based on the current AOE methodology. The countrywide selected AOE provision shown on page 43 of the filing is based on the five years of AOE indications shown in the previously provided Exhibit 8. These five years of AOE indications are also reflected in the supporting calculations provided in response to the objection letter dated October 13, 2020.



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